



MINISTÈRE  
DE L'AGRICULTURE  
ET DE LA PÊCHE



# Wood supply for energy use in France

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*eau - territoires - développement durable*



# ► Outline of the presentation

- **Introduction, aim of the study**
- **Estimation of physical volume availability**
- **Socio-economical approach**



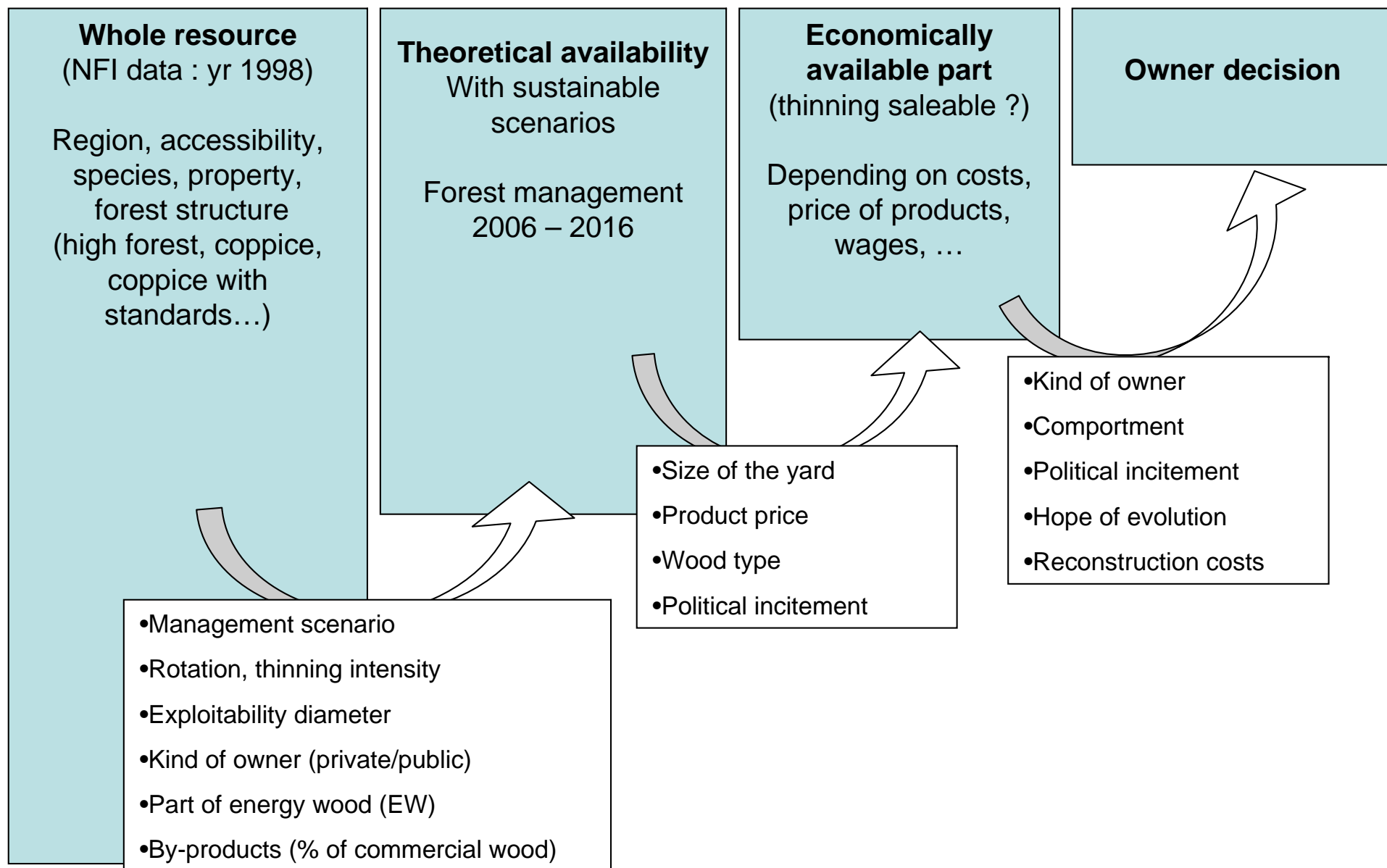
# ▶ Aim of the study

- **To assess additional wood volume available for new purposes over 2006-2016**
- **Expected results :**
  - Total aboveground volume at the national scale
  - Annual harvesting
  - Harvesting rate
  - **Un-harvested volumes that might be harvested for energy purpose**
  - **Actually available volumes, considering physical and socio-economical matters.**

