

Funding institution

VolkswagenStiftung, Kastanienallee 35, D-30519 Hannover. Website: www.volkswagenstiftung.de

Program

Trilateral Partnerships - Cooperation Projects between Scholars and Scientists from Ukraine, Russia and Germany (Application date: April 30, 2015)

Project title

Strengthening the Adaptive Potential of the Forests of Western **Ukraine**, Northwest **Russia** and Southwest **Germany** to Changing Environmental Conditions and Societal Needs – **SURGE**

- Strategies and Measures for Increasing and Sustaining the Provision of Forest Ecosystem Goods and Services

Partners

Partner 1 (P1): Albert-Ludwigs-University Freiburg, Germany, Faculty of Environment and Natural Resources, Chair of Forest Growth, Prof. Dr. Heinrich Spiecker (Director), Dr. Hans-Peter Kahle (Assistant professor) - P1 ALU-FR

Partner 2 (P2): Ukrainian National Forestry University, Lviv, Institute of Silviculture, Prof. Dr. Vasyl Lavnyy (Professor) - P2 UNFU-LV

Partner 3 (P3): St. Petersburg State Forest-Technical University, Russia, International Center of Forestry and Forest Industries, Prof. Dr. Alexander Alekseev (Director), Prof. Dr. Maxim Chubinsky (Assistant professor) - P3 SFTU-SP

The German partner already maintains a long-lasting co-operative partnership to the Ukrainian as well as to the Russian partners involved in this proposal.

Project Description

The aim of the proposed project is to increase and sustain the provision of ecosystem goods and services from the forests of Western Ukraine, Northwest Russia and Southwest Germany under changing environmental conditions and societal needs. Strengthening the adaptive potential of the forests will be achieved by the development of strategic and operational management tools in a sequence of collaboratively organized and implemented scholarly meetings to be held in each of the three participating countries. The outcome of the project will be a guideline consisting of a toolkit designed to increase and sustain the provision of forest ecosystem goods and services under changing conditions.

We apply for the funding of seminars, summer schools, and workshops in the fields of forest management planning and forest resource management to be held in Freiburg, Lviv, and St. Petersburg. The planned activities reach from March 2016 to June 2018 (28 months). The proposed activities also encompass the establishment of demonstration plots at the Ukrainian and Russian

partner institution for educational, training and research purposes as well as the setting-up of a tree-ring measuring station at the two partner institutions as measures of sustained capacity building in silvicultural techniques, production ecology and forest growth research. Junior scientists (postgraduate students, doctoral students, young post-doctoral scientists) from the three participating countries are involved in all activities.

Academic program (Meeting program)

The academic program encompasses organization and implementation of three seminars, two summer schools, two workshops, as well as the installation of demonstration plots and the setting up of a tree-ring measuring system at two partner institutions. The project will be coordinated and managed by the steering committee, consisting of the principal scientists nominated at each partner institution and chaired by the coordinator. The steering committee is responsible for internal and external communication, for the establishment and maintenance of the project website, for bookkeeping and for representation of the project consortium. The guideline to be developed will be edited by the steering committee.

Seminars

The scheduled seminars are designed as meetings of a number of scholars and experts in the fields of forest management and forest management planning at which papers are presented by specialists on particular subjects and discussed with the aim to develop tools for better understanding, organizing, managing and ensuring in the context of forest adaptation. The seminars will be structured around an evaluation of the strengths, weaknesses, opportunities and threats involved in forest resources management in each specific region. This provides a chance for the seminar participants to recognize the common and unique opportunities and challenges facing forest academics and forest managers across the different countries. Excursions to forests in the selected regions will provide insight into important management aspects on the tactical, operational as well as technical level. The contribution of the seminars to the final guideline is in developing tools for better understanding, organizing and sustaining forest adaptation. Each seminar will provide country-/regional-specific contributions to this guideline. The presented papers will be compiled and published online as "SURGE Seminar Proceedings".

Several seminar speakers and participants are fixed, additional seminar speakers and student participants will be selected by the steering committee according to preselected criteria (transcript of records, specialization, and English language skills).

At each seminar invited talks will be provided by approximately five speakers. The number of seminar participants will be approximately 15 experts and nine junior scientists (five and three from each participating country). The list of speakers (approved and tentative) and of the participants can be found in the annex.

The schedule for the seminars is as follows:

Seminar 1 (SE1) to be held in Freiburg, Germany, May 2 to 9, 2016

Title of SE1: Future forests - A German Perspective

Tentative program of SE1 (keywords): Status of forests in SW Germany, Role and mapping of ecosystem services, Planning tools, Current risks and challenges, Forest adaptation measures, Excursion to the Black Forest

Seminar 2 (SE2) to be held in St. Petersburg, June 19 to 26, 2017

Title of SE2: Forest Management and GIS - Federal and Regional Levels

Tentative program of SE2 (keywords): Forest management in NW Russia, Application of GIS technology, Forest inventory, Remote sensing in forestry, Forest modeling, Excursion to forest plots

Seminar 3 (SE3) to be held in Lviv, May 27 to June 3, 2018

Title of SE3: Increasing and Sustaining the Provision of Forest Ecosystem Goods and Services in Western Ukraine

Tentative program of SE3 (keywords): Societal needs and forests, Multifunctional forestry, Conversion measures, Close-to-nature silviculture, Certification of forest enterprises, Excursion to forests in the Lviv region.

