

# **Mega trends in European forestry: the challenges for a new governance system**

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***Lectio Magistralis***  
15 April 2019



Universitatea  
Ștefan cel Mare  
Suceava

## ***Lectio's organization***

- Demand side drivers
- Supply side responses
- Challenges for a new governance system

## Demand side drivers

Bio-based economy

**Decreased  
demand for pulp**

**Increased demand  
for biomass**

De-materialization of the economy

**Tertiarization of the forestry sector:  
the emergence of cultural services**

Lowering of the quality and  
standardization of wood demand

## Supply side responses

**Sustainable  
intensification**

**Multifunctionality of  
semi-natural forests**

**Challenges for a new governance system**

## Demand side drivers

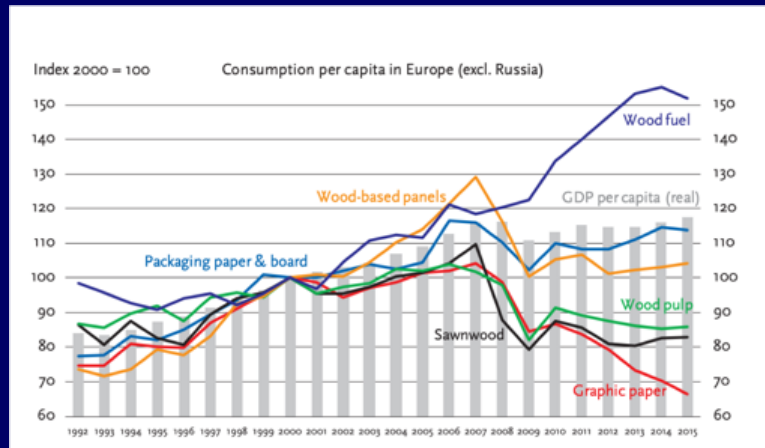
Bio-based economy

**Decreased  
demand for pulp**

**Increased demand  
for biomass**

Lowering of the quality and  
standardization of wood demand

## Consumption per capita of forest-based products and GDP growth in Europe (excluding Russia) (Data: FAOSTAT, World Bank)



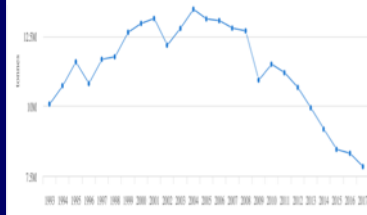
Source: Jonsson, R., Hurmekoski, E., Hetemäki, L. & Prestemon, J. 2017. What is the current state of forest product markets and how will they develop in the future? In Winkel, G. (ed.) What Science Can Tell Us, no. 8, European Forest Institute. <https://www.efi.int/publications-bank/towards-sustainable-european-forest-based-bioeconomy-assessment-and-way-forward>

## The supply of pulpwood: the largest market segment is losing its market share

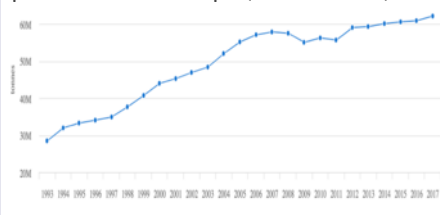
Printing and writing paper production in Europe (m3; 1993-2017)



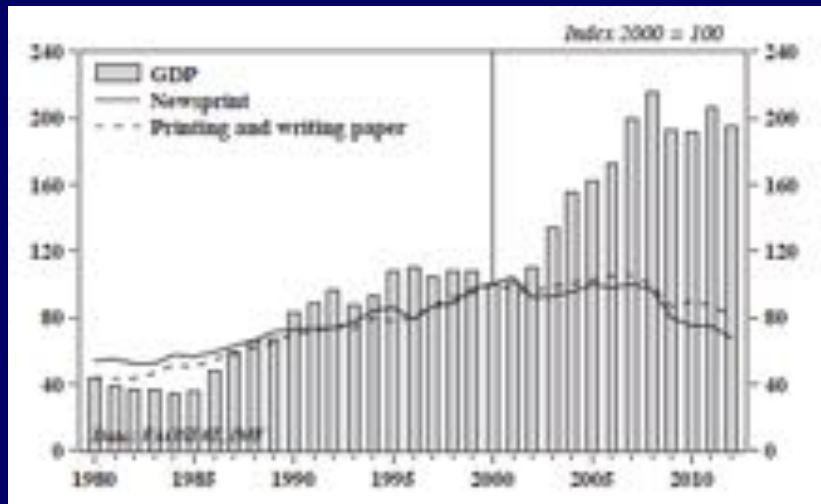
Newsprint production in Europe (m3; 1993-2017)



