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EFICEEC Foresight for Research

# Young Researchers in Forestry in Central and Eastern European Countries



EUROPEAN FOREST INSTITUTE  
CENTRAL-EAST EUROPEAN REGIONAL OFFICE – EFICEEC



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# Young Researchers in Forestry in Central and Eastern European Countries

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## Abstract

At the annual meeting of the Central-East European Regional Office of the European Forest Institute (EFICEEC) in 2011, a workshop was carried out with the aim to analyse the current situation of young researchers in forestry in Central-East European countries and to define measures for their support. The most prominent issues touched the topics “expertise and research facilities”, “international cooperation”, “motivation and interests” as well as “new products and services”. On the basis of this analysis, suggestions for actions by the young researchers themselves, by policy makers, by research institutions and finally by EFICEEC were formulated. International exchange is experienced as the most important factor for supporting young researchers. The support of students’ and young researchers’ mobility is therefore the most important measure which includes improvement of English language, international cooperation and networking as well as exchange programmes to be offered by universities, research organisations, policy, and research networks such as EFICEEC.





## 1 Introduction

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One of the aims of the Central-East European Regional Office of the European Forest Institute (EFICEEC) is capacity building for forest related research in the Central East European (CEE) region. One type of measures for research related capacity building is the support of young researchers, a measure which is, for instance, also supported by European Union programmes, COST, etc. Young researchers may be supported by various kinds of measures, including special education and training courses, sustenance, mobility, mentoring or networking.

Little is known about the situation and needs of young researchers in forestry in CEE countries. In order to find out more, a workshop was carried out, embedded in the annual meeting of EFICEEC (European Forest Institute – Central-East European Regional Office) in Křtiny in 2011. One session of the meeting was dedicated to this topic.

The aim of the exercise was to analyse the current situation young researchers in CEEC find themselves in and define necessary steps for their support by various stakeholders.

## 2 Results of the workshop

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The following results are understood as results from a participatory workshop. Due to the small number of participants in the workshop, they should be seen as preliminary results but can form a basis for further discussion and the further development of strategic actions.

### 2.1 Expertise and research facilities

#### 2.1.1 SWOT analysis

CEE countries have good natural conditions for forestry research (forest cover: 33% CZ, 41% SK, 33% LT), long tradition of this field and good facilities for training and research. The profile of forestry graduates is aimed at acquiring the necessary theoretical and practical knowledge in biological, technical and economic disciplines of both general and technical nature. Forestry faculties in CEEC often have their own training facilities (school forest enterprises with own or leased forests) where the transfer

The session was organized as a workshop in which nine young researchers from six different countries (Czech Republic, Estonia, Finland, Germany, Lithuania and Slovakia) participated. It was facilitated by two moderators. In a first step, the participating young researchers carried out an assessment of the strengths, the weaknesses, the opportunities and the threats (SWOT) of young researchers in the forestry sector. The emerging issues were clustered and overarching themes were defined. The four most prominent topics which were found were the following:

- expertise and research facilities
- international cooperation
- motivation and interest
- new products and services

Based on these, the young researchers defined appropriate actions, which can either be dealt with by themselves, by policies, by the institutions or by EFICEEC. The four topics were further discussed in smaller groups which further developed specific SWOT analyses and support measures for each topic and wrote up the discussion results.

from the theoretical knowledge into practise (e.g. CZ, SK, LT) is ensured. The forest training facilities serve students for gaining practical experience as well as researchers to carry out field studies or experiments. Forestry faculties commonly establish their own research objects (e.g. experimental plots) which are used for research purposes (e.g. CZ, SK, LT). Due to the long history of forestry research in the region there are many long term experiments and field studies carried out by universities for many decades that provide very valuable data for researchers of these universities.

Natural sciences and technical fields are highly recognized and play an important role in the education process. The existence of training facilities makes it easier to demonstrate the acquired theoretical knowledge in practice. In fields such as silviculture, forest management, the training facilities and equipment providing applied theoretical and practical knowledge represent a great contribution to forestry education. Also the expertise available in these fields is very good.

