



Joint Session of the ECE Timber Committee and the FAO European Forestry Commission

Location, Turkey – 10-14 October 2011



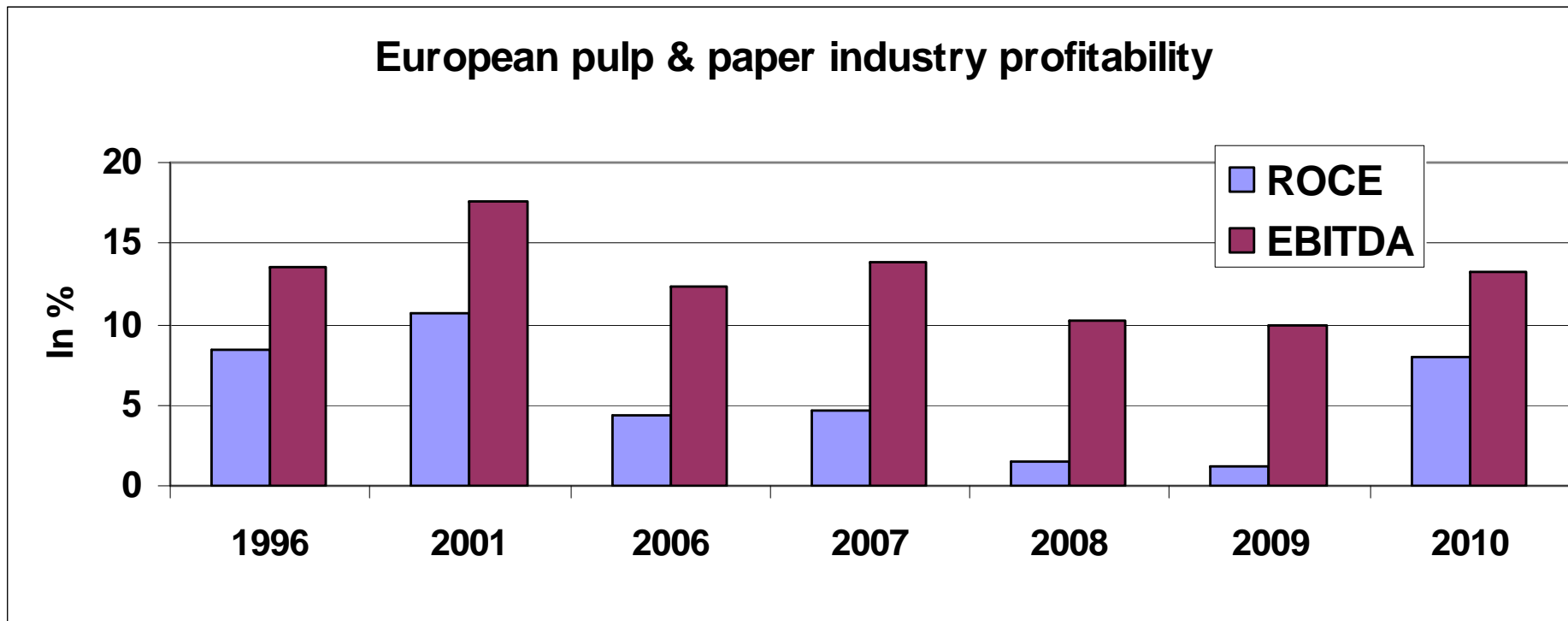
Innovation scenarios A pulp and paper industry perspective

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ROCE and EBITDA

- Low profitability



Source:



