NOBEL - Novel business models and mechanisms for the sustainable supply of and payment for forest ecosystem services

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Challenges in Forest Management for Providing Forest Ecosystem Services

- multitude of services, timber and non-timber products
- demand for forest ecosystem services is increasing due to growing populations and socio-economic changes
- forest management often favour timber production over other services
- many important services have no direct monetary value
- changing environmental and socio-economic conditions cause uncertainties
- need for policy recommendation and economic incentives

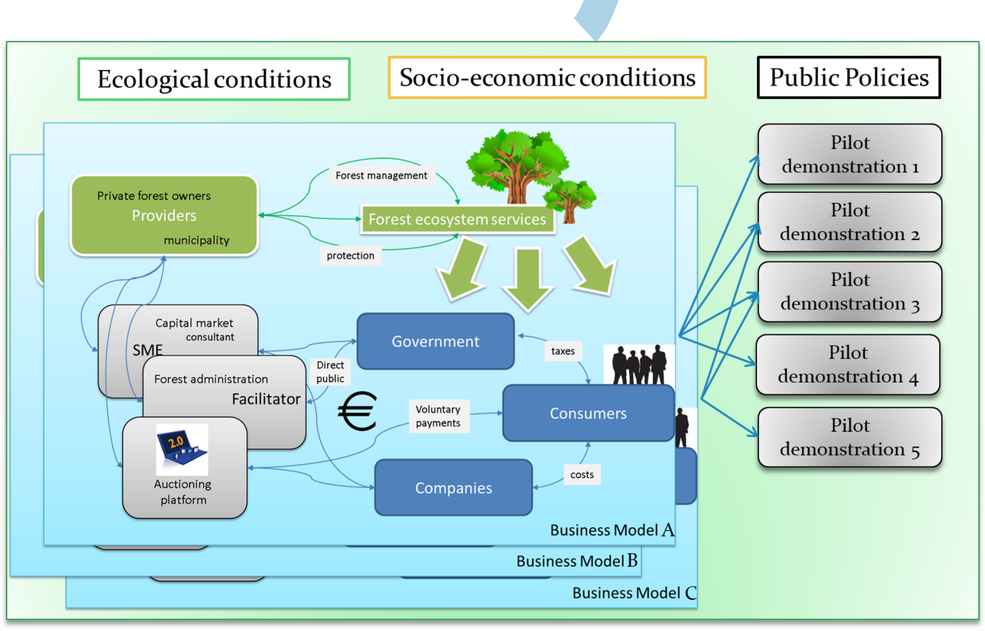
Project Objectives of NOBEL

i. assess **marketable and non-marketable forest goods and services** and develop strategies for their sustainable provision

ii. develop **business models and mechanisms** to internalise the socio-economic value of forest ecosystems

iii. combine public policy tools with business models for **implementing payments for forest ecosystem services**

iv. demonstrate and compare alternative approaches for payments in 5 **pilot demonstrations** in Europe



1. Identify business relations

2. Design innovative forest management plans

3. Predict effects of forest management with ecosystem models

4. quantification of FES with indicator set

5. assess economic value of FES

6. quantify acceptable value trade-offs with optimization tools

7. methods and mechanisms for a web-based auctioning

8. implement business models

Business Models (BM)

BM1 - private households or business companies directly pay providers for the provision of FES	**BM2** - business companies pay providers for the FES and pass the costs to their clients
BM3 - government pays providers for the FES and pass the costs to consumers via taxes or fees	**BM4** - only timber and non-wood forest products are sold in business-as-usual

Project Facts

Duration: 01/02/2019 - 31/01/2022 (36 months)

Thematic research area: Innovative sustainable management of multifunctional forests

Key highlights

- ✓ operationalize payments for forest ecosystem services
- ✓ development of webbased-auctioning platform
- ✓ evaluate efficient business models and mechanisms
- ✓ strong interaction with regional and national stakeholders

Partners involved

- ✓ University of Natural Resources and Life Sciences, Austria
- ✓ Forest Sciences and Technology Centre of Catalonia, Spain
- ✓ French National Institute for Agricultural Research, France
- ✓ Norwegian University of Life Sciences, Norway
- ✓ School of Agriculture / Instituto Superior de Agronomia, Portugal
- ✓ Swedish University of Agricultural Sciences, Sweden
- ✓ Technical University of Munich, Germany

European
- Analysis of spatial information requirements for the development of business models
- develop an open-source spatial information platform for forest ES
- Exploration of the European political framework and governance settings

National
- map current demands for the provision of forest ES resulting from existing policies
- analyze the governance settings of national case studies
- Explore stakeholder needs and consumer behaviour
- analyze management practices needed to provide specific levels of forest ES

Regional
- use forest ecosystem simulation models to estimate effect of forest management
- Evaluate cost and preference based methods to estimate the value of forest ES
- explore different kind of business models including a web-based auctioning platform
- Implement business models in pilot demonstrations

Nr.	Region	Short characterisation	FES considered	Business Modell
PD1	ZIF_VS Northwest Portugal	pure and mixed mediterranean forests of eucalypt (*E. globulus*) and maritime pine (*P. pinaster*), land owned by communities, private and non-industrial owners	TB, CB BD, RC, NHR	BM1, BM2, BM3, BM4
PD2	Käringberget, Västerbotten, Boreal zone, Sweden	Boreal forest dominated by Scots pine(*Pinus sylvestris*) and Norway spruce (*Picea abies*), forest land owned by state owned company	TB, NTFP, RC, CB	BM1, BM2, BM3, BM4
PD3	Cerdanya, Pyrenees, Catalonia in northeast Spain	mixed mediterranean forests of Pine (*Pinus sylvestris, Pinus uncinata)* and fir*(Abies alba)* forests owned by municipalities	TB, NTFP, CB, BD, RC, WSP	BM1, BM2, BM4
PD4	Ennstaler Alpen, Styria, Austria	Montane to subalpine mixed forests of N. Spruce, (*Pic* E. Beech (*Fagus sylvatica*), Silver Fir *Abies alba)* a (*Larix decidua*) private and state owne		BM1, BM2, BM3, BM4
PD5	Lorraine, Northeast France,	Forests are dominated by sessile oak (*Quercus pet* beech (Fagus silvatica), forests are mainly privatel third is owned by municipalities		BM1, BM2, BM3, BM4

Forest ecosystem services:
TP : timber production
NTFP : non-timber forest products
CB: carbon sequestration
RC: recreation (sports, hunting)
BD: biodiversity conservation
WSR: water, soil and nutrient regulation
NHR: natural hazard regulation

Business Models:
BM 1 Value-Added Goods and Services: companies directly pay for goods and ser embedded (e.g. ecotourism, certified wo
BM 2 Voluntary PES: voluntary payments companies, companies may pass the costs
BM 3 Selling ES to Government Agencies providers for the service and pass the cost
BM 4 Business as usual: FES providers are products on the market

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