**Table 1.** SWOT analysis on “expertise and facilities in forestry education and research”.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Traditions in forestry research and education</li> <li>• Own training facilities (forests, school enterprise)</li> <li>• Own research objects (plots, forests, etc.)</li> <li>• Good facilities in some fields (e.g. genetics, silviculture)</li> </ul>	<ul style="list-style-type: none"> <li>• Lacking expertise in some fields (e.g. forest policy and economics)</li> <li>• Actuality sometimes missing</li> <li>• Missing facilities in some fields</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Cooperation with foreign experts</li> <li>• Networking</li> <li>• Mobility promotion</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of financial support</li> <li>• Lack of institutional support</li> </ul>

Social sciences are also recognized as important field for the whole graduate’s profile but the gained knowledge is often very theoretical without any implementation to the practise. In addition, social sciences in forestry education in CEE region are often thought as only “not important addition” to main forestry fields such as silviculture, forest management etc. and, therefore there are usually only few people within universities dealing with this subject (e.g. forest policy and economics). For example in Slovakia, the curriculum often contains only few compulsory courses regarding forest policy and economics which have a very basic character and do not go into detail (voluntary courses exist but are not often selected by students).

Despite excellent facilities the education processes and research activities face several problems. The SWOT analysis shows that in some countries (e.g. SK, CZ) even though there is tradition and expertise in forestry research, even interesting results are most often not published in English outside the country and are therefore not highly recognized internationally.

Another problem is the missing actuality in some fields. Many courses provide often old information and are based on knowledge existing for long time not taking into account new developments in forestry (research and practise). New findings in the field are not presented to students. They usually have to use traditional study material which is in many cases out of date. Interactive teaching methods are scarce.

Regarding young researchers, the situation is similar. Research prerequisites are good in terms of traditional forestry fields such as forest management, silviculture, forest protection etc. In social sciences field the situation is different. There are experts dealing with forest economics at universities but they are in many cases strongly specialized on one topic (e.g. calculations,

risk assessment, efficiency) or they have a broad scope of interest which is resulting from the curriculum (subjects as forestry economics, business management). Forest policy is still a new research topic in many CEE countries (e.g. SK, CZ). However, some research institutes that are not part of universities have a stronger focus on social sciences, they also often have a special department dealing with forest policy and related topics (e.g. NFC in Slovakia). Therefore the cooperation between universities and research institutes is crucial.

### 2.1.2 Proposed actions

The opportunities for young researchers and students in both natural and social sciences are the access to mobility programmes, which are offered by domestic or foreign agencies or programs where researchers can apply for various mobility scholarships. In many cases, one of the conditions is to have an invitation letter or confirmation from the receiving institute. For that reason it is a great opportunity to meet at a forum like EFICEEC because it facilitates networking and cooperation with foreign experts. Exchange of knowledge and research experiences can help young researchers to become more successful in their work, be better researchers and help them to be nationally and internationally recognized in their research topic.

The institutions of CEE countries can use their strengths in order to link up with project consortia or other networks where these strengths are an asset. In such networks the institutions of the CEE countries have the opportunity to deal with their weaknesses, especially gaining international competence as well as linking up with experts to provide the lacking competences e.g. in forest policy and forest economics. Concrete steps include changing course curricula so that lacking competence can be built, namely studying abroad should become compulsory for

every degree as well as courses which are taught in English. Concrete programmes within the institutions should be developed in order to strengthen international networks in the sector.

## 2.2 International cooperation

### 2.2.1 SWOT Analysis

CEE countries have a huge potential for international cooperation because their forest research institutions can built upon strong and close relations among each other. For instance Slovak and Czech forest research institutes still continue collaborations, which had started in the time of the formerly combined Czechoslovakia. Many institutions have also been conducting long-term research, which provides them an

extensive amount of available data in many fields of forest research. As most of the CEE countries are members of European Union nowadays, joint projects are receiving substantial and necessary financial support by the EU (e.g. FutMon, BioSoil). The Lithuanian Forest Research Institute is a member in the International Union of Forest Research Organisations (IUFRO) and has signed cooperation agreements with Germany, Poland, Slovakia, Latvia and other forest research institutes.

Despite these strengths obstacles still exist that impede the cooperation outside of common linguistic areas. In many institutions the use of the English language is not prevailing, especially undergraduate students are reluctant to participate in the existing European mobility offers to the full extent. Moreover, institutions lack the capacities to completely utilise the earlier mentioned extensive databases for international cooperation.