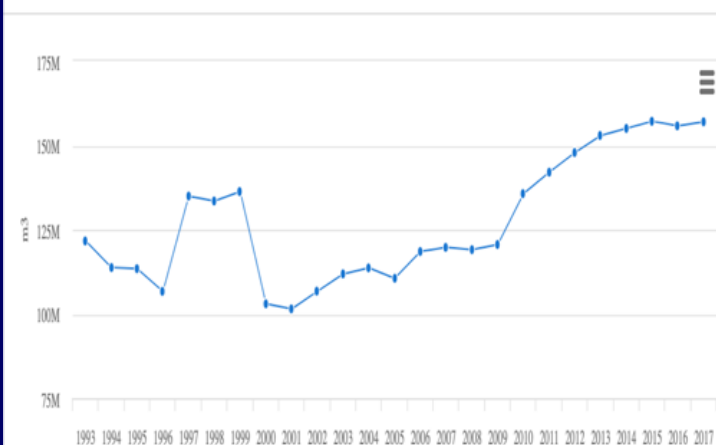
Recovered paper roundwood production in Europe (m3; 1993-2017)



## Reduced consumption of pulp and paper (EU market)



Wood fuel production in Europe  
(m3; 1993-2017)





## European Union bioeconomy (2015)



Traditional forestry sector:  
 - 2.5mil.jobs  
 - 411 € billionturnover

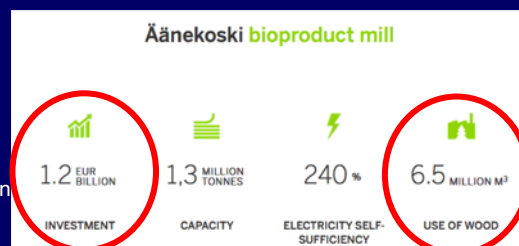
Source: Europea Commission 2018:  
[https://ec.europa.eu/research/bioeconomy/pdf/ec\\_bioeconomy\\_actions\\_2018.pdf#view=fit&pagemode=none](https://ec.europa.eu/research/bioeconomy/pdf/ec_bioeconomy_actions_2018.pdf#view=fit&pagemode=none)

## Bioeconomy development: and example from Finland



<http://bioproductmill.com>

- Largest investment in the history of Finnish forest industry
- **1.3 million tonnes** of pulp/year + bioproducts (e.g. textile fibres, biocomposites, lignin products, fertilisers...) and bioenergy
- **+4.000 jobs** created (including value chain and consumption)



## A topic of (hard) discussion

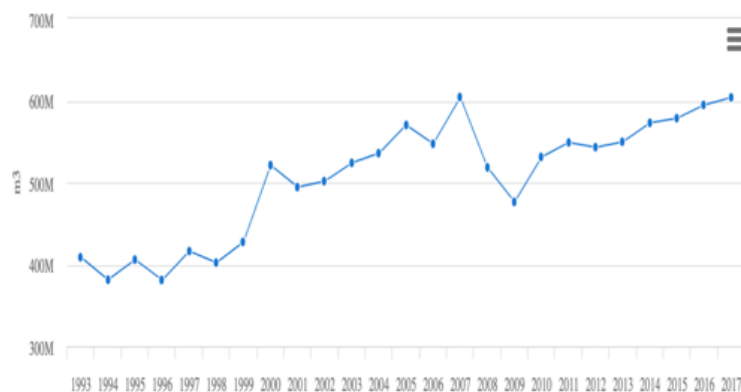
Sustainability criteria for biomass production: Directive on the Promotion of the Use of Energy from Renewable Sources (RED recast) by the European Parliament



against

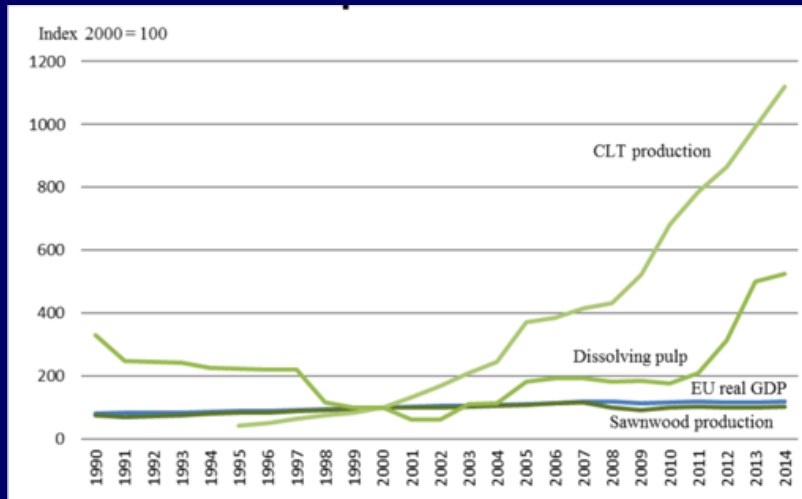


Industrial roundwood production in Europe (m3; 1993-2017)



