



The forest based bioeconomy – Opportunities and Challenges

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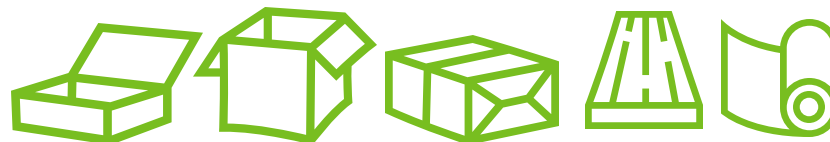
23 November 2018

Stora Enso at a glance



30 countries
10 BEUR sales 2017

**Leading producer of
board, pulp, wood
products and paper**



We know the origin of
all the wood we use.
100% comes from
sustainable sources.



15,9% Operational ROCE

13,8% EBIT margin

Q3/18

1.1 Net debt to operational
EBITDA Q3/18

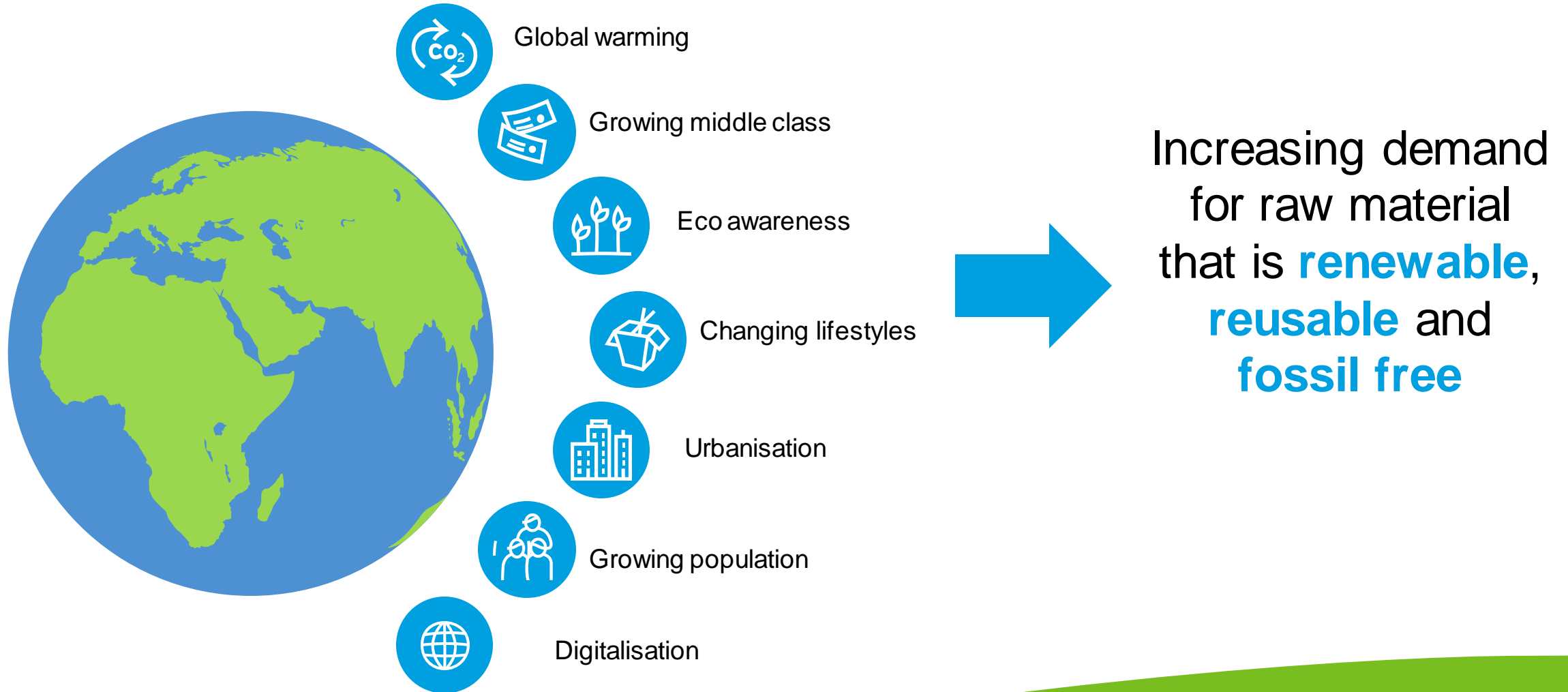
7%

of our sales came
from **new products
and services**

We employ
26 000 people



We are perfectly positioned to benefit from the megatrends...



