Innovation scenarios
A pulp and paper industry perspective

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ROCE and EBITDA

- Low profitability

European pulp & paper industry profitability

Source:
Orman 2011: Forests in a Green Economy, 10-14 October, Antalya Turkey
Operating in a challenging world

- Population by 2050 – 9 billion
- GDP from US$35 to 72 trillion by 2030
- For each additional $ earned, 30-40% to food consumption
- Cereal demand: + 42% by 2030; + 67% by 2050
- Energy demand x 2 by 2030
- Increase share of carbon free energy to 50-80%
- GHG emissions decrease 50-80% by 2050
- Total water demand to increase 30% by 2030
- Long distance transport increased 10 times 2002-2009
- 4-5 billion Internet users through mobile phones
Input prices developments
Pulp and other commodities prices

Source: IMF, RISI, July 2011
Peak Land

Where is the Land Coming From—2030? How to Balance the Demand?

- **Availability**: 250—300 million ha
  - **Industrial Forestry**: 25 million ha
  - **Agriculture Demand**: 200 million ha
  - **Biofuel**: 290 million ha
  - **Chemical Industry**: ?
  - **Heat and Electricity**: ?

Source: Nilsson, 2008

Palm Jumeirah in Dubai

Orman 2011: Forests in a Green Economy, 10-14 October, Antalya Turkey
Innovation – 2 routes

Doing better what the industry does well (pulp and paper), improving the process (energy efficiency, resource efficiency, recycling, etc.)

Doing new products (bio-polymers, nanotech, biofuels, biochemicals, etc.) for new uses
Route 1- Excelling in Paper making

- Improved online forming
- Multilayer paper (e.g. aquavane)
- Smart labelling
- Condebelt drying technique
- Optical sorting technologies for recycled fiber
Route 1 – New paper applications (functionalisation)

- Hot / Cold sensitive paper
- Fresh / Old sensitive paper
- Intelligent paper memory cards
- Pharma DDSi – Intelligent packaging for pharmaceuticals reminding you to take your pills at the certain time
- Paper batteries
- Hydrophobic paper
- Solar cells printed on paper
Route 2 – new products for new uses

• Improved lignin extraction (carbon fiber, chemicals, bioenergy)
• BTL – Gasification
• Micro-fibrils
• Textile fiber
• Food additives
• …
It’s time for a change!

Henry Ford:

“If I'd asked people what they wanted, they would have said a faster horse”

NO LIMITS, many opportunities, but many challenges!
Thank you for listening

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