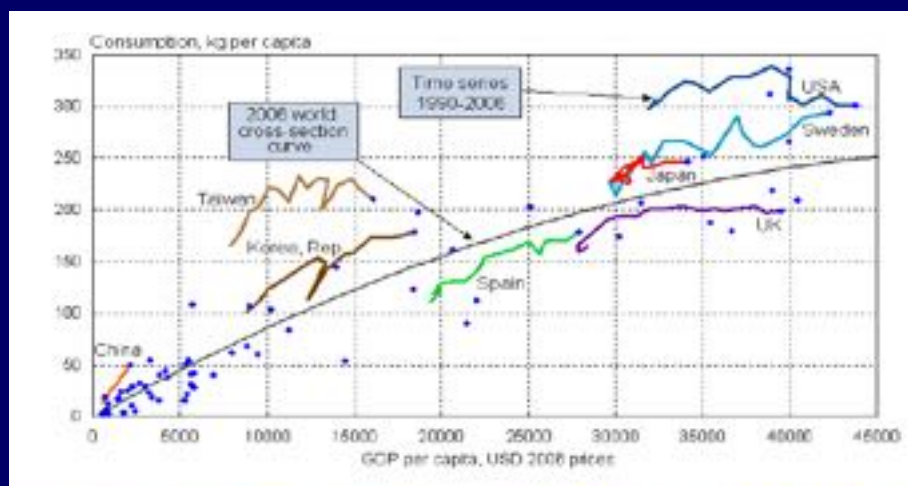
## The new (niche) markets:

Cross Laminated Timber (CLT) and Dissolving paper EU production 1990-2014



Source: Hetemäki & Hurmekoski (2016)

Higher GDP/*per capita* → wood consumption stabilization



Source: Pöyry

## Demand side drivers

Bio-based economy

De-materialization of the economy

Decreased demand for pulp

Increased demand for biomass

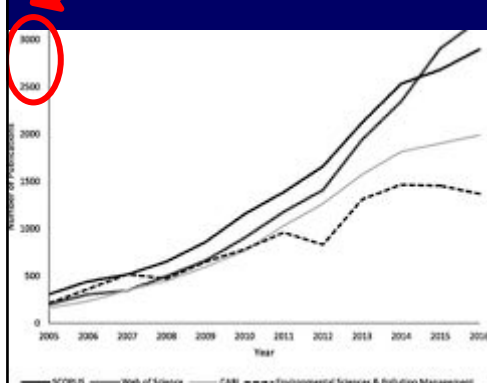
Tertiarization of the forestry sector: the emergence of cultural services

Lowering of the quality and standardization of wood demand

## No. of scientific publications indexed on scientific literature databases

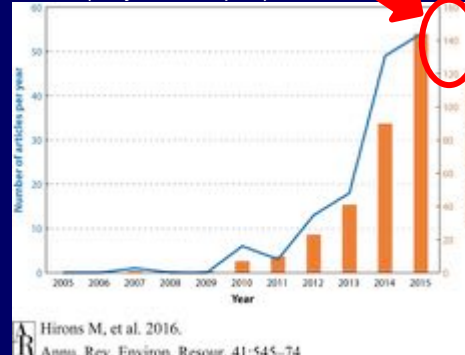
[Title, abstract and key-words]

A) "Ecosystem service"



McDonough *et al.*, 2017

B) "Cultural ecosystem service" (only on Scopus)



Hirons M. *et al.* 2016.  
Annu. Rev. Environ. Resour. 41:545-74

Hirons *et al.*, 2016

## Cultural ES

Some examples (non-exhaustive list):

- Green care initiatives
- Forest Bathing and Forest therapy
- Social Forestry
- Education and pedagogic activities
- Sport/recreational activities
- Art activities
- Burial forests
- ...

## Green care and forest-care



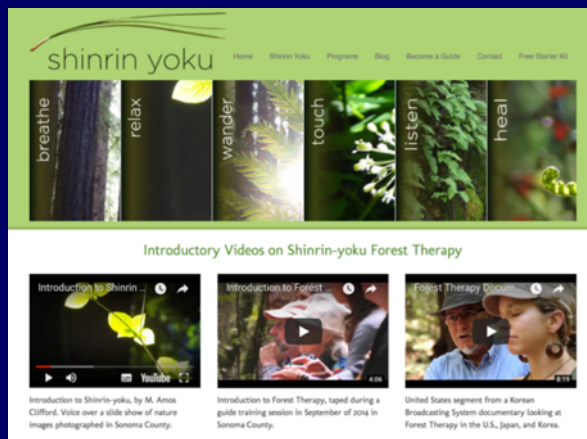
Cervinka *et al.* (2014)  
<http://bfw.ac.at/greencareforest>