# ► Aim of the study

- Data leading to hope of more available wood:  
(WARNING : those volumes are not strictly comparable)
  - National Forest Inventory (NFI, Year 1998)
    - Net primary production : **88.9 Mm<sup>3</sup>/yr** (stem only)
    - *Nota:* NFI in 2005 (new method): 103 Mm<sup>3</sup>/yr
  - National statistics (SCEES)
    - Harvest : **33.0 Mm<sup>3</sup>/yr** in industry (Crown included)
  - Energy Observatory
    - Wood burned for heating in households :  
**17.4 to 25.3 Mm<sup>3</sup>/yr**

# ► Type of volume estimations



# ► Estimation of physical availability

- All forests structures, as defined in NFI data
  - High forests
    - Thinnings
    - Final cuttings
    - Crowns
  - Coppice-with-standards stands
    - Both coppice and standard are taken into account
    - Thinnings, final cuttings, crowns
  - Uneven-aged forests
  - Coppices

# ► Estimation of physical availability

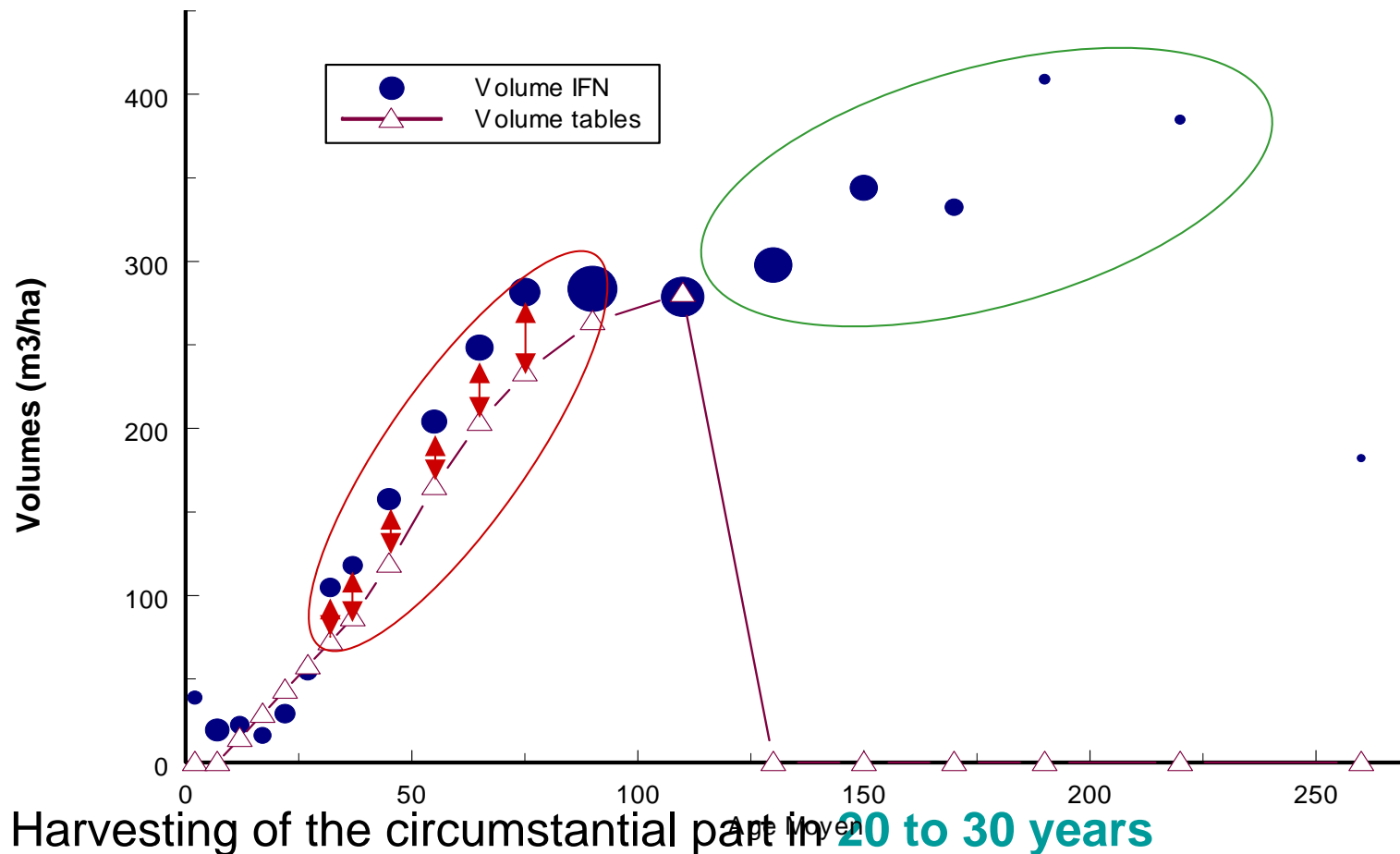
- For those forests structure, identification of 2 kinds of availability:
  - « Perennial » part
    - Volumes harvested with a sustainable forest management scenario. Assessments corresponding to silvicultural tables and indications.
  - « Circumstantial » part
    - What difference between silvicultural tables and the real state of forests ?
    - How long should it take to harvest the possible over capitalization in forests ?