Orman 2011: Forests in a Green Economy, 10-14 October, Antalya Turkey

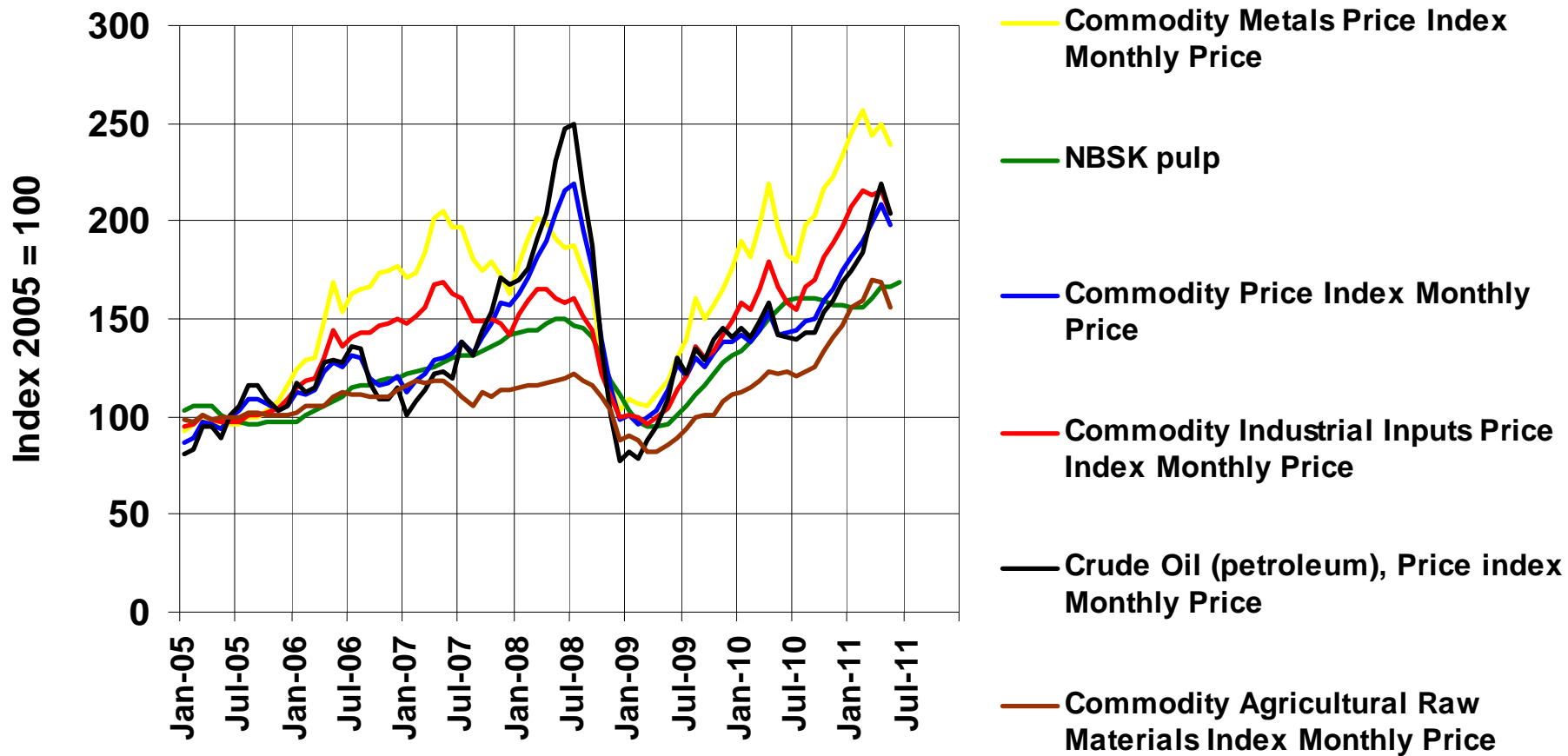


Operating in a challenging world

- **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

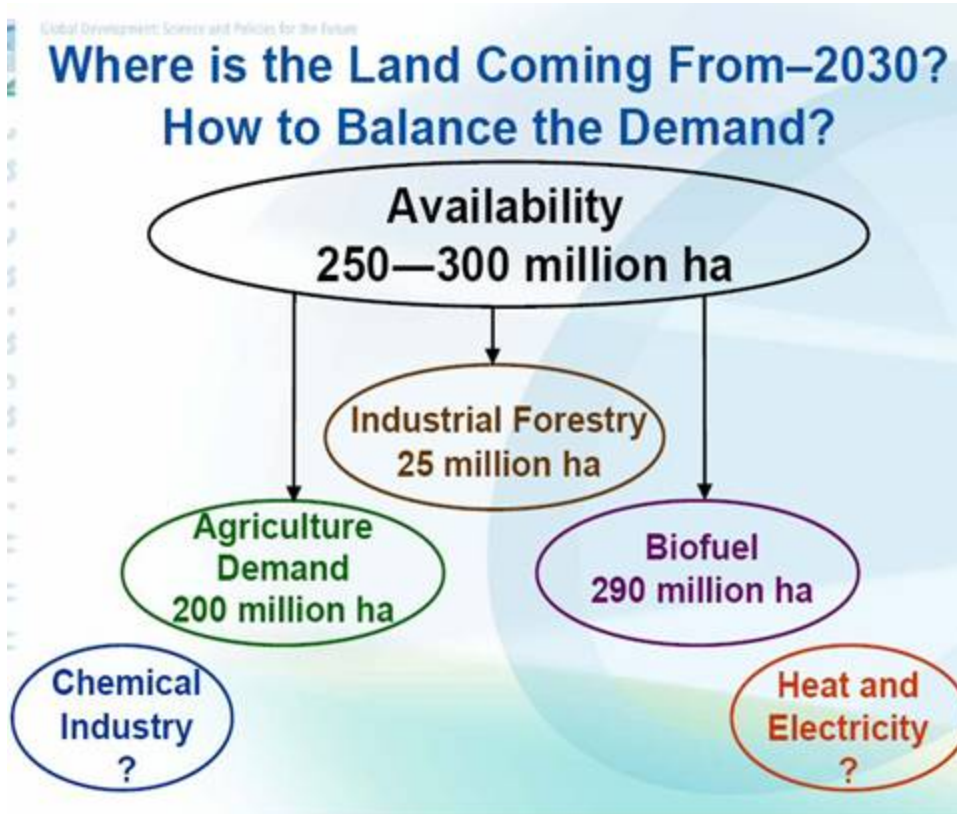


Source: IMF, RISI, July 2011

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Peak Land



Source: Nilsson, 2008



Palm Jumeirah in Dubai

Innovation – 2 routes

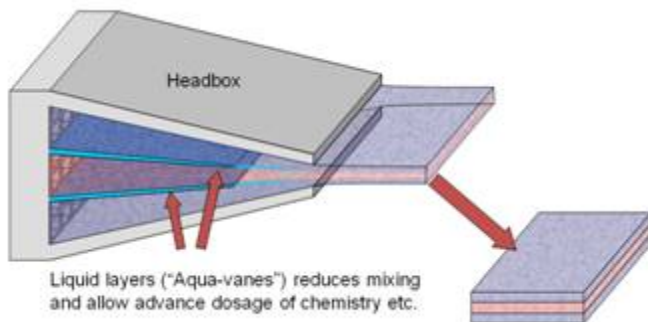
Doing better
what the
industry does
well (pulp and
paper),
improving the
process
(energy
efficiency,
resource
efficiency,
recycling, etc.)



Doing new
products (bio-
polymers,
nanotech,
biofuels,
biochemicals,
etc.) for new
uses