Summer schools

The scheduled international summer schools will bring together experts and young scientists (doctoral and postgraduate students) from the three different universities and with different backgrounds (including forest sciences, environmental sciences, ecology, environmental governance, land-use planning) to discuss current problems, management options, potential trade-offs and implications, and possible solutions in an inter- and trans-disciplinary context and interactive environment. Via case studies of successful implementation of GIS technologies (SS1) or adaptation measures (SS2), participants will learn ecological, social and economic best practices for successfully carrying out own implementation or adaptation projects. Participants will leave the summer schools with a toolbox of methods and strategies they can apply to their particular challenges, as well as a peer network from around the different countries to support them in continued learning and project implementation. The contribution of the summer schools to the final guideline is in developing tools for better understanding, organizing and managing forest adaptation.

At each summer school invited talks will be provided by a number of speakers. The number of summer school participants will be approximately six experts and nine junior scientists (two and three from each participating country). The list of expert lecturers (approved and tentative) and of the participants can be found in the annex. The summer schools are scheduled in conjunction with the scientific seminars.

Summer School 1 (SS1) to be held in St. Petersburg, June 26 to 30, 2017

Title of SS1: Forest Management and Remote Sensing

Tentative program of SS1 (keywords): Remote sensing in forestry, Forest and production: Site quality and forest growth modeling (wood production including biomass for energy), Best management practices

Summer School 2 (SS2) to be held in Lviv, June 4 to 9, 2018

Title of SS2: Adaptive Potential of Managed and Primeval Forests of Ukrainian Carpathians to Changing Environmental Conditions

Tentative program of SS2 (keywords): Ecological and social importance of primeval forests, Climate adaptation vs. biodiversity conservation, Research initiatives in primeval forests, Stand structural features, Excursion in virgin beech forests, virgin spruce forests and virgin mixed silver fir-beech-spruce forests.

Workshops

The workshops are designed as a series of dedicated educational and work-sessions. Small groups of experts and young scientists meet together over a short period of time to concentrate on the defined area of concern. Purposes of the scheduled workshops are informing, discussing, problem-solving and training.

The two scheduled workshops are targeted towards introducing, demonstrating, implementing and applying tree-ring based studies at the Ukrainian and Russian partner institution. At each workshop talks, lectures, demonstrations and training sessions will be provided by a number of experts. The number of workshop participants will be approximately three experts and nine junior scientists (three from each participating country). The list of expert lecturers (approved and tentative) and of the participants can be found in the annex. The workshops are scheduled in conjunction with the scientific seminars and summer schools.

Workshop 1 (WS1) to be held in Freiburg, May 9 to 13, 2016

Title of WS1: Advances in Production Ecology and Dendroecology

Tentative program of WS1 (keywords): Basics in production ecology, Concepts of dendroecology, Tree-ring and growth parameters, Techniques of tree-ring analysis, Methods of production ecology and dendroecology, Applications, Scientific frontiers

Workshop 2 (WS2) to be held in Lviv, May 21 to 26, 2018

Title of WS2: Trees as Bio-Indicators

Tentative program of WS2 (keywords): Bio-indication and bio-monitoring, Principles and concepts, Field methods, Laboratory methods, Statistical methods.

Demonstration plots

Forest management demonstration plots will be set up in the university forests in St. Petersburg and in Lviv to implement experimental treatments as well as best management practices in terms of stand adaptation measures for the purpose of demonstration, training, monitoring and research. The partners are willing to manage and maintain the demonstration plots beyond the life-time of the project.

Tree-ring measuring system

As part of the project activities we have planned to purchase two tree-ring measuring systems (LINTAB™ 6 Professional Package, RinnTech, Heidelberg) and to install one at each partner institution in Lviv and St. Petersburg. The idea is provide the partner institutions with the possibility to conduct tree-ring based studies using basic modern equipment and technology. Tree-ring based studies have a high potential for providing relevant and important input to the knowledge basis of forest adaptation management. We therefore consider this as a measure of sustained capacity building through the training of young scientists in tree-ring based studies. An intensive training will be provided during the scheduled workshops. The workshops will be used to conduct pilot studies.

The LINTAB 6 measuring stage is a hand-driven spindle-based system for the high resolution measurement of tree-ring width and related parameters like early- and late-wood width on stem disks, cross-sections or increment cores. The measurement stage is equipped with a stereomicroscope and a spotlight light source. The LINTAB system comprises the TSAP-Win™ scientific software for recording measured values, graphic display and analysis of temporal sequences. A hand-held belt sanding machine is necessary to prepare the surfaces of the wood samples.

Planned activities in time

Table 1 provides on overview on the planned activities in time.

Table 1: Bar chart of planned activities

Activity	2016	2017	2018
Seminar 1 FR			
Seminar 2 SP			
Seminar 3 LV			
Summer School 1 SP			
Summer School 2 LV			
Workshop 1 FR			
Workshop 2 LV			
Demonstration Plots 1 LV			
Demonstration Plots 2 SP			
Tree-ring meas. system 1 LV			
Tree-ring meas. system 2 SP			