...as The renewable materials company



Everything that's made with fossil-based materials today can be made from a tree tomorrow



Portfolio aimed at growth



Consumer Board – Expansion of relative market share in profitable niches



Packaging Solutions – Selective profitable growth



Biomaterials – Strengthening current business and creating new profitable growth



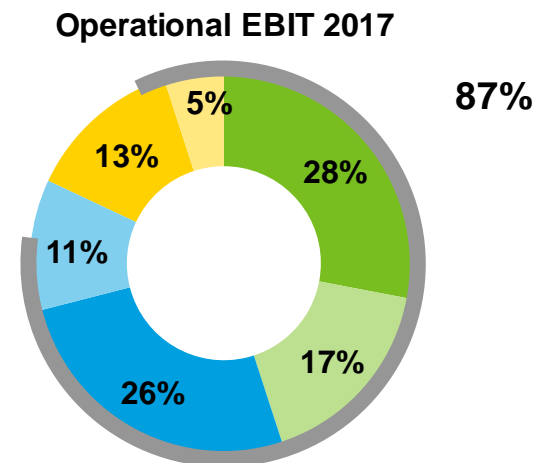
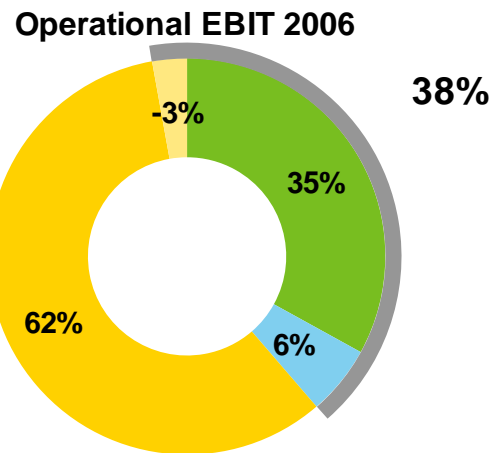
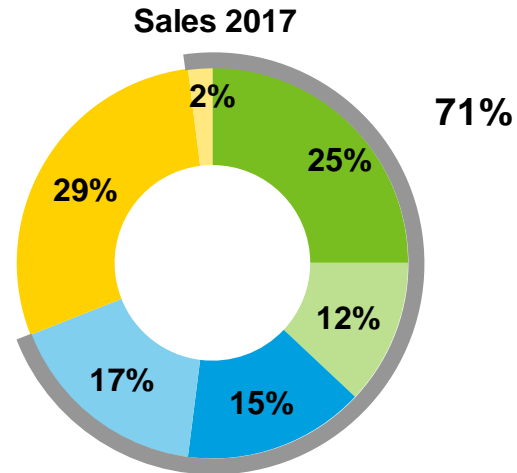
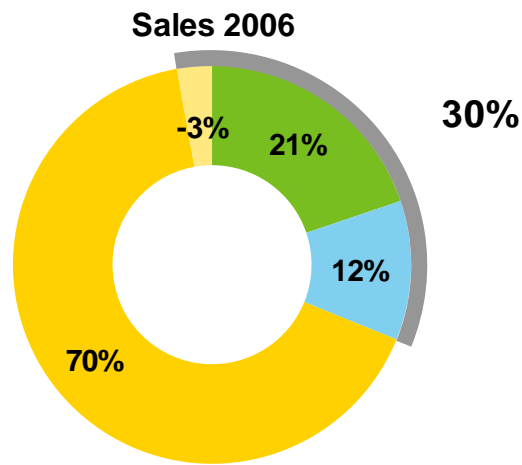
Wood Products – Accelerating growth



Paper – Strategy for maximum cash generation

Transformation journey continues

2017: Growth businesses 71% of sales and 87% of operational EBIT



- Consumer Board
- Packaging Solutions¹
- Biomaterials
- Wood Products
- Paper²
- Other & eliminations

