# Project expectations & approaches

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# Slovenian Meeting 2019

1. Challenges
2. Approaches
3. Issues
4. Open discussion

# Forestry tool «h»

Old but gold

## Tool description and expected achievements

| Theme | Main features of LANDSUPPORT tools– aggregated by theme-impacting over multilevel thematic land policies | Level of policy implemented by the S-DSS | |
|---|---|---|---|
| | | EUROPEAN | NATIONAL (A+H+I: applied to Austria, Hungary and Italy) |
| Agriculture Forestry CAP | **d**. Support institutions in Rural Development Plan and designation of origin of specific agrifood/land use<br>**e.** Supporting farmers for Cross-Compliance and greening | RDPs (Pillar I and II); CAP; Reg. 1698/05 1974/06 (rural development) Reg. 1306/2013 (cross-compliance) | **A+H+I:** CAP Greening Payment Requirements and GAEP Cross-Compliance Standards //CAP Rural Development Plans 2014-2020<br>**Austria.**: Federal Forest law; Austrian Programme of agri-environmental measures<br>**Hungary**: Act on the Protection of Cultivated Soil<br>**Italy:** Legislative Decree on Orientation and Modernization of the Forestry Sector; Agricultural policy instruments; Regional RDP; dlgs 18/05/01 no. 227 |
| | **f.** Improve water status, ecosystem services and resilience to climate change | Dir 2000/60/EC (WFD)<br>Dir 2006/118/EC (GFD) | |
| | **g**. Making water use more efficient and sustainable, also adopting best management practices in agriculture | | |
| | **h.** Supporting sustainable forestry as required by EU Forestry Strategy and Supporting forest owners knowledge to adopt best practices | COM (2013) 659 final; (forest strategy) | |

| Abbreviation of LANDSUPPORT tools listed in table 1.1.b | LANDSUPPORT Achievement | LANDSUPPORT TANGIBLE PRODUCTS (list not exhaustive) | Scale |
|---|---|---|---|
| **h.** Supporting sustainable forestry | Modelling and mapping tools designed to **support sustainable forestry** by: i) identifying forestry zones having high biodiversity indexes, ii) monitoring productivity and regeneration capacity, iii) quantifying forestry ecosystem services, iv) identify forestry best practices to increase climate change resilience. | - Yearly National Maps and reporting of **forest productivity and quantification of forest ecosystem services.**<br>- Simulate different scenario of forestry practices to enhance climate change resilience. | N, R, L |

# Updates from Balatongyörök

*Session 3: 3-The Geospatial DSS tools*

*The « horizontal dimension » of LANDSUPPORT*

*The forestry tool* https://etherpad.net/p/Forestry

**BOKU to SFI**

0. Parcel or pixel?
1.What is more important - spatial or temporal?
Output regularly

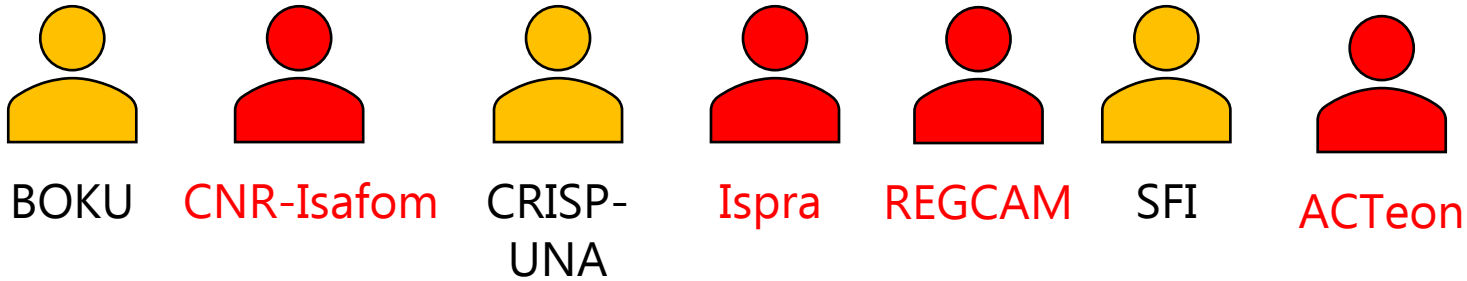
**ACTeon**

0. Stakeholders? not well identified... What is expected in practice?
- support sustainable forestry (biodiversity....regeneration capacity, quantifyig ES)
- what about forest/pasture mixed
- which level? italy/Austria OK, Hungary?
- link with eco-tourism
- connect with other projects:

IIASA: http://www.iiasa.ac.at/web/home/research/researchPrograms/EcosystemsServicesandManagement/ESM-Research-Groups.en.html
POLICYMIX https://policymix.nina.no/
OPENNESS project http://www.openness-project.eu/cases

# Status of **forestry** within the project

1. Establishment of the ***Forestry Working Group***




2. Timing

Monthly Skype meetings

Upcoming meetings: **Austria** ~~(2)~~ → Remote sensing

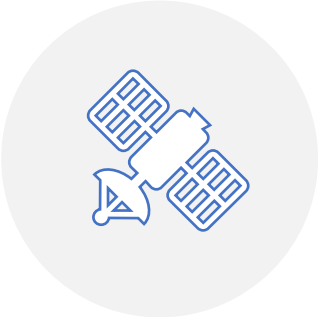
# 1. Challenges overview

## Sustainable Forest Management

- Forest planning
- Best Forest Practices

## Scales

- RS data
- National Forest Inventories

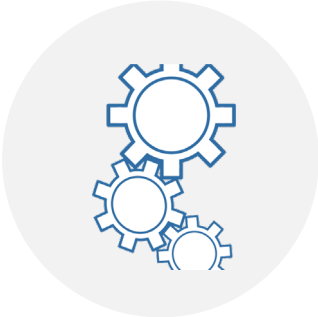


## Remote sensing analysis

BOKU

SFI

UNA



## What-if modelling

CNR

SFI

UNA

## Climate change

EIP-AGRI Focus Group on Forest Practices & Climate Change

- **Drought ?**

# The October challenge

## Anatomy of «h» tool

| NYD: Not Yet Defined | | | | | ISSUES TO BE DISCUSSED | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MAIN FEATURES OF TOOLS (as reported in the proposal) | | ACHIEVEMENTS AND PRODUCTS (as reported in the proposal) | | NEW DESCRIPTION | | | SCALE |
| **Tool** | **Theme** | **MACRO-TOOLS abbrev** | **Main features of LANDSUPPORT tools– aggregated by theme- impacting over multilevel thematic land policies** | **LANDSUPPORT Achievement** | **LANDSUPPORT TANGIBLE PRODUCTS** (list not exhaustive) | **MESO-TOOLS** | **TOOLS** | **SUB-TOOLS** | **Scale** |
| **h1** | | **h.** Supporting sustainable forestry | **h.** Supporting sustainable forestry as required by EU Forestry Strategy and Supporting forest owners knowledge to adopt best practices | **Forest Planning** | **Forest Planning** | **Forest Planning** | **basic vector data** | maps:soils, elevation, aspect, geology, plan curvature, profile curvature, solar radiation index | **N, R** |
| **h2** | | | | | | | **basic raster data** | (slope, terrain roughness, climate) | |
| **h3** | | | | | | | **forest road accessibility** | map of forest roads and accessibility | |
| **h4** | | | | | | | **restrictions** | idrogeological constraints, potential fload-areas, IFI areas, natural parks, ZPS, SIC | |
| **h5** | | | | **mapping forest types** | raster maps | **Forest management** | **forest typologies and forest structure** | forest types, average height of forest stands, coverage extent of forest stands | |
| **h6.1** | | | | **monitoring productivity** | Yearly National Maps and reporting of forest productivity | | **forest biomass (productivity)** | growing stock | |
| **h6.2** | | | | | | | | above ground biomass stock | |
| **h6.3** | | | | | | | | above ground carbon stock | |
| **h7** | | | | **mapping protection forests** | raster maps | | **protection forests** | NYD | **L** |
| **h8** | | | | **monitoring regeneration capacity** | **?** | | **regeneration capacity-resilience** | NYD | **L** |
| **h9** | | | | **identify forestry best practices to increase climate change resilience** | **Simulate different scenario of forestry practices** to enhance climate change resilience. | | **best forest practices** | NYD | **L** |
| **h10** | | | | **identifying forestry zones having high biodiversity indexes** | quantification of forest ecosystem services | | **biodiversity indexes (ES)** | NYD | **N, R** |
| **h11** | | | | | | | **ricreation** | NYD | |
| **h12** | | | | | | | **Additional Ecosystem Services** | NYD | |

