The German Wood Industry: facts and trends

- Industry facts
- Wood species
- Hazards and Trends

Companies and employees (D, 2004)

	companies	employees	Turnover in bill. €
Saw mills and wood composites	2.220	43.350	8,00
Wood machines	230	20.500	2,90
veneers	10	1.000	k. A.
window	5.600	26.000	1,30
furniture	1.293	137.000	19,80
Wood buildings	9.970	63.101	5,00
Prefab houses	116	14.234	2,10
Wood workers	41.989	203.656	16,36
trade	2.600	30.000	9,00
Pulp and paper	166	44.000	11,90
Wood preservers	240	4.100	0,40
Packaging, pallets	118	5.100	0,74
Parket flooring	30	1.600	0,25
total	**64.582**	**593.641**	**77,75**

(Quelle: Holzabsatzfonds 2004, nach Angaben der jeweiligen Verbände)

Use of wood by german industry 2002

	X 1000 m³
saw mills	*30.700
particle board industry	4.118
pulp	3.948
fibre board industry	3.638
veneer industry	217
plywood	154
total	**42.775**

***(Quelle: BMVEL Holzmarktbericht 2002, Betriebe mit mehr als 20 Beschäftigten)**

Wood cutting 2003

Tree species	X 1000 m³
Spruce, fir, douglas	*30.557
Pine, larch	9.771
Beech	8.475
oak	2.068
total	**51.182**

***without bark** **(Quelle: ZMP 2004)**

Use of wood versus planted area

Tree species	% of forest area	% of use[2]
beech	15	16
oak	10	4
Other broad leave species	16	1
Spruce, fir, douglas	32	60
Pine, larch	27	19

(Quelle: [1]Bundeswaldinventur II, 2004; [2]Marktbilanz Forst und Holz 2004, ZMP)

Saw mill industry

- **2 100 companies, 26 000 employees**
- **Turn over 4 bill. Euro**

→ 98 % stems from own forests
→ 7% broad leave species

→ products:
→ total 18,2 Mio. m³ (2003)
→17 Mio. softwood

Trends: new products, high export (30 %)

Wood composites

- **MDF : 3,4 Mio. m³ (2003)**
- **particle board: 8,5 Mio. m³ (2003)**
- **OSB : 0,8 Mio. m³ (2003)**

→ wood use: 15-20 Mio. m³/ year

Wood composites

- **120 companies, 17 350 employees**
- **4 Mrd. € turnover**

Trends

- – large units
- – higher resin prices
- - higher raw material prices!

Pulp and paper industry

166 companies, 44 000 employees

11,9 Mrd. Euro turn over

Production:

1,34 Mio. t wood fibres

850 000 t pulp

19,3 Mio. t paper, kartonage

$\rightarrow$ D is largest paper producer in Europe

Wood demand (2003): 7 Mio. m³

Furniture industry

1 300 companies, 137 000 employees

Turn over: 20 bill. Euro

Export: 25% !

Wood machining

230 companies, 20 500 employees

Turn over: 2,9 bill. Euro

D : world leader

- 65% export
- 30% of world market
- USA largest export partner
- highest growth : China (75% in one year)

Forestry versus Wood Industry

- Forest area 11,1 Mio. ha
- 3,4 bill. m³ on stock

  → Nr. 1 in Europe!
- Annual growth (former BRD)

  95 Mio. m³/year

Forestry versus Wood Industry

- Relatively low import of raw material from tropical countries
  - 2005: 150.000 m3 tropical hardwood totally (Meranti, Azobe, ..)
- Large wood industry with first conversion steps
  - Saw mills
  - Wood composites
  - Few: pulp (smell with Kraft)

(substantial difference to forest-poor countries like Netherlands)

