C.A.F.E. | Carbon, Aqua, Fire & Eco-resilience Decision Support System



C.A.F.E. determines the optimum silvicultural activities to manage multiple products, goods and services such as biomass production, C2 sequestration, fire risk, water provisioning , climatic resilience or biodiversity, for a selected solution.

This tool determines the optimum silvicultural activities to manage multiple products, goods and services such as biomass production, CO2 sequestration, fire risk, water provisioning, climatic resilience or biodiversity, which are simultaneously quantified in time and space for a selected solution. Main advantages include:

- Changing the mono-objective approach in order to include a group of ecosystem goods and services.
- Improving the economic performance of low productive areas by quantifying and valorising other resources that could be remunerated attending to the environmental value.
- Holistic optimization of multiple goods and services out of forest management.
- Adequacy to the specific characteristics of each site.
- Multi-scalar results (plot, forest working unit, catchment, etc.).

C.A.F.E. is a tool that combines eco-hydrologic dynamic simulation with many-criteria optimization, where the user can carry out forest management according to more than one product at the same time, and choose the relevance of each objective/product. This software is capable of working under different climatic regions thanks to the previous calibration of the eco-hydrological simulation. Furthermore, it is possible to modify the spatial scale moving from plot to catchment, integrating a strong biophysical unit. In the same way, simulating different climatic scenarios is also possible. The result is a group of possible solutions among which forest manager can decide and apply.

DETALII

SURSA DE LEMN

Pădure

TIPUL DE LEMN

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TIPUL DE LEMN îN CAUZă

All wood produced in the forest system (trunk, branches, roots).

IMPACTUL ASUPRA MEDIULUI șI BIODIVERSITățII

- Demonstration and replication of a successful, innovative forest management scheme at a watershed scale. At the beginning it will be applied at sub catchment level in Spain (415 hectares), then at catchment level in Germany, Portugal and Spain (7,824 hectares) and finally it will be further expanded up to 350,000 hectares within five years from the project completion.
- Reinforcement of mechanisms to develop climate change adaptation measures in rural areas and to ensure its socioeconomic sustainability;
- Increased water reserves of 45-200 l/m²/year and increased water availability downstream, leading to a reduction in energy extraction costs to 5 W/hm;
- Increased sustainable biomass production for bioenergy uses, between 10 and 15 t/ha year, including both forest and

POTENțIALUL DE MOBILIZARE

Very positive

POTENțIAL DE SUSTENABILITATE - VALOARE

Foarte pozitiv

FACILITATEA DE IMPLEMENTARE

It is not easy to use, but we are developing user guides to make it easier.

FACILITATEA DE IMPLEMENTARE - EVALUARE

Mediu

agricultural residues traditionally burned and usually the cause of wildfires.

- Reduced fire hazards by 30%, protecting rural populations currently residing in risk areas
- Increased resilience of 25% of forest areas to withstand droughts, pests and disease outbreak.

EFECT ASUPRA VENITURILOR

If the management objective is to maximise productivity, revenues will also be maximised.

POTENȚIAL DE EXPLOATARE

High, as it is based on mechanistic modelling it can be applied in any climatic region. Furthermore, by including a wide range of ecosystem services, it can meet the needs of different types of forest management.

HUB

Hub Sud-Vest

IMPACT ECONOMIC

The tool is free, so the economic impact is positive as you provide a very powerful management tool at 0 cost.

CUNOȘTINȚE SPECIFICE NECESARE

Knowledge of Geographic Information Systems is necessary to be able to prepare the input data for the tool.

CONDIȚII CHEIE PREALABILE

Input data for the chosen mechanistic model.

Decision variables.

Constraints to be applied.

TIPUL DE EVENIMENT LA CARE A FOST PREZENTAT ACEST IPB

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EFECT ASUPRA LOCURILOR DE MUNCă

The management that is proposed always generates jobs to carry it out.

COSTURI PENTRU IMPLEMENTARE (EURO - €)

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MAI MULTE DETALII

PROVOCARE ABORDATă

1. Îmbunătățirea rezilienței pădurilor și adaptarea la schimbările climatice

DOMAIN

Managementul pădurilor, silvicultura, servicii ecosistemice, reziliență

Perturbări ale pădurilor, riscuri, răspuns la dezastre

TIP DE SOLUțIE

Modelare, DSS, simulare, optimizare

CUVINTE CHEIE

Resilience/Networking/Decision support system(DSS)/

SOLUțIE DIGITALă

Da

INOVAțIE

Da

ȚARA DE ORIGINE

Belgia

SCARA DE APLICARE

Continental

ANUL DE îNCEPUT șI DE SFâRșIT

2019 - 2023

DATE DE CONTACT

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REFERENCES AND RESOURCES

PAGINă WEB

http://www.resilientforest.eu/wp-content/uploads/2020/05/DSS-TOOL-.pdf

WEBSITE PROJECT

https://www.resilientforest.eu/

REFERINță PROIECT

The project LIFE RESILIENT FORESTS – Coupling water, fire and climate resilience with biomass production from forestry to adapt watersheds to climate

RESURSE

change is co-funded by the LIFE Programme of the European Union under contract number LIFE 17 CCA/ES/000063

DESPRE EXEMPLUL DE BUNă PRACTICă

A PRINCIPALEI ORGANIZAțII

PROIECTUL îN CADRUL CăRUIA A FOST CREATă ACEASTă FIșă INFORMATIVă

Rosewood 4.0

DATA POSTăRII

8 Sep 2021

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A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY