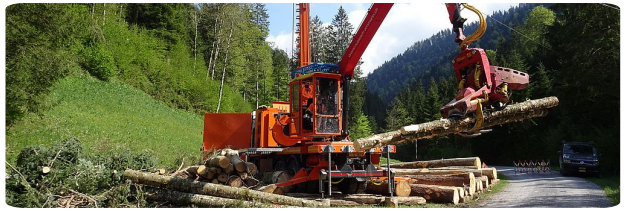
Cable road layout planner



Seilaplan

Seilaplan is a tool that supports the design of cable roads for timber harvesting. It works as a QGis-Plugin.

Starting point of the calculation are terrain data (digital elevation model or field measurement data in CSV format), machine and cable road properties.
The program calculates the skyline tensile forces, the skyline sag, support saddle forces. By knowing the rope forces, critical constructions can be avoided.
This increases the safety at work.

Seilaplan includes an optimization algorithm that proposes the height and location of the supports. The load path of the skyline together with the terrain profile are displayed graphically and a construction manual is generated. Coordinates and saddle height of the supports can be saved as CSV and KML data so that they are electronically available for further planning steps.

The planning of cable road layout goes much faster. The calculated routing takes advantage of the natural terrain shapes and helps to reduce overall harvesting costs in mountainous regions and steep terrain.

DETAILS

ORIGIN OF WOOD
Forest

TYPE OF WOOD
Stemwood

KIND OF WOOD CONCERNED
stemwood and full trees

IMPACT ON ENVIRONMENT & BIODIVERSITY
The cost reduction will allow new, poorly accessible areas to be developed and additional timber to be harvested.
This has a positive effect on the protective function of the forest in the mountains and it promotes adaptation to climate change.

INCOME EFFECT
Improved profitability of logging in steep terrain

EXPLOITATION POTENTIAL
For forest owners and forest contractors

HUB
Central-East Hub

ECONOMIC IMPACT
Reduced installation cost, improved profitability

MOBILIZATION POTENTIAL
> 100'000 m³ for Switzerland

SUSTAINABILITY POTENTIAL - VALUE
Very Positive

EASE OF IMPLEMENTATION
Very easy

EASE OF IMPLEMENTATION - EVALUATION
Very Easy

KEY PREREQUISITES
Terrain data must be available or collected along the planned line.

TYPE OF EVENT WHERE THIS BPI HAS BEEN FEATURED
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JOB EFFECT
Faster and saver skyline layout planing

COSTS OF IMPLEMENTATION (EURO - €)
100

SPECIFIC KNOWLEDGE NEEDED

Knowledge of QGis is necessary

MORE DETAILS

CHALLENGE ADDRESSED

5.- Enhance economic and environmental performance of forest supply chains

DOMAIN

Forest management, ecosystem, resilience

TYPE OF SOLUTION

Advice and services for forest owners

KEYWORDS

cable road

skyline

QGis plugin

mountain forest

DIGITAL SOLUTION

Yes

INNOVATION

Yes

COUNTRY OF ORIGIN

Switzerland

SCALE OF APPLICATION

Continental

START AND END YEAR

2012 - 2021

CONTACT DATA

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REFERENCES AND RESOURCES

MAIN WEBSITE

https://www.wsl.ch/en/index.html

PROJECT WEBSITE

https://seilaplan.wsl.ch/en/index.html

RESOURCES

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PROJECT REFERENCE

Bont, L. G., Moll, P. E., Ramstein, L., Frutig, F., Heinimann, H. R., & Schweier, J. (2022).

SEILAPLAN, a QGIS plugin for cable road layout design. Croat J For Eng. Bont, L. G., Ramstein, L., Frutig, F., & Schweier, J. (2022). Tensile forces and deflections on skylines of cable yarders: comparison of measurements with close-to-catenary predictions. International Journal of Forest Engineering, 1-22. https://www.dora.lib4ri.ch/wsl/islandora/object/wsl%3A30255/datastream/PDF/Bont-2022-Tensile_forces_and_defl

LOGO OF BEST PRACTICE

Swiss Federal Institute for Forest, Snow and Landscape Research WSL

LOGO OF MAIN ORGANIZATION

Bern University of Applied Sciences

PROJECT UNDER WHICH THIS FACTSHEET HAS BEEN CREATED

Rosewood 4.0

POST DATE

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EFI