Table 2. SWOT analysis on “international cooperation in forestry education and research”.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Strong relations among research institutions in CEEC</li> <li>• EU membership of most CEEC and access to financial support</li> <li>• Link to IUFRO</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of a strong proficiency of the English language at several levels of education</li> <li>• Lack of capacity to use the available networks fully</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Cooperation with countries which have the same bio-geographic features</li> <li>• Networking</li> <li>• Mobility promotion</li> <li>• Scientific publication in international journals</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of financial support</li> <li>• Lack of institutional support</li> </ul>

Nevertheless there are opportunities for collaborations due to the similar historic development, as well as common climate and bio-geographic features in most of the CEE countries. Two examples are the Carpathian mountain chain stretching over many of the CEE countries and the Danube River, flowing all the way from the German Black Forest to its delta at the Black Sea. Similar existing and emerging problems in the fields of forest ownership, policy or even tackling bark beetle calamities can facilitate the adaptation of international projects.

An important opportunity is that if young researchers of CEE countries would increase their competencies in publishing their research in international journals, then the impact would be observed quickly.

The usual issue for international cooperation is a lack of funding, especially in small countries with a low research budget in the fields of natural or social sciences. Acquiring support from partners in the forest industry can be weary when timber prices are at a low level. Thus, in some cases research activities are directly subjected to economic maxims.

### 2.2.2 Proposed actions

To build upon the existing strengths and to tackle the problems ahead young researchers have to be determined to increase their language proficiencies in English. Opportunities to participate in exchange programmes or other temporary stays abroad are in

place and can contribute greatly, as are possibilities to get involved in international working groups.

Concerning policies, mobility programmes need further promotion and reduced bureaucratic expenditures to be fully embraced by students and postdoctoral employees, especially in post-communist countries.

For universities it is important to orientate curricula towards the use of English language in lectures, papers and theses contributing to a better command of that foreign language. Especially courses providing academic communication skills for scientific presentations and publications are a vital tool for future careers.

As a catalyst for networking and capacity building international cooperation is the main field of action for EFICEEC. It can foster and facilitate communication between different institutions, combining their expertises and help individual institutions to

overcome their lack of capacities. Fulfilling its mission of advocacy it can strengthen the profile of the forestry sector. By promoting the importance of forest goods and services for modern society EFICEEC can lobby for greater support from national governments and the EU.

## 2.3 Motivation and interest

### 2.3.1 SWOT analysis

In Western European countries, issues like motivation and supporting highly motivated people has been an issue since decades, however in CEE countries governments still rather support the car industry and bank sector, than agriculture which involves also forestry. Despite the above-mentioned strengths in the forestry facilities, there is still a lack of motivation of PhD students and young researchers to study the field of forestry. One major reason for this is low income in the forestry sector.

**Table 3.** SWOT analysis on “the motivation and interests of researchers in the forestry sector”.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• good natural conditions for the job of foresters</li> <li>• long tradition of forestry</li> <li>• good technical facilities</li> </ul>	<ul style="list-style-type: none"> <li>• low salaries (scholarships) in forestry</li> <li>• lack of support by supervisors</li> <li>• poor management of state forests</li> <li>• many tasks not related to their topics</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• possibility to go abroad               <ul style="list-style-type: none"> <li>○ experiences</li> <li>○ cooperation</li> </ul> </li> <li>• connection between industry and academic sector</li> </ul>	<ul style="list-style-type: none"> <li>• graduated students choose better paid job in private sector</li> </ul>

Students who decided to do their PhD in the forestry sector often experience the little interest of their supervisors and a lot of work not related to their topics. Corruption and low transparency in state forest management also take from the good reputation of this field. As the consequences of the above-mentioned barriers graduated students are choosing a better paid job in private sector, other fields, or abroad.

### 2.3.2 Proposed Actions

It is important to state here, that motivation is not uniquely a problem of low monetary incentives but rather a net of several

factors out of which salaries are mentioned most frequently especially if the researchers can directly compare with researchers of countries which have no communist history. Setting up conditions which favour and enhance the motivation of young researchers in countries with a communist history are at its infancy, so a lot of development is needed at all levels. Increasing monetary incentives (e.g. salaries) might be an immediate action; however a success is highly questionable if the other shortcomings are not addressed. The focus on increasing salaries might even be contradictory in times where budgets need to be cut back all over Europe. But there are other crucial steps, one, to accept less students for doctoral studies per

supervisor. Research institutions should also put a stronger effort on benefiting from international programmes and this could bring higher available budgets. EFICEEC could streamline such an effort in its whole network.

Another suggestion is to foster the cooperation between private and academy sector which can benefit both sides. Also the possibility of working towards a higher contribution from the state should not be overlooked since forestry is still an important sector.