# ► Methods – Example for high forest

- High forest volume, **circumstantial part**

- Comparison of norms volumes and real volumes, given by NFI



- Harvesting of the circumstantial part in **20 to 30 years**



# ► Results

- **Total availability for all kind of forests structures :**
  - **56.9 Mm<sup>3</sup>/yr**
  - What subtractions due to access difficulties ?
  - How much wood is already used/burned ?

# ► NFI accessibility

- **NFI distinguishes 4 levels of accessibility**

- 1 – Easy : 100%
  - 2 – Medium : 80%
  - 3 – Difficult : 30%
  - 4 – Very difficult : 0%
- 
- The previous total of 56.9 Mm<sup>3</sup>/yr becomes 50.4 Mm<sup>3</sup>/yr

# ► Results

- **Industry/Energy volumes (Mm<sup>3</sup>/yr) by forest structure, after subtraction due to accessibility**

Type	High forests	Uneven aged	Coppice with standards	Coppice	Total
Perennial	21.7	0.9	11.1	2.5	36.2
Circumstantial (*)	5.3		6.7	2.2	14.2
Total	27.0	0.9	17.8	4.7	50.4

(\*) Circumstantial part available about 20 to 30 years

# ▶ Already used wood

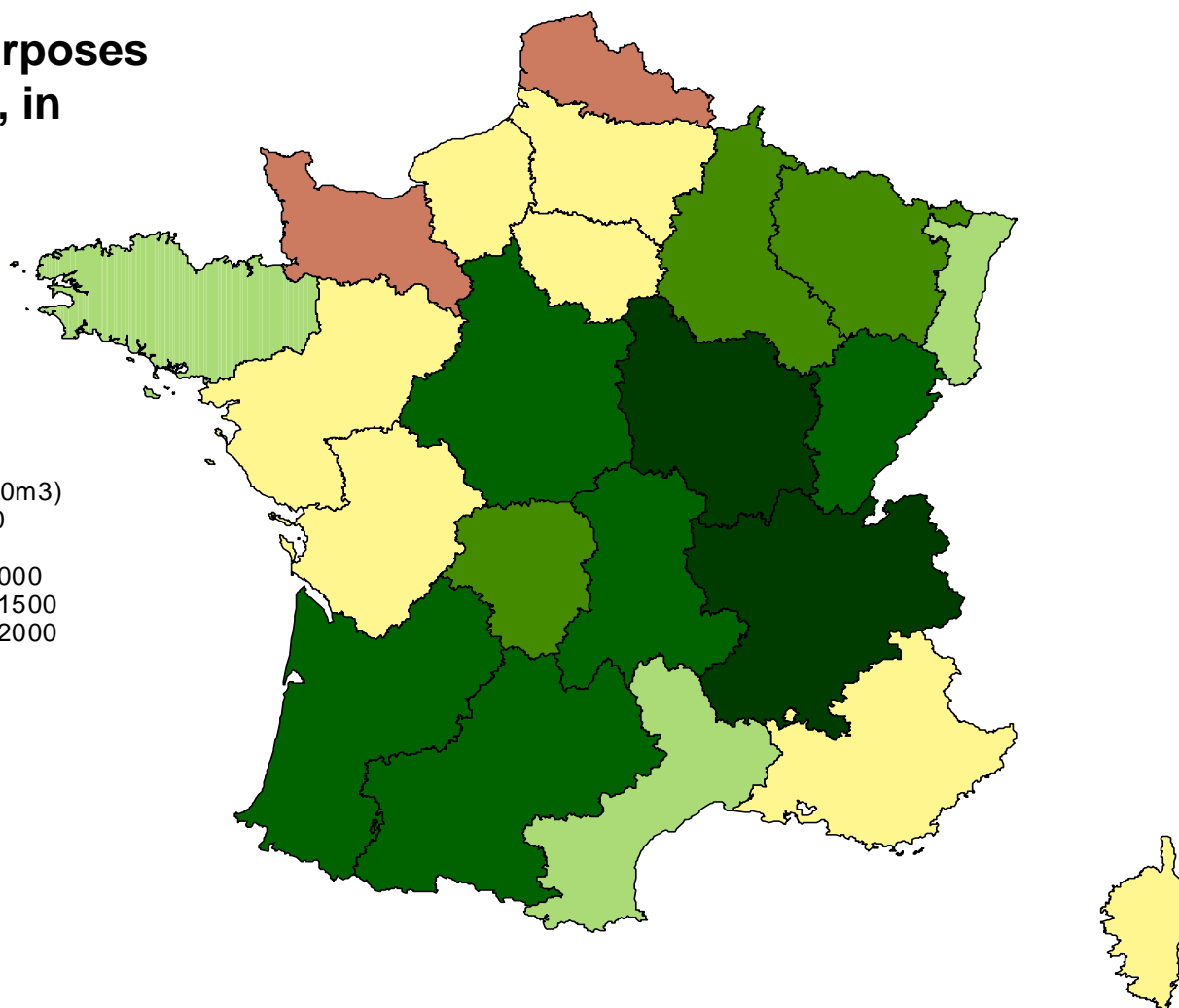
- **Wood used by industry is assessed in national statistics (SCEES)**