**Austrian Research centre for Forests (BFW) (2014):**  
Scientific and “grey” literature review (1993-2013):

**149** peer-reviewed scientific papers (*peer-review*)  
**+ 31** other publications

Mainly: Europe, USA and Asia  
(Japan and Korea)

## Forest bathing and therapy Shinrin-yoku (森林浴)



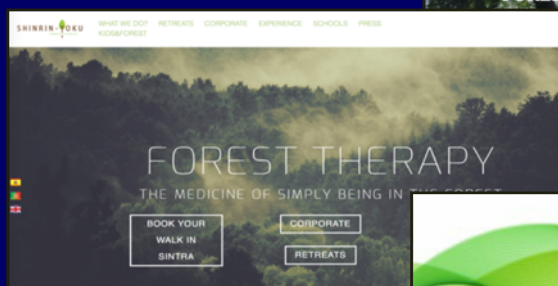
[www.shinrin-yoku.org](http://www.shinrin-yoku.org)

Forest-contact  
therapy and  
initiatives

Benefits measured  
with the *Quality-  
Adjusted Life Years*  
(QALYs) indicator

Cost/QALY = 50%  
of the costs for  
ordinary treatments

## Forest bathing and therapy Shinrin-yoku (森林浴) → Forest-contact therapy



<http://shinrin-yoku.pt/en>

[www.samuraispain.org/shinrin-yoku.html](http://www.samuraispain.org/shinrin-yoku.html)

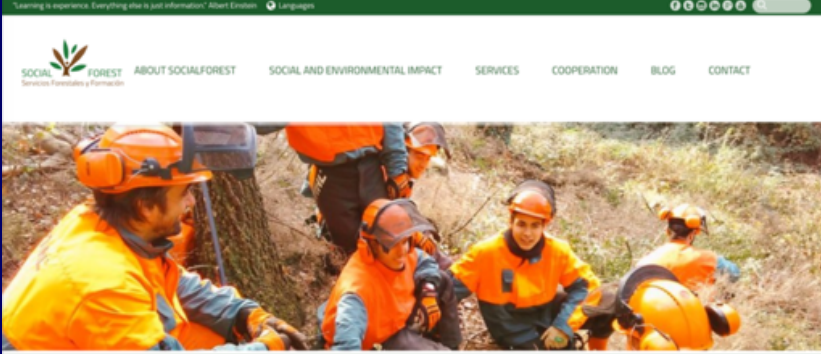


[www.oasizegna.com](http://www.oasizegna.com)





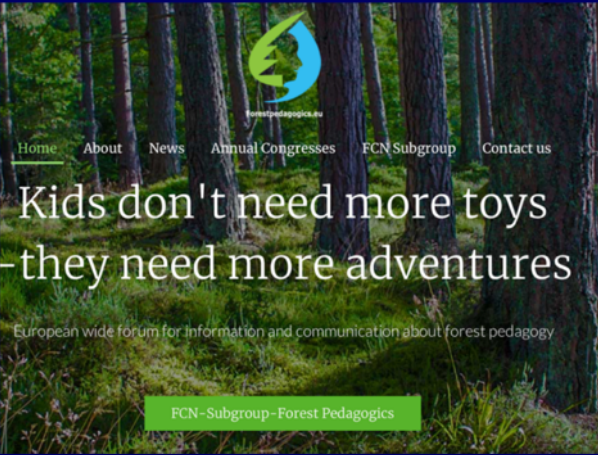
## Social forestry



Training, projects and job-opportunities for young (15-24 years old) unemployed people at high risk of social exclusion, e.g. immigrants, people with with addiction or mental disorders...

<http://socialforest.org/en/>

## Education and pedagogic activities



Kids don't need more toys  
-they need more adventures

European wide forum for information and communication about forest pedagogy

FCN-Subgroup-Forest Pedagogics



Forest Kindergarten  
International  
Federation

@forestkindergartenintern  
ationalfederation

## Education and pedagogic activities

German model exported (and adapted) in many other countries, including South-European ones

Campfire Kids

### Going Back to Nature with Forest Kindergartens

Radical back-to-nature forest kindergartens where children are allowed to climb trees and play with fire have spread across the country. Will the concept of the *Waldkindergarten* become Germany's next export success?

By Rupert Neate



Forest Kindergarten  
International  
Federation  
@forestkindergartenintern  
ationalfederation

[www.spiegel.de/international/zeitgeist/forest-kindergartens-could-be-the-next-big-export-from-germany-a-935165.html](http://www.spiegel.de/international/zeitgeist/forest-kindergartens-could-be-the-next-big-export-from-germany-a-935165.html)

## Sport activities and events





## Art events



[www.artesella.it/en/](http://www.artesella.it/en/)

Art exhibitions,  
concerts, drama...