Furthermore, the possibilities for research or travels abroad can increase the motivation of the researcher, especially the young ones who are more susceptible towards new ideas and innovations. Students can gain valuable experiences and establish co-operation abroad. Another idea is to put on a seminar or “welcome presentation” where more experienced PhD

and PostDoc students could present to new young researchers the options and opportunities offered by their university or institution.

## 2.4 New products and services

### 2.4.1 SWOT analysis

The operational environment of the forest industry has changed a lot in the beginning of 21st century. The traditional forms of wood usage, for example the pulp and paper industry in Europe, have decreased when local consumption has reduced. This has led to the need of new products and services which replace old operational models. In this report several new products and services (bio-energy, wood construction, wood-based medication and new non-wood forest products) and their potential have been examined briefly.

**Table 4.** SWOT analysis on “new products and services in the forestry sector”.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Renewability of wood.</li> <li>• Environmental advantages compared with other materials (e.g. energy consumption in manufacturing)</li> <li>• Positive image of wood products among many consumer groups</li> <li>• Multi-functionality of forests (e.g. timber, recreation)</li> </ul>	<ul style="list-style-type: none"> <li>• Low R&amp;D funding level in forest industry</li> <li>• Mainly project based public funding (e.g. Estonia)</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Totally new application for wood products (e.g. in chemistry)</li> <li>• Bio-energy: output for lower quality timber and felling residues, thus additional income for forest owners</li> </ul>	<ul style="list-style-type: none"> <li>• Structural change of forest sector continues and not enough new products are developed which leads to permanent stagnation of forest sector</li> <li>• Nature protection: impact of environmental limitations on the competitiveness of traditional forestry. (e.g. the situation of forest owners in Europe vs. forest owners in South America or in Asia)</li> <li>• Market distortion caused by the subsidies using wood for energy. Competition between traditional forest sector and energy sector.</li> </ul>

Renewable energy has been one of the key issues in energy policy in the European Union. The renewable Energy Directive 2009/28/EC sets targets for all EU member states such that the EU will reach 20% renewable energy share by 2020. This is caused by the efforts to slow down climate change and the use of fossil fuels. In many countries, wood-based bio-energy is one of the major forms in renewable energy policy. This has created new demands for low-quality wood and wood residues. The Directive also established schemes for bio-fuels. Forest energy value chains include wood chips, firewood, pellets, briquettes, wood coal, liquid fuels etc.

In wood product industry there are several ways to increase added value. This has led to new processed products in value chains of sawn wood and wood-based panels. The wood construction industry is one of the most important users of wood products. In several countries such as in the UK and Sweden high-rise construction with wood has become more and more common. Main advantages of wood construction include the use of renewable material and low energy consumption in material manufacture.

In R&D actions, medication based on wood chemistry has attracted more and more attention. Wood contains thousands of chemical compounds which have potential use in medicines, food products and chemicals. These include lignan, stilbene, tannins etc. Thus, many of the wood compounds and their potential use have been examined only slightly.

The common factor for wood-based products and services is that there is the aim to replace the conventional use of wood and add value to the forest sector. On the other hand, the problem in the forest industry is that the proportion of R&D action is much lower compared with many other industry sectors.

In addition to wood-based products, more and more focus has been given to non-wood forest products. One characteristic trend in European forestry during the last decades is the increasing importance of non-timber values besides traditional forest use. For example between 1995 and 2005, the share of forests providing environmental and protective services has increased from 4 to 10 percent (FAO, 2007; MCPFE, 2007). In certain areas there is need for new services which are based on recreational purposes, hunting, berry picking etc.

New products and services generate a need for new research topics both in research institutes and forest industry. There is also more and more need for cross-sectoral research, for example, of construction and energy sectors and in medicine. New products and services also create the need to renew and widen forestry education.

Many of the issues, mentioned here, are valid for the whole EU area. However, there are some major differences between countries. In the renewable energy policy, wood energy has the most important significance in countries with large forest resources such as Sweden and Finland. It also seems that there are big differences in wood construction in different countries. Especially in Southern Europe other materials are more common. Also the significance of multiple-use of forest areas varies in different countries. In education and research many of the questions are country-specific.

#### 2.4.2 Proposed actions

The new products and services require a variety of actions from different groups. For young researchers, networking, mobility and information exchange may help in recognizing country-specific and international (or EU-wide) problems and their solutions. In exchange and information policy the strategies for promoting added value products should be created.

