

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.

SZCZEGÓŁY

POCHODZENIE SUROWCA DRZEWNEGO

Las

RODZAJ SUROWCA DRZEWNEGO

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RODZAJ DREWNA

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

WPŁYW NA ŚRODOWISKO I BIORÓŻNORODNOŚĆ

- 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

POTENCJAŁ DLA MOBILIZACJI DREWNA

Very positive

POTENCJAŁ DLA ZRÓWNOWAŻONEGO ROZWOJU - WARTOŚĆ

Bardzo pozytywny

ŁATWOŚĆ WDROŻENIA

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

ŁATWOŚĆ WDROŻENIA - OCENA

Średnie

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.

EFEKTY EKONOMICZNE

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

POTENCJAŁ W ZAKRESIE KOMERCJALIZACJI

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

Centrum Południowo-Zachodnie

WPŁYW NA GOSPODARKĘ

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

WYMAGANA WIEDZA SPECJALISTYCZNA

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

KLUCZOWE WYMAGANIA

Input data for the chosen mechanistic model.

Decision variables.

Constraints to be applied.

RODZAJ WYDARZENIA, W KTÓRYM WYSTĄPIŁA DANA BPI

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EFEKTY W ZAKRESIE ZATRUDNIENIA

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

KOSZT IMPLEMENTACJI (EURO - €)

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Więcej INFORMACJI

WYZWANIE

1. Poprawa odporności lasu i adaptacja do zmian klimatu

DOMENA

Zarządzanie lasem, gospodarka leśna, usługi ekosystemowe, odporność
Zaburzenia ekosystemów leśnych, ryzyka, reagowanie na klęski i katastrofy

RODZAJ ROZWIĄZANIA

Modelowanie, systemy wspomagania decyzji, symulacja, optymalizacja

SŁOWA KLUCZOWE

Resilience/Networking/Decision support system(DSS)/

ROZWIĄZANIE CYFROWE

Tak

INNOWACJA

Tak

KRAJ POCHODZENIA

Belgia

SKALA APLIKACJI

Kontynentalny

ROK ROZPOCZĘCIA I ZAKOŃCZENIA

2019 - 2023

DANE KONTAKTOWE

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OSOBA PRZYGOTOWUJĄCA FISZKĘ

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ŹRÓDŁA I MATERIAŁY

STRONA INTERNETOWA

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

STRONA INTERNETOWA PROJEKTU

<https://www.resilientforest.eu/>

PROJEKT

The project LIFE RESILIENT FORESTS – Coupling water, fire and climate

ZASOBY

resilience with biomass production from forestry to adapt watersheds to climate change is co-funded by the LIFE Programme of the European Union under contract number LIFE 17 CCA/ES/000063

LOGO DOBREJ PRAKTYKI



LOGO ORGANIZACJI



PROJEKT, W RAMACH KTÓREGO STWORZONA ZOSTAŁA NINIEJSZA FISZKA

Rosewood 4.0

DATA PUBLIKACJI

8 wrz 2021



Link to Rosewood 4.0



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A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY