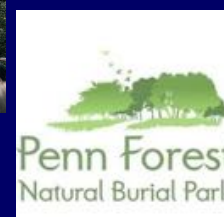
[www.isuonidelledolomiti.it/EN/sounds-of-the-dolomites/](http://www.isuonidelledolomiti.it/EN/sounds-of-the-dolomites/)

## Cultural services: along all the steps of the human life cycle!

From the cradle ....



.... to the grave



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Tertiarization of the forestry sector: the emergence of cultural services

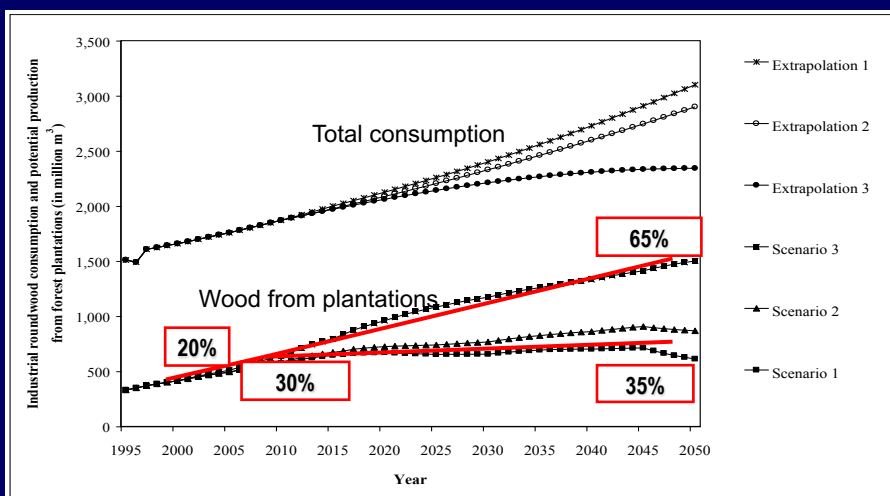
Lowering of the quality and standardization of wood demand

## Supply side responses

Sustainable intensification

Multifunctionality of semi-natural forests

## Forecast of industrial roundwood consumption from forest plantations (Source: FAO)

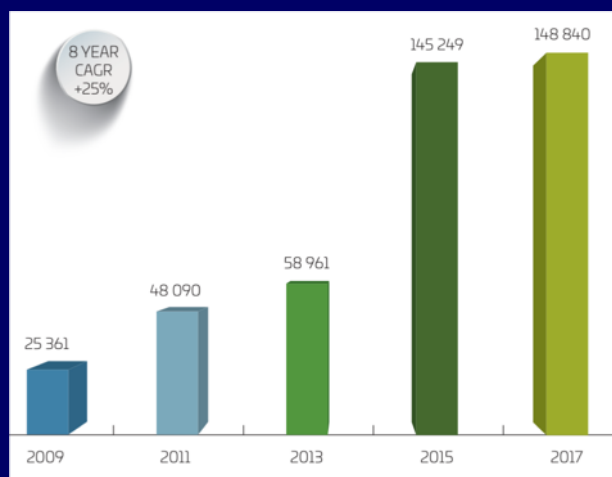


**Sustainable intensification  
= domestication of forests  
= segregative approach and strong landuse  
specialization: already a reality in Europe**

- ES and PT: **75%** of total wood production from pines and eucalyptus plantations (Martinez de Arano and Lasgourgues, 2014)
- FR: **42%** of softwood production only from maritime pine plantation
- IT: **>50%** of domestic industrial roundwood from poplar plantations (50-70,000 ha out of 1.2 M ha of forests) (Assopannelli, 2012)

Non mentioning UK and Ireland!

**Sustainability Themed Investments  
in Europe (2009-2017 M €) within the SRI**

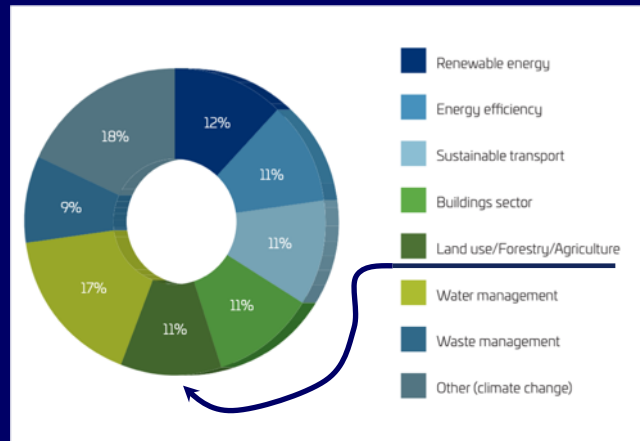


SRI: Sustainable and Responsible Investments

CAGR: Compound Annual Growth Rates

Source: EUROSIF, 2018 <http://www.eurosif.org/wp-content/uploads/2018/11/European-SRI-2018-Study.pdf>