# Anatomy of «h» tool

| ACHIEVEMENTS AND PRODUCTS (as reported in the proposal) | | NEW DESCRIPTION | | | SCALE |
|---|---|---|---|---|---|
| LANDSUPPORT Achievement | LANDSUPPORT TANGIBLE PRODUCTS (list not exhaustive) | MESO-TOOLS | TOOLS | SUB-TOOLS | Scale |
| Forest Planning | Forest Planning | Forest Planning | basic vector data | maps:soils, elevation, aspect, geology, plan curvature, profile curvature, solar radiation index | N, R |
| | | | basic raster data | (slope, terrain roughness, climate) | |
| | | | forest road accessibility | map of forest roads and accessibility | |
| | | | restrictions | idrogeological constraints, potential fload-areas, IFI areas, natural parks, ZPS, SIC | |
| mapping forest types | raster maps | Forest management | forest typologies and forest structure | forest types, average height of forest stands, coverage extent of forest stands | |
| monitoring productivity | Yearly National Maps and reporting of forest productivity | | forest biomass (productivity) | growing stock | |
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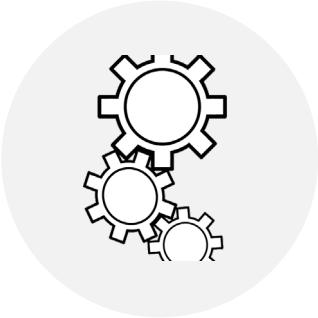
| | | | | above ground carbon stock | |
| mapping protection forests | raster maps | | protection forests | NYD | L |
| monitoring regeneration capacity | ? | | regeneration capacity-resilience | NYD | L |
| identify forestry best practices to increase climate change resilience | Simulate different scenario of forestry practices to enhance climate change resilience. | | best forest practices | NYD | L |
| identifying forestry zones having high biodiversity indexes | quantification of forest ecosystem services | | biodiversity indexes (ES) | NYD | N, R |
| | | | ricreation | NYD | |
| | | | Additional Ecosystem Services | NYD | |

# 2. Approaches



## Modelling chain

In-depth focus on all models (by partners)

## RS expertise

BOKU

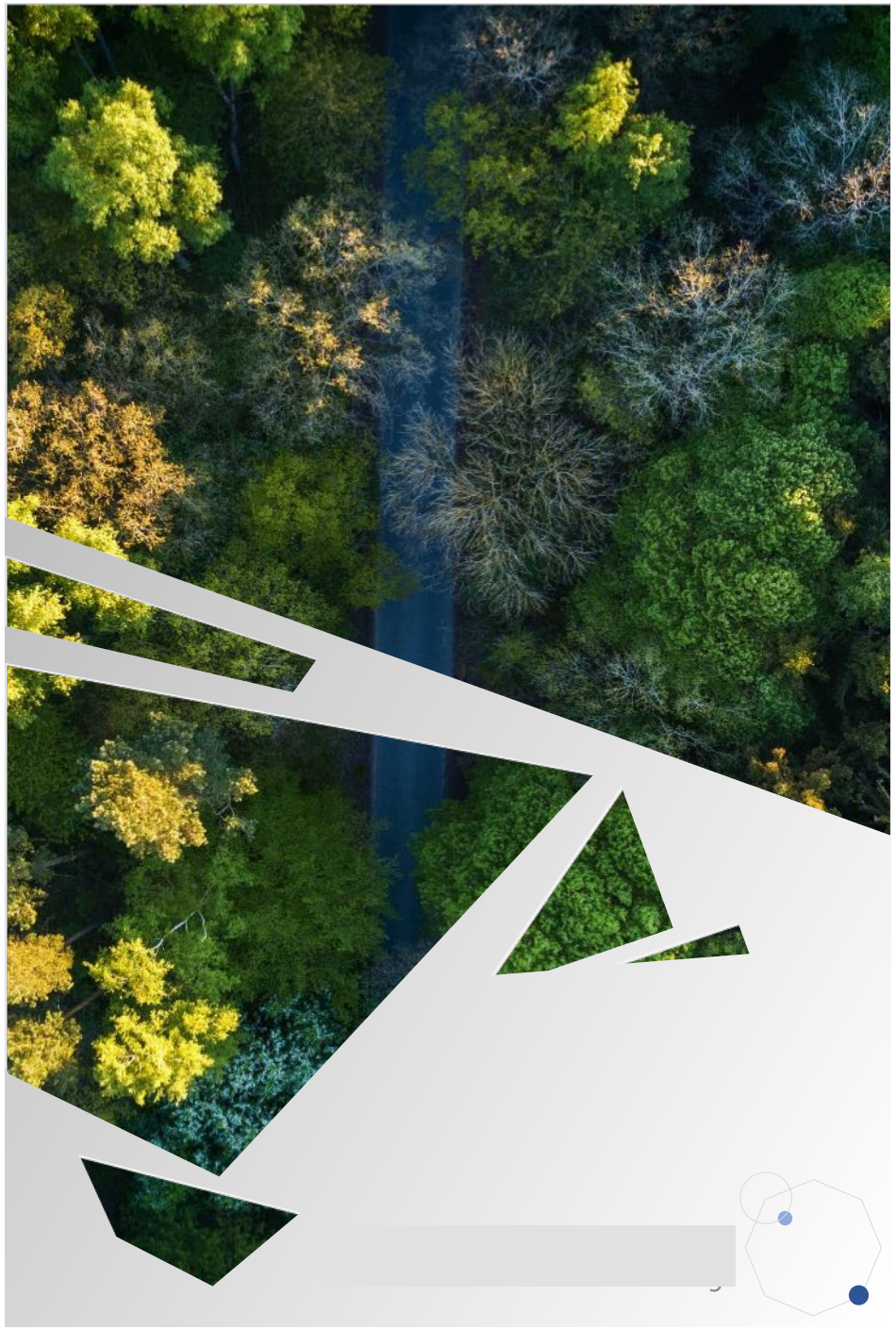
SFI

CRISP

## Stakeholders

Who is going to use the tool:

- Policy makers
- Forest engineers
- Private forest owners
- Forest operations



?

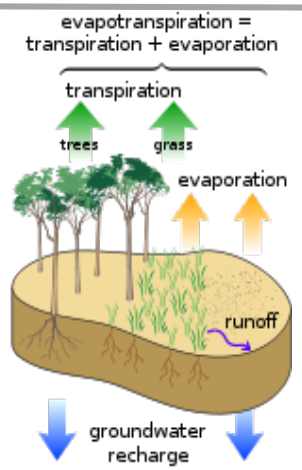
WHEN
WHY
WHO
HOW

## STEP1
## Basics

Basic data collection, spatialization and display at Regional scale (whether National is too tough)

**By October 2019!**

## STEP2
## Sustainable Forest Management




Criteria, indicators

Models

# Critical issues

ACTeon

1. Stakeholders involvment: Hungary and Austria

CNR

2. Modelling: Collalti **(from October 2020 on)**

3. Remote sensing and modelling

BOKU

SFI

Task 4.1: High spatial resolution land surface monitoring. (Start: M1; End: M36; Lead: BOKU; connected with D4.1, D4.2 and D4.3)

Assessment of existing products for forest ecosystem production mapping and adaptation to Sentinel-2 and -3 data. The activity concerns the delivery of spatially and temporally distributes estimates of NPP is based on the use of satellite observations to drive models. In this activity BOKU, ARIES and SFI will 1) compare the results of different Gross Primary Production (GPP) and Net Primary Production (NPP) physical models (e.g. MODIS, C-Fix and Biome-BGC) and datasets via a literature review and 2) evaluate the suitability of Sentinel-2 (fAPAR and LAI, land cover, phenology) to estimate GPP and NPP estimates for three case studies in Slovenia, Italy and Austria.

# Critical issues

SFI

Task 3.6: Ecosystem services (ES) evaluation and socio-economic models (Start: M3; End: M39; Lead: ACTeon; connected with D3.2).
SFI will **develop relevant indicators representing the forest ecosystems' capacity to provide the ES and will evaluate the above indicators estimating their values also according to forest types**. The task will also employ remote sensing data (see WP4) and field data to achieve best indicators estimates (e.g. biodiversity indexes, regeneration capacity).

SFI

**Soil erosion:** UNA in collaboration with ICARDA, JRC and **SFI (for forestry)** will **implement the well-established RUSLE formula (USDA), as interactive modelling procedure using the data produced in WP2** (e.g. landforms, slopes, soil, vegetation cover, etc.). The erosion tool will implement also a "what-if" procedure allowing the end-users to anticipate impacts of changes in climate and land usee/management (in term of different scenarios). It will be applied in ITALY, AUSTRIA, TUNISIA and HUNGARY.

CNR, UNA

**Forest modelling**: **CNR-Isafom, UNA** and **SFI (for calibration/validation)** will simulate different management under different climatic scenarios at local scales

# Why a tool, why a S-DSS, why us..

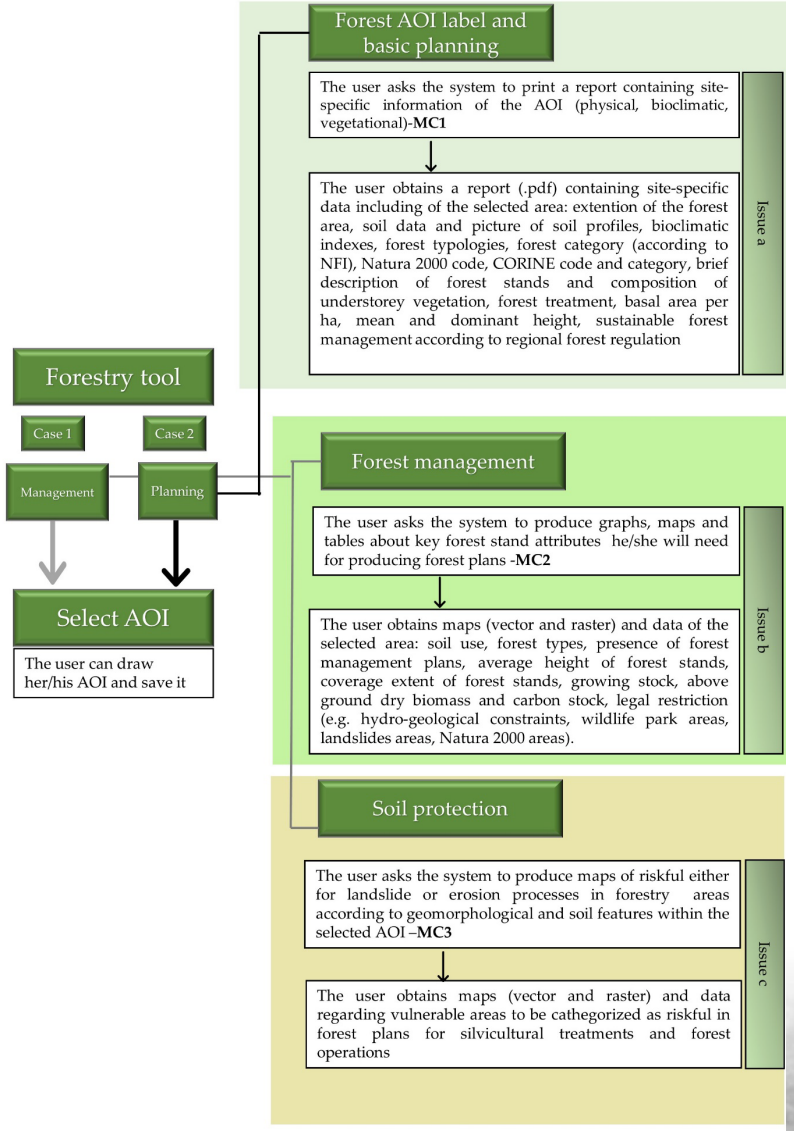
**AIM:** demonstrating that a new type of S-DSS, over an open-source Geospatial Cyber-Infrastructure (GCI) platform, can provide a strategic web-based operational tool for forest resources management and multi-purpose planning