  - ~33.0 Mm<sup>3</sup>/yr
- **Wood used for heating in households (CEREN)**
  - Coming from forests : 60% or 70%
  - “Real climate” or “normal climate”
  - ~ between 17.4 and 25.3 Mm<sup>3</sup>/yr

# ► Final result : Wood supply for energy

Wood available for new purposes  
by administrative area, in  
thousands of m<sup>3</sup>/yr

Volume (1000m<sup>3</sup>)

- 500 - 0
- 0 - 500
- 500 - 1000
- 1000 - 1500
- 1500 - 2000
- > 2000



Total Volume	Used in industries	Used in households	Availability
50,4 Mm <sup>3</sup> /yr	12,4 Mm <sup>3</sup> /yr	17,4 to 25.3 Mm <sup>3</sup> /yr	12.7 to 20,6 Mm <sup>3</sup> /yr

# ► Socio-economic approach

- A difficulty : forest owners reaction
- Macro economics
  - Supply and demand theory
  - According to elasticity scenarii and prices level, wood supply could increase by **3.5 to 11 Mm<sup>3</sup>/yr**



# ► Conclusion/Prospects

- **Physical availability**
  - 12.7 to 20.6 Mm<sup>3</sup>/yr (depending of households consumption)
- **Difficulties to assess wood used in households**
- **Need to a better understanding of socio-economic blockage**
- **Need to update the results with updated data**