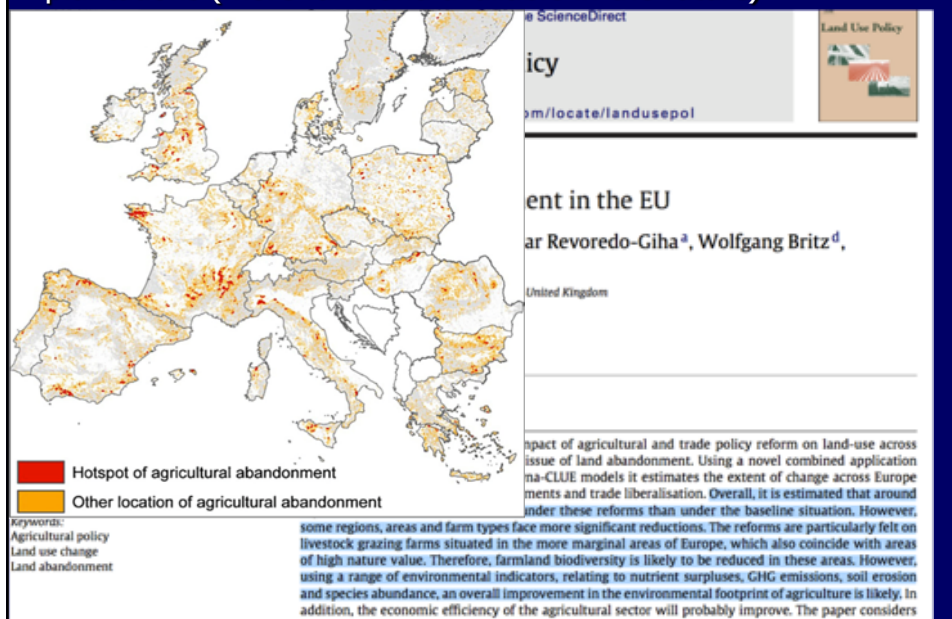
## Sustainability Themed Investments



16,372 M €/yr

Source: EUROSIF, 2018 <http://www.eurosif.org/wp-content/uploads/2018/11/European-SRI-2018-Study.pdf>

The problem is not the progress of investments in plantations (more farmland available in the future)



The problem is not the progress of investments in plantations (more farmland available in the future)

**... the real issue is maintaining the motivation by forest owners to use and protect their semi-natural forests**

with the supply of regulative non-priced ES in a condition where public compensation are limited (and RDP funds will decrease) and PES are more a topic of academic studies than a reality

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All these issues to be considered under the scenario of more risky and unstable environmental and market conditions

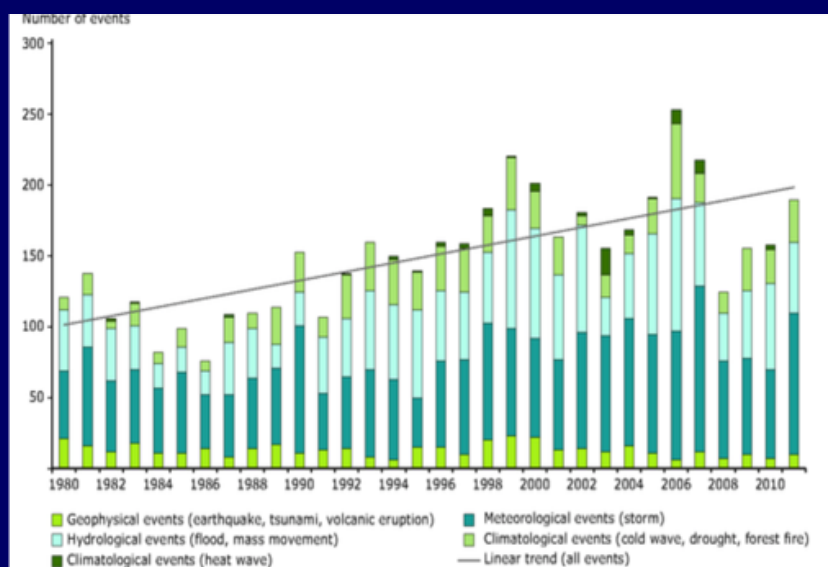
## A general feature of the market: structural instability