In institutes the new topics should be taken into curricula and cooperation inside the universities relating to different cross-sectoral topics should be increased. For example, following topics should be examined:

- Carbon sequestration and its significance for bio-energy and wood product use
- Joint studies with technical and medical research
- Innovation studies: support for innovative use of wood products
- Public forestry: attitudes and needs of societies (relating to the multi-functionality and non-wood forest products use)

Also low R&D funding in forest sector should be dealt with and common research with industry should be established. EFICEEC could give networking support for new topics relating to the structural change in forest sector.

### 3 Conclusions

The outlined analysis gives an indication how young researchers in the forest sector perceive their situation. It is not an extensive study with in-depth analysis, but it paints a picture which could be the basis for further planning for the concerned stakeholders at all levels. Due to the communist history of most CEEC countries, they have specific needs in the development of the countries in general and in the research in the forest sector in particular.

The picture we see is that these countries have made important steps towards a market-based economy; however profound

changes take their time. Concerned stakeholder need to take this into account before any adequate planning can take place.

The strengths are found mainly in the research facilities and in the strong expertise in the traditional forestry knowledge. The motivation of young people to engage in research in the field of forestry seems to be low and in the field of international cooperation there is still a lot to be improved. This leads to the threat that the forest sector and the research sector in the field of forests may not be capable to take advantage of the new developments in the sector, namely new products and services.

**Table 5.** Summary of proposed actions.

By whom	Proposed actions
<i>By the researchers themselves</i>	<ul style="list-style-type: none"> <li>• Improve language proficiency</li> <li>• Access existing mobility programmes</li> <li>• Take part in international student and researcher networks</li> <li>• Mutual mentoring, e.g. by “welcome presentations” from older students and researchers for younger colleagues</li> </ul>
<i>By the research organisations or policy</i>	<ul style="list-style-type: none"> <li>• Link up with international project consortia and networks</li> <li>• Adapt curricula to include new research fields and topics, including: social sciences, communication, non-wood forest products and services, innovation, cross-sectoral and interdisciplinary studies</li> <li>• Adapt curricula to include compulsory English language courses and compulsory international exchange</li> <li>• Launch student and researcher exchange programmes</li> <li>• Offer competitive salaries and other incentives to make the field of forestry and forestry research attractive</li> <li>• Foster the cooperation between the academic and private sectors</li> </ul>
<i>By EFICEEC</i>	<ul style="list-style-type: none"> <li>• International networking and communication</li> <li>• Support young researcher exchange</li> <li>• Promote forestry and forest goods and services</li> </ul>

There are many actions which can be effective in order to improve the situation of young researchers (see table 5). An important issue for students and young researchers is to improve their English proficiency and to use mobility grants and programmes that do exist. Universities are called to modernize their curricula, for instance, to foster English language

requirements and to support and encourage international exchange.

Since EFICEEC sees itself as an international research unit to provide integrative forestry related research and capacity building in those countries, it can be an effective facilitator in this respect.

Young researchers are particularly crucial because they are the generation with the highest potential for innovations, the capability of prime importance. Policy makers are also bound by many limitations, however with well thought through decisions and actions, the motivation and willingness to perform of the young researchers can be increased tremendously. Especially international experience in any form is on one side a strong motivating factor, on the other side creates the important access to international expertise. Young researchers have many ideas for

also inexpensive actions and it often just takes a bit of dedication from decision makers to make those small steps happen.

The results of the exercise also drastically shows us that the research institutions where the participating young researchers came from, have not yet succeeded to position themselves and find a satisfactory role between the enormous pressure for change on one side and the need to find a way of how to use the institutional realities as a strength.



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# Young Researchers in Forestry in Central and Eastern European Countries

At the annual meeting of the Central-East European Regional Office of the European Forest Institute (EFICEEC) in 2011, a workshop was carried out with the aim to analyse the current situation of young researchers in forestry in Central-East European countries and to define measures for their support. The most prominent issues touched the topics “expertise and research facilities”, “international cooperation”, “motivation and interests” as well as “new products and services”.

On the basis of this analysis, suggestions for actions by the young researchers themselves, by policy makers, by research institutions and finally by EFICEEC were formulated. International exchange is experienced as the most important factor for supporting young researchers. The support of students’ and young researchers’ mobility is therefore the most important measure which includes improvement of English language, international cooperation and networking as well as exchange programmes to be offered by universities, research organisations, policy, and research networks such as EFICEEC.

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