PROTECT RESOURCES.
STRENGTHEN THE ECONOMY.

Resource Efficiency in the wood processing industry

Ekkehard Wiechel,
Effizienz-Agentur NRW
1. General introduction
2. EFAs Working structure
3. Practical Example
4. Conclusions
5. Outlook
EFFIZIENZ-AGENTUR NRW
PARTNER FOR RESOURCE EFFICIENCY

- Founded by the Ministry of Environment of North-Rhine Westphalia

- **Objective**
  Improve Competitiveness of Small and Medium sized Enterprises (SMEs) by supporting a strategy of sustainable growth

- **Approach**
  Introduce Innovative Technologies, Methods and (Business-) Processes to SMEs that improve resource efficiency, avoid waste and hazardous emissions and deliver instant results

- over **1,400 Resource-Efficiency-Projects** in SMI since 2000

- 26 employees in Duisburg and 6 regional offices

Area: 34,084 km²

GDP: 462 Euro bn.
Rank 14 in the world

Foreign Trade:
Imports: 122 Euro bn.
Exports: 119 Euro bn.
## SOME KEY FIGURES

<table>
<thead>
<tr>
<th></th>
<th>Employees in Wood industries</th>
<th>200.000 of 5,4Mio in total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood consumption per capita</td>
<td>[m³-wood equivalent/year]</td>
<td>1,1</td>
</tr>
<tr>
<td>Forested Area in total</td>
<td>[km²]</td>
<td>9150</td>
</tr>
<tr>
<td>Logging Volume</td>
<td>[m³(f)/Jahr/km²]</td>
<td>0,65</td>
</tr>
<tr>
<td>Logging Potential</td>
<td>[m³(f)/Jahr/km²]</td>
<td>0,7</td>
</tr>
<tr>
<td>Stock Volume</td>
<td>[Mio. m³(f)]</td>
<td>approx. 250</td>
</tr>
</tbody>
</table>
COST PROPORTION
PRODUCING SECTOR IN GERMANY

- Material: 42.9%
- Personnel: 20.5%
- Trading: 11.1%
- Rent, costs, tax: 12.1%
- Rest: 11.00%
- Energy: 2.4%

Quelle: Statistisches Bundesamt 2011
Savings in production material:
- Self-estimation of producing companies: Ø 7% savings could be possible
- Other sources (e.g. DEMEA) 20%
MATERIAL FLOW ANALYSIS / PIUS-CHECK

HOW DOES IT WORK?

1. Allocation of consumption
2. Action plan to improve efficiency
RESOURCE EFFICIENCY IN GENERAL
OVERVIEW OF EFFECTS OF MATERIAL FLOW

- Avoid of material in stock => lowered capital lock up
- Optimized cutting leads to minimized losses
- Reduced consumption of energy
- Optimized lot sizes
- Life-cycle-management
- Inter connection of process-chains
- Resource efficient product design (design for recycling..etc)
- Reduction of machine set-up time
- Increased Production capacity

Reduction of CO₂ -Output
PIUS-CHECK®
BASIC PROJECT STEPS

Initial meeting

Relevance check on cleaner production

Macro analysis

Specific material flow analysis for company site

Intermediate meeting

Definition of further action

Micro analysis

Develop and propose alternative manufacturing concepts

Concept planning

Implemention of the planned action

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RESSOURCE EFFICIENCY IN WOOD INDUSTRY
PROJECT DESIGN

Targets:
- Support wood working companies
- Test the effectiveness of the material flow analysis in wood processing industry
- Find out about branch related starting points

Participants:
- EFA
- Landesbetrieb Forst und Holz NRW
- Consultants
- 3 Sawmills hard wood and soft wood with different production volume and technologies
RESOURCE EFFICIENCY IN WOOD INDUSTRY
ADDITIONAL BENEFITS FOR THE COMPANY

First results:

- Improvement of Compressed air systems:  
  ◦ Savings: 78t CO$_2$/a

- Validation of new heating system  
  ◦ Savings: 51t CO$_2$/a

- Introduction of a new wood drying solution  
  ◦ Savings: 3200t CO$_2$/a

Other benefits:

- Integration of a cost indicator system to realize an up cycled use of material

- Optimized pre-selection of ordering
Conclusion:
The material flow analysis is an appropriate method (future leading) to reach a cleaner production of wood products.

Outlook:
- Further companies along the chain of economic value of timber will be analyzed.
- Preparation of a guideline for material flow analysis in the wood sector.
- Transfer of knowledge and experience.
Thank you very much for your attention!

Further information about the Effizienz-Agentur NRW under:
www.cleanerproduction.info
www.efanrw.de

or get in touch under:
Tel.: +49 203/37879-30
Fax: +49 203/37879-44
eMail: efa@efanrw.de