### A good indicator: wood prices



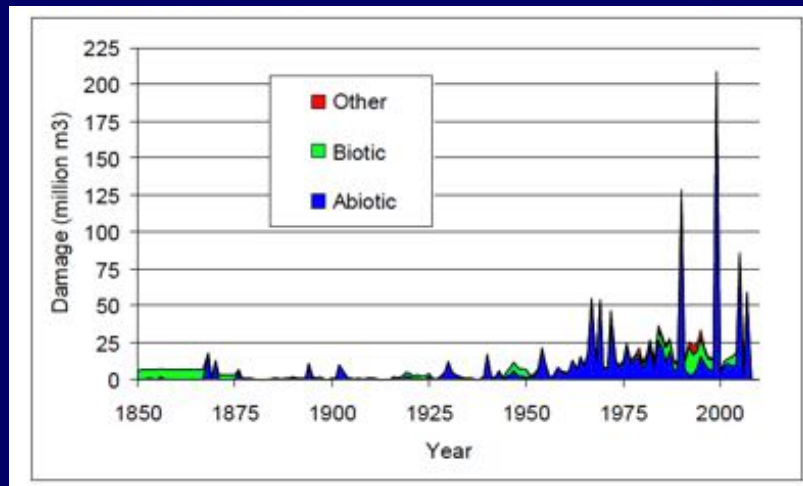
Source: Daos Oy, 2012

## Extreme events in Europe

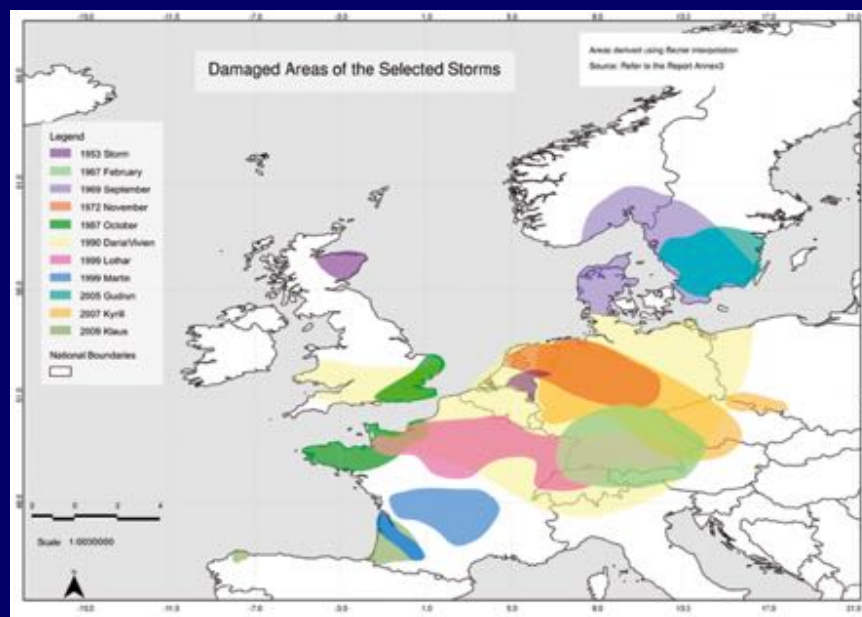


Source: EU Environmental Agency, 2014

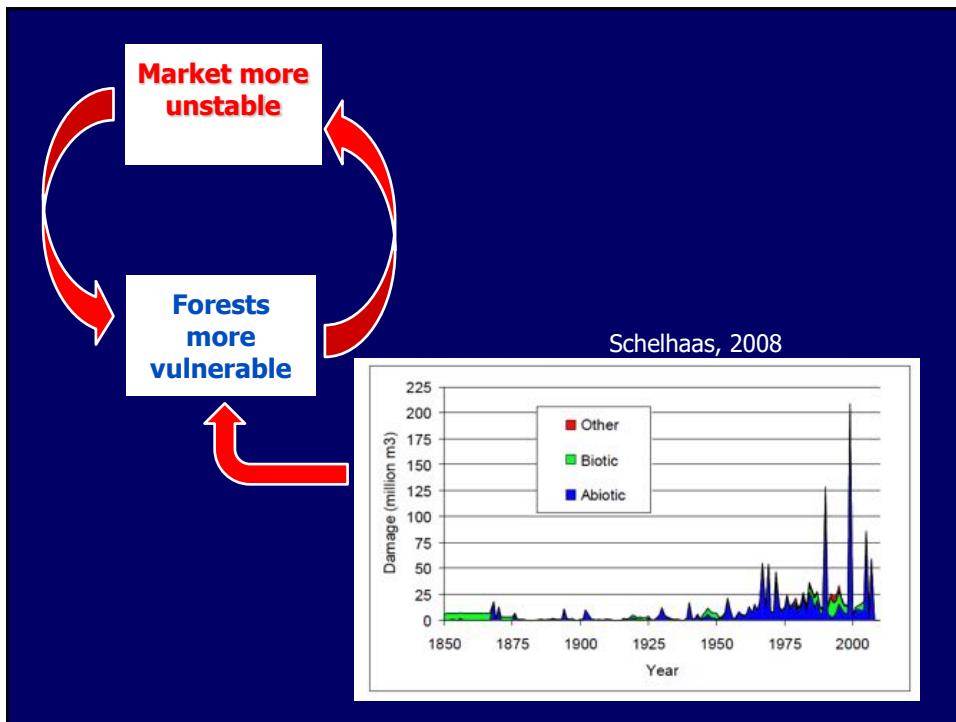
## Main large damage event (storms, fires, insect attacks, ...) to (ageing) European forests