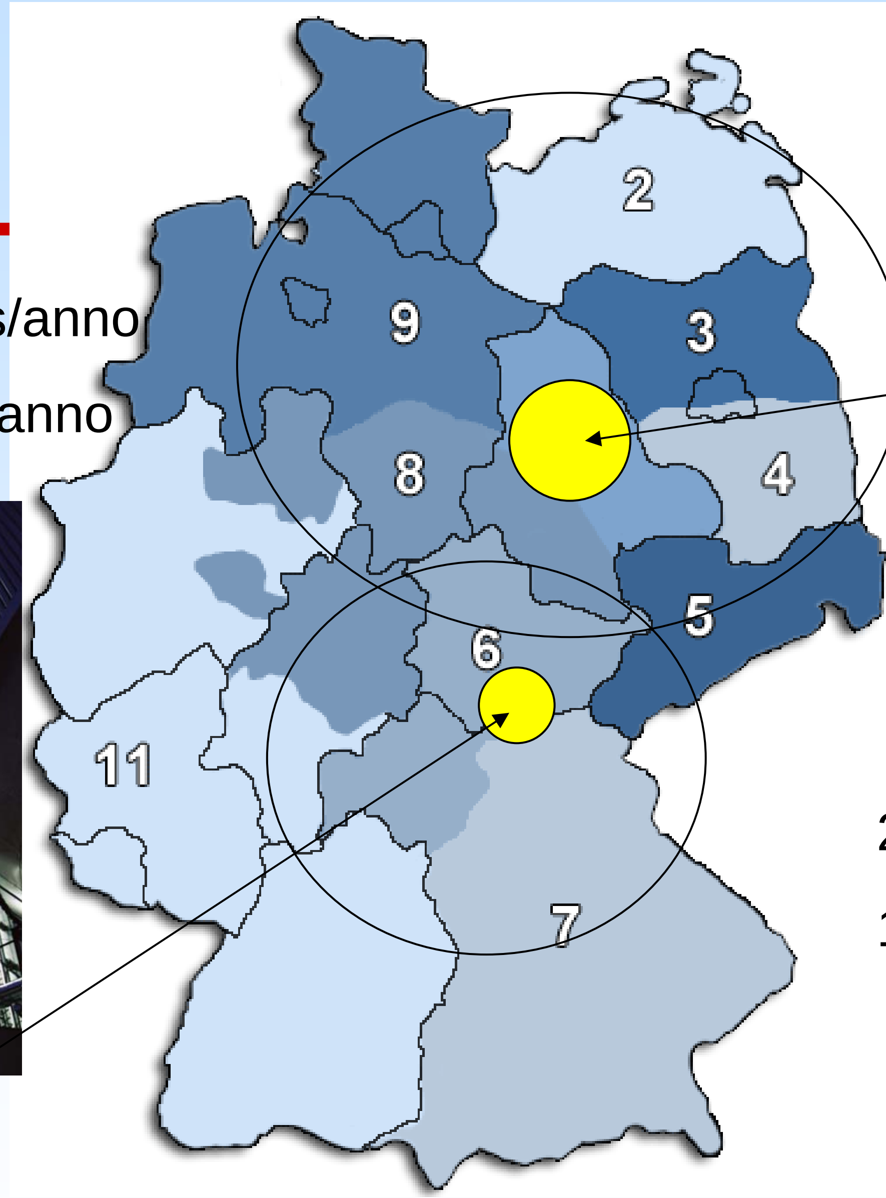
Recent trends in Germany influencing forest resouces

- 1. New pulp producer in Stendal
  - – New environmental filters in sulfate technology!
    - Pine useable!

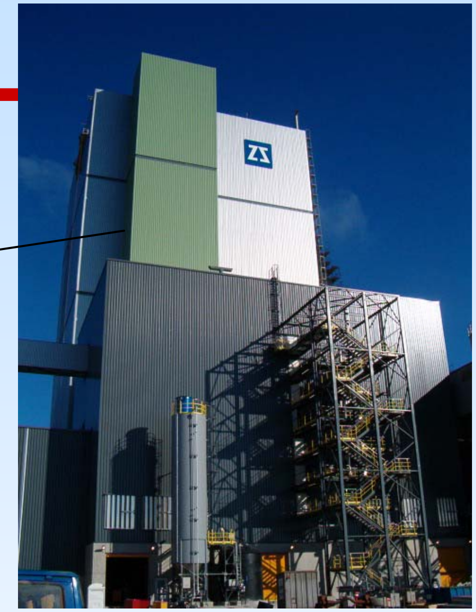
1,0 mill. m³ chips/anno

0,5 mill. m³ logs/anno

ZPR Blankenstein



Zellstoff Stendal (ZSG)



2 mill. m³ logs/anno

1 mill. m³ chips/anno

Institute of Wood Biology and Wood Technology
Georg-August University of Göttingen

Recent trends in Germany influencing forest resouces

- 2. New saw mill technology
  - Faster production
  - More raw material needed
    - Softwoods
    - Hardwoods (Pollmeier)

<u>Today: Germany export country in sawn wood!</u>

Recent trends in Germany influencing forest resouces

- 3. Energy production
  - Large plants
  - Small plants (households)!! Pellets!!