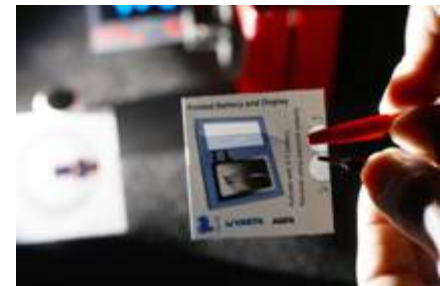
Route 1- Excelling in Paper making



- 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

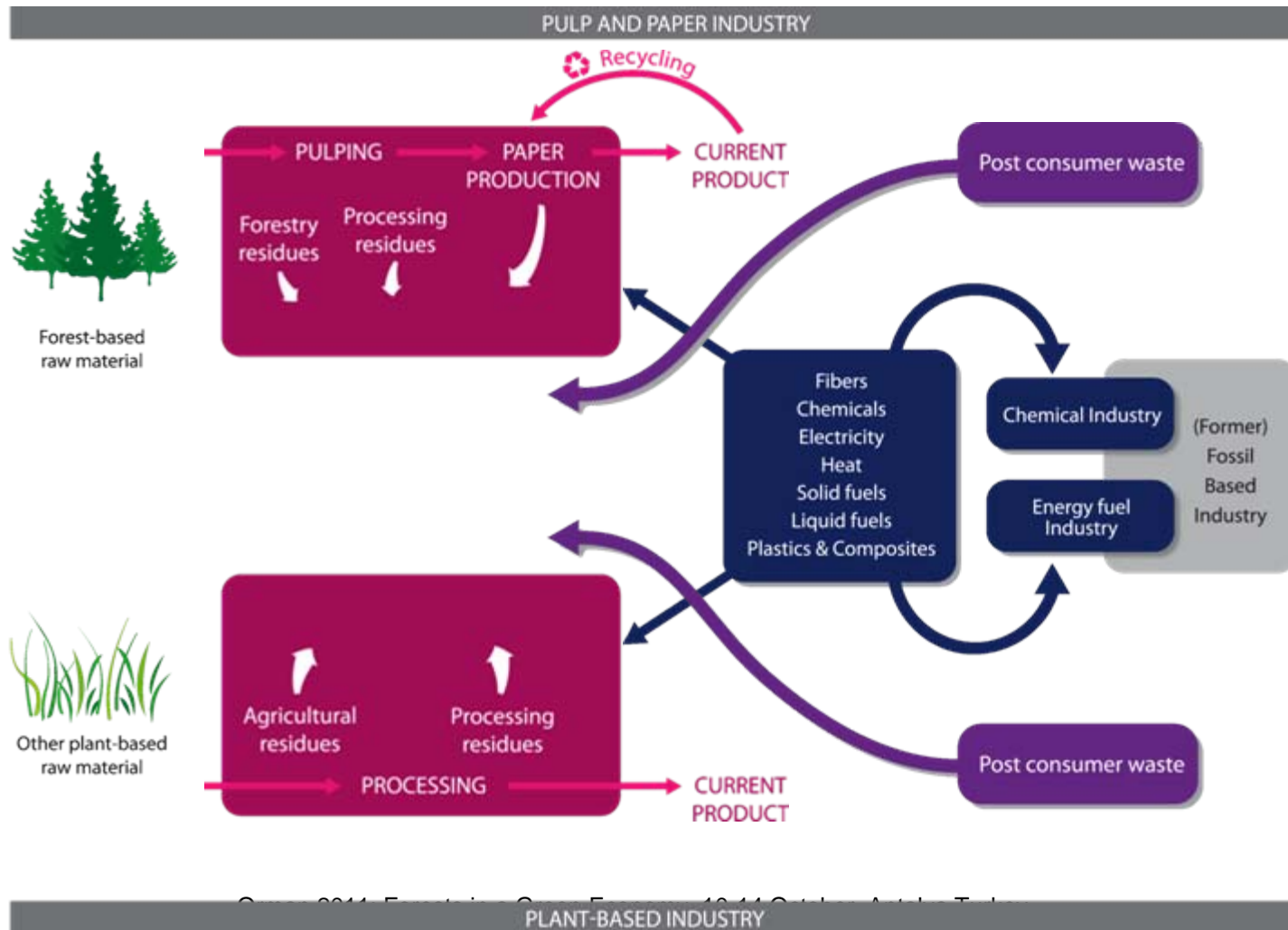


Route 2 – new products for new uses

- Improved lignin extraction (carbon fiber, chemicals, bioenergy)
- BTL – Gasification
- Micro-fibrils
- Textile fiber
- Food additives
- ...



Biorefinery





Paints



Exipients



Food



Construction



Pulp & paper



Construction



Cosmetics
Health products



Bioethanol



Animal Feed



Coatings



Textiles

Dyes



Car batteries

Additives
for
tiles and
bricks



Soft Acid



Fine
chemicals



Agriculture



Plasticisers



Pelleting



Oil field
chemicals



Flavour



Fragrances



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!



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Thank you for listening

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