Schelhaas, 2008







*"Wherever human beings are concerned,  
**trend is not destiny**"*

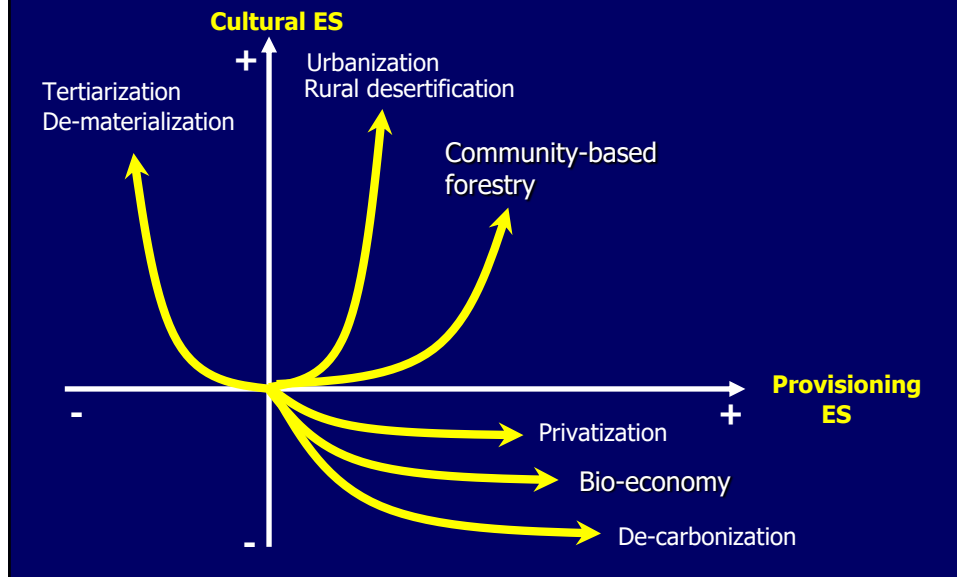
(René Dubos)

## Which options for the forestry system governance?

### Contrasting policy options

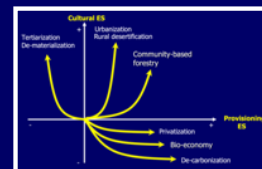
|                                                                                          |   |                                                                        |
|------------------------------------------------------------------------------------------|---|------------------------------------------------------------------------|
| Urbanization<br>Rural desertification                                                    | ↔ | Neo-ruralism<br>«Soft» economy, de-growth                              |
| Tertiarization<br>De-materialization                                                     | ↔ | Bio-economy (bio-based tech.<br>devlpmnt) and de-carbonization         |
| Community-based forestry                                                                 | ↔ | Privatization (State forests)                                          |
| Financial and market<br>globalization, internal.<br>specialization in commodities supply | ↔ | Nationalization, SRI and<br>Impact investments in<br>local development |
| Multi-functional forestry<br>Integrative forest mngmnt                                   | ↔ | Sustainable intensification<br>Segregative forest mngmnt               |

## Contrasting policy options, with opposite impacts on ES provision



### Governance action

|                                                                                   |   |                                                                  |
|-----------------------------------------------------------------------------------|---|------------------------------------------------------------------|
| Urbanization                                                                      | ↔ | Neo-ruralism                                                     |
| Rural desertification                                                             | ↔ | «Soft» economy, de-growth                                        |
| Tertiarization                                                                    | ↔ | Bio-economy (bio-based tech. devlpmt) and de-carbonization       |
| De-materialization                                                                | ↔ |                                                                  |
| Community-based forestry                                                          | ↔ | Privatization (State forests)                                    |
| Financial and market globalization, internal specialization in commodities supply | ↔ | Nationalization, SRI and Impact investments in local development |
| Multi-functional forestry                                                         | ↔ | Sustainable intensification                                      |
| Integrative forest mgmnt                                                          | ↔ | Segregative forest mgmnt                                         |



Too much complex issues to be dealt only at local and national levels. We need an European coordinated approach, with the involvement and open dialogue among European citizens and institutions

The problem is to  
educate and empower  
new European citizens  
who can lead the  
change!

**This is our mission!**



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DI PADOVA



Source: <https://www.torbenrick.eu/blog/change-management/change-management-comic-strips/>