Actual situation of wood energy use in Germany demonstrated by examples

Types of wood fuel

Split logs

Chips (made from logs, branches or used wood)

Pellets (made from sawdust and shavings)

Briquets (made from sawdust and shavings)
Sawdust
Gasified, liquified or as hydrogen

An groundbreaking wood fuel:
Pellets = Wood from the tank lorry

- Made by pressing of untreated shavings and saw dust in pellet press (matrix) (without binding agents or 2% starch)
- Delivery by tank lorry
- Filling of storing rooms by air injection (tubes up to 40 m length)
- Burning in fully automatic and relatively small burners

Source:http://www.esv.or.at/cinformation/pellets/haendler.htm

Pellets: Always new ideas!

1. Combination with a solar panel for efficient use of buffer storage tank:
- In winter for wood heating system
- In Summer for the solar panels

2. Electricity (60-80 % of the needs) + heat produced at home (even by pellets!)

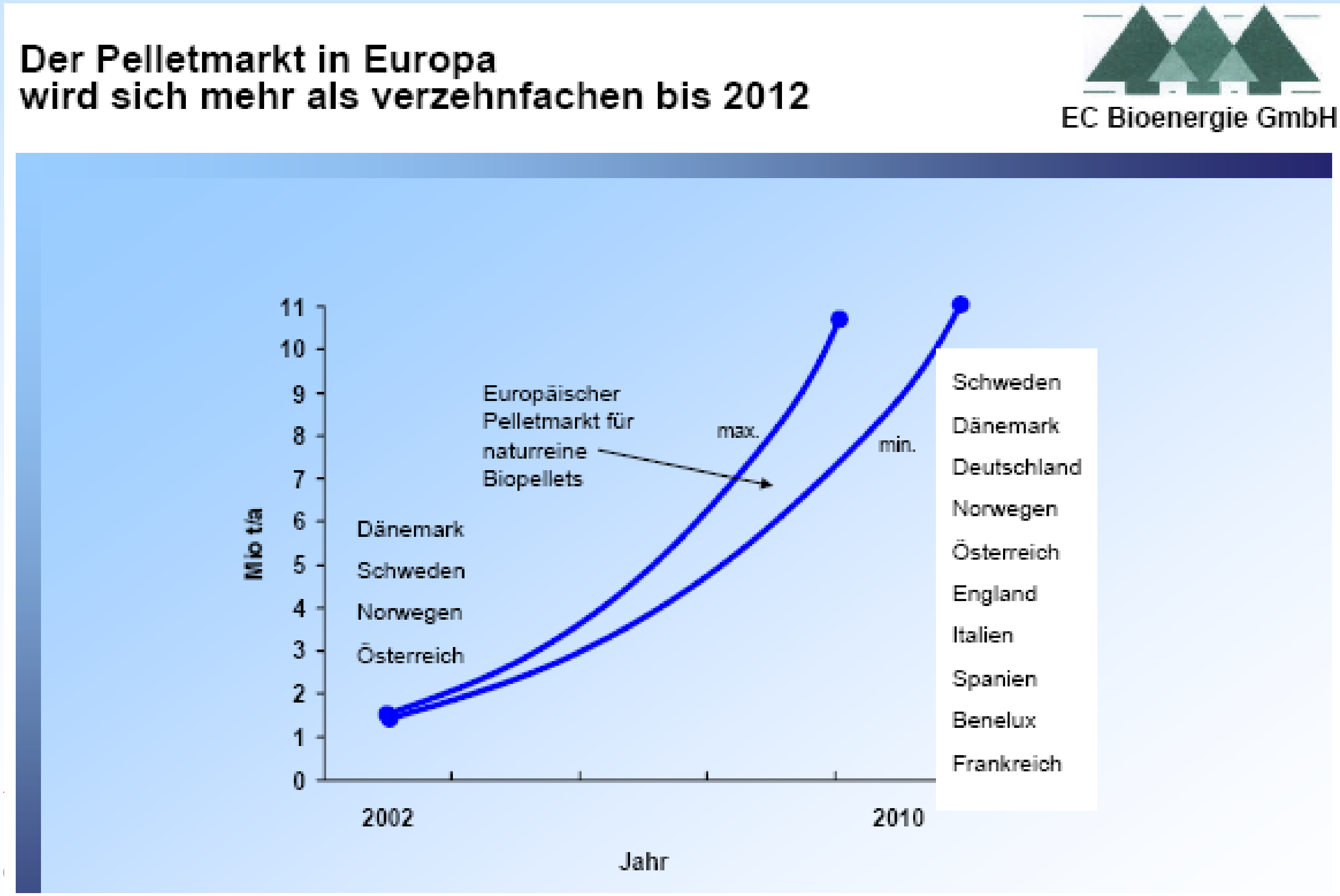
3. Pellet ovens with „Brennwert-Technik“ = 100% energy effcieny
http://www.stmlf-neu.bayern.de/presse/2005/12439/index.php<30.05.2005>