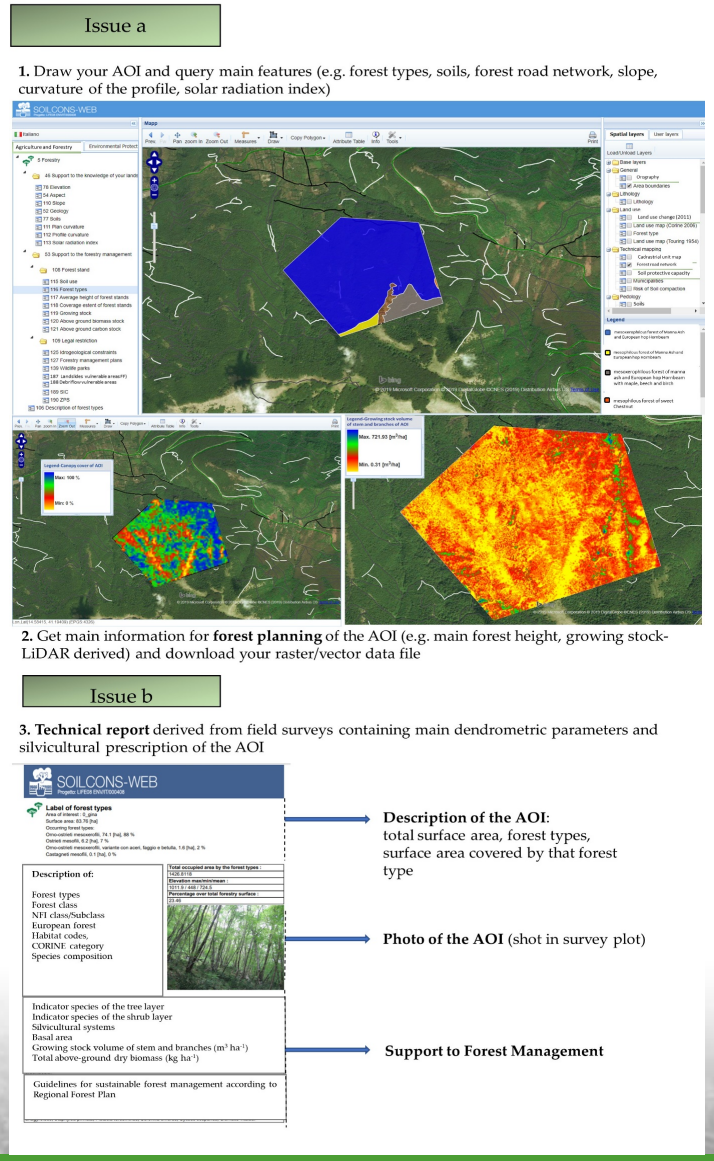
**MAIN RISK:** despite the effort in involving public participation in shaping DSS, most of DSS have either not adopted at all or, if used, only for a short time (McIntosh et al., 2011)

…*in few words*: we don't have to build something useless..

**STRATEGY:** involving stakeholders, sharing knowledge as foresters, forest scientists, involve the international community (FORSYS, on going), committing to the goal

# The old S-DSS: Life+ SOILCONSWEB




This cannot be replicated in LANDSUPPORT

# Open discussion

Next steps forward