

Lin4Future – Developing planning tools for sustainable forestry in China

Client II – International partnerships for sustainable innovations

China has little experience in long-term forest planning. There is a lack of information about forest growth and suitable long-term planning tools do not exist. The “Lin4Future” project develops growth models and planning tools for the sustainable, multifunctional management of forests and applies them to a model forestry operation in China.

Developing forest planning tools

China has little experience in long-term forest management, while Germany has been developing and applying long-term forest planning techniques for many decades. Modern planning software is an important tool in this context. The “Lin4Future” project works to develop and implement forest planning software as a management information system for a model forestry operation in China.

Such an information system geared towards the local conditions in China is based on site-specific models for the growth behavior of relevant tree species. In addition to this, the software must contain additional data in order to fulfill tasks relevant to forestry operations and to be able to generate the necessary reports for forest management.



Material for tree trunk analysis in the dry room.

In order to develop this type of planning software, “Lin4Future” will develop growth models for selected tree species to serve as a data basis. The project will also test the use of the technology in a model operation.

Modeling tree height growth

As part of this project, an analysis will be carried out at selected locations into the growth of individual specimens of the most economically valuable tree species. This data will be turned into tree-specific growth models, which will then be used to determine the growth potential of existing forests and classify them in a yield chart. This will then be saved in the forest planning software. Yield charts are not widely used as forestry planning tools in China and are only available for a few tree species. Among other reasons, this is partly due to the lack of permanent trial areas, which are typically used to generate yield charts.

Implementation in model operation

The results of the investigations will create the data basis for conducting growth modeling of regional tree species. These models will then be used in the forest planning software to predict tree growth. This software can then calculate future tree stock trends to simulate various different management options and their consequences. Furthermore, other key variables relevant to forestry operations planning will also be determined.

Project participants include the Chair of Forest Growth (IWW) at the University of Freiburg, responsible for producing the tree-specific growth models, and GISCON Systems GmbH, a software development company active in the field of forestry operational planning. At an international level, the project is partnered with the Chinese Academy of Forestry (CAF), which is involved in the scientific research, and the Zhongtiaoshan State Own Forest Bureau, the regional forestry commission together with the Zhongcun Forest Farm model forestry operation, which provides researchers with on-site support.

The implementation of the forest planning software in a model operation will serve as an example of sustainable

forest management in China, which can also be applied in other parts of the country. This type of sustainable forest management planning is to be spread to other Chinese provinces through a variety of workshops, seminars, and conferences.

At a higher level, the project results will help to promote sustainable forestry in China. The aim is to increase forests' productivity, stock, and wood quality without neglecting ecosystem services such as nutrient cycling, carbon storage, biodiversity, and forest health.



Discussion about sustainable forest planning.

Funding initiative

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Project title

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Duration

01.09.2017–31.12.2021

Funding code

01LZ1701A-B

Funding volume

330,022 Euro

Contact

Lars Sprengel
Albert-Ludwigs-University of Freiburg –
Institute of Forest Sciences
Tennenbacherstraße 4
79106 Freiburg, Germany
Phone: +49 761 203-8585
E-mail: Lars.Sprengel@iww.uni-freiburg.de

Project partner

GISCON Systems GmbH; Chinese Academy of Forestry;
Zhongcun Forest Farm

Internet

bmbf-client.de

Published by

Bundesministerium für Bildung und Forschung/
Federal Ministry of Education and Research (BMBF) Division
Global Change – Climate, Biodiversity
53170 Bonn, Germany

July 2019

Editing and layout

Project Management Jülich (PtJ), Forschungszentrum Jülich
GmbH; adelphi research gGmbH

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Albert-Ludwigs-Universität, Lars Sprengel