Example: Stadtwerke Hannover District heating by pellets

In operation since 2003 to subsitute two old oil boilers
Reducing CO_2-emissions by 45%
Supplying 20 appartment-houses with 612 appartments
540 kW pellet boiler (base load all over the year)
+ 2,700 kW gas boiler (peak load in winter)
+ 8,000 li heat storage tank
Contracting project: energy company delivers heat to the customers (not fuel!)

Fotos: KÖB

Rapid development of the European pellet market expected; Production capacities growing



Challenges for forestry and wood industry

- Bundeswaldinventur shows:
  - Annual growth 95 mill. m3/ year
  - Cut 50-60 mill.m3/ year

    Conclusion: more wood could/ should be used!

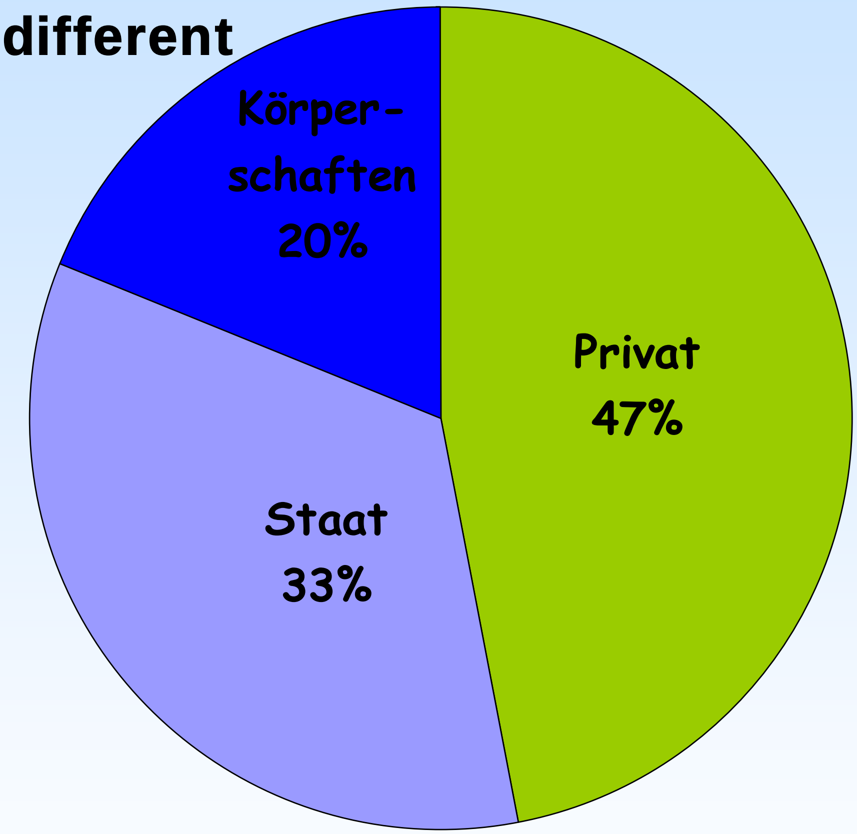
    But: truth is not as easy!

    Fact: large demand on smaller dimensions

    - energy
    - pulp
    - composites

Ownership of forests in Germany

Percentage of different ownerships



11 Mio. ha Forests in Germany

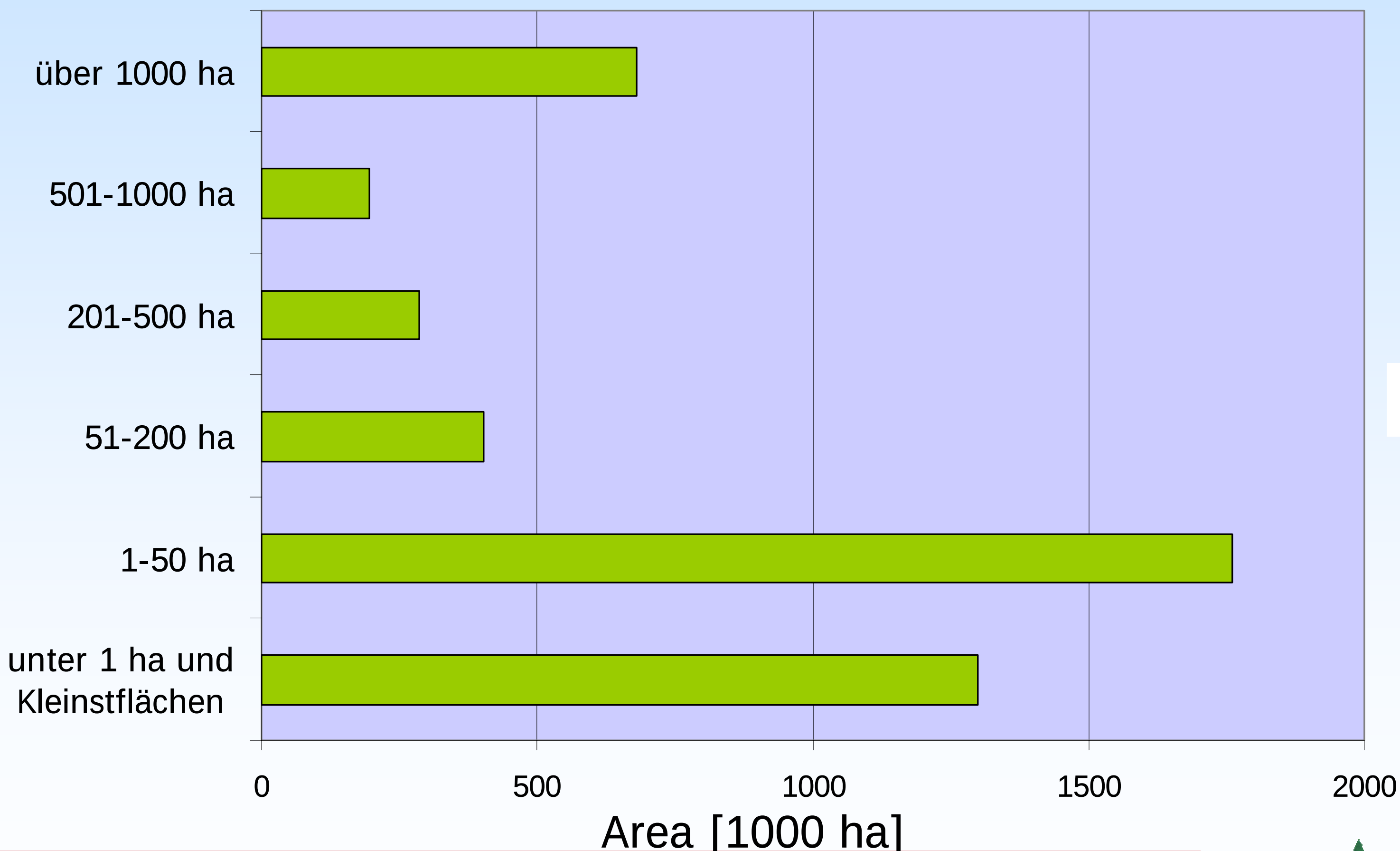
Private forests in Germany

- about 4,8 Mio. ha
- about 2 Mio. families

→ average property less than 2.5 ha/family

Private forests in Germany

Size of properties



Characteristics of family forestry in Europe

- 60% of EU 15 forests are owned and managed by families – generation bridging management and experience
- Small scale forest holdings (average size: EU15=5 ha; CEEC= 2 ha)
- 15 million family forest owners (EU 25)
- Multifunctional forest management balancing economic, social, ecological and cultural requirements respecting the diversity across Europe
- Local ownership, contributing to economic and social sustainability of communities

Challenges for forestry and wood industry: raw material

1. Alternative sources for energy production on agricultural lands

   - bio-fuels (rape seed,..)

   - fast growing fibre plants/ residues (wheat straw, willow,…)

2. Alternative sources for fibre use on agricultural land

   • Hemp, flax, wheat, willow, poplar..

Challenges for forestry and wood industry: raw material

3. Production plantations for fibers and solid wood

- energy
- pulp
- sawn wood

Examples: Chile, NZ, SA, Portugal, Spain

Challenges for forestry and wood industry: raw material

Consequence:

Separation of forest functions for production plantations!

Nowadays:

- recreation +++
- biodiversity +
- production +/-
- sozio-economic ++

Challenges for forestry and wood industry: raw material

Consequence:

Separation of forest functions for production plantations!

- recreation --
- biodiversity --
- production ++
- sozio-economic ++

Thank you very much for your attention!