¹ In 2006 included in Consumer Board

² In 2006 includes merchants



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Possibilities to substitute fossil based materials

Examples of our solutions replacing fossil-based materials today



Biocomposites will generate further growth

First time a truly cost-competitive material compared to general purpose plastics



- Revenue creation from totally new production stream
- Development in 2018
 - Production line in Hylte inaugurated
 - Next investments ongoing
 - Competence Centre under progress
- Market introduction ongoing
 - DuraSense™ by Stora Enso brand launched
 - First commercial deliveries with brand owners: ie Orthex and H&M
 - Cooperation with NorDan to develop biocomposite materials for 3D printing ongoing



Taking wood to new heights



PEFC-certified house Mäihä, Finland



Ris de Orangis, Paris, France



Student homes Haugesund, Norway



International House Sydney, Australia



Trummens Strand, Sweden



Crome Court, UK



Green Office Enjoy, France. BBCA-certified



Wine Museum, Bordeaux, France

Allu – a dress made of wood in Pure Dissolving Pulp

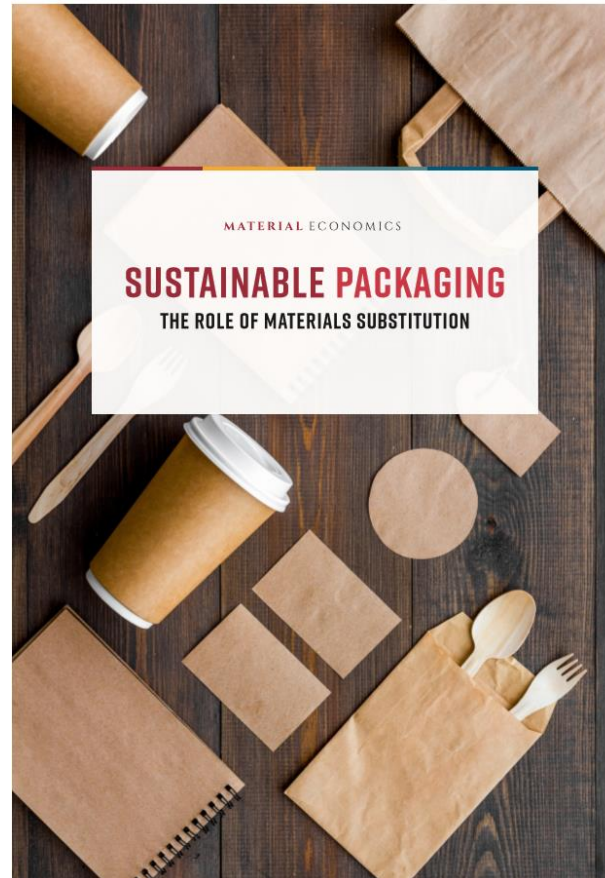


- One example of the applications for dissolving pulp is the clothing industry
- Fabrics such as viscose, rayon, modal, lyocell, and cupro are all made from 100% wood fibres
- Enocell pulp mill produces 150 000 tonnes / year of dissolving pulp from birch wood
- EUR 52 million will be invested to increase the dissolving pulp production capacity at Enocell Mill
- Product development in collaboration with our customers



marimekko®

NEW ARTICLE WITH FACTS AND FIGURES ON MATERIALS SUBSTITUTION



Plastics use is generating an intense debate on a number of fronts



CO₂ emissions

30%

...of EU emission targets in 2050 from plastics packaging

Ocean leakage

100Mt

...increase of plastics waste in the oceans until 2025

Oil use

25%

Petrochemicals make up 25% of total oil demand growth to 2023

Global emissions from plastics are as large as Germany's annual CO₂ emissions



Plastics CO₂ emissions



Germany's CO₂ emissions



Material Economics conclusions



1 Increased recycling of plastics is necessary but not enough

2 25 % of current plastics use in packaging can be replaced by fibre based

3 Actions for material substitution should be taken by business and policy



**Between 2005 and 2015,
European forests grew by an
area the size of Switzerland -
that's 1 500 football pitches
every day!**

Trees grow back Wooden buildings at Trummens Strand in Sweden



European policy can support the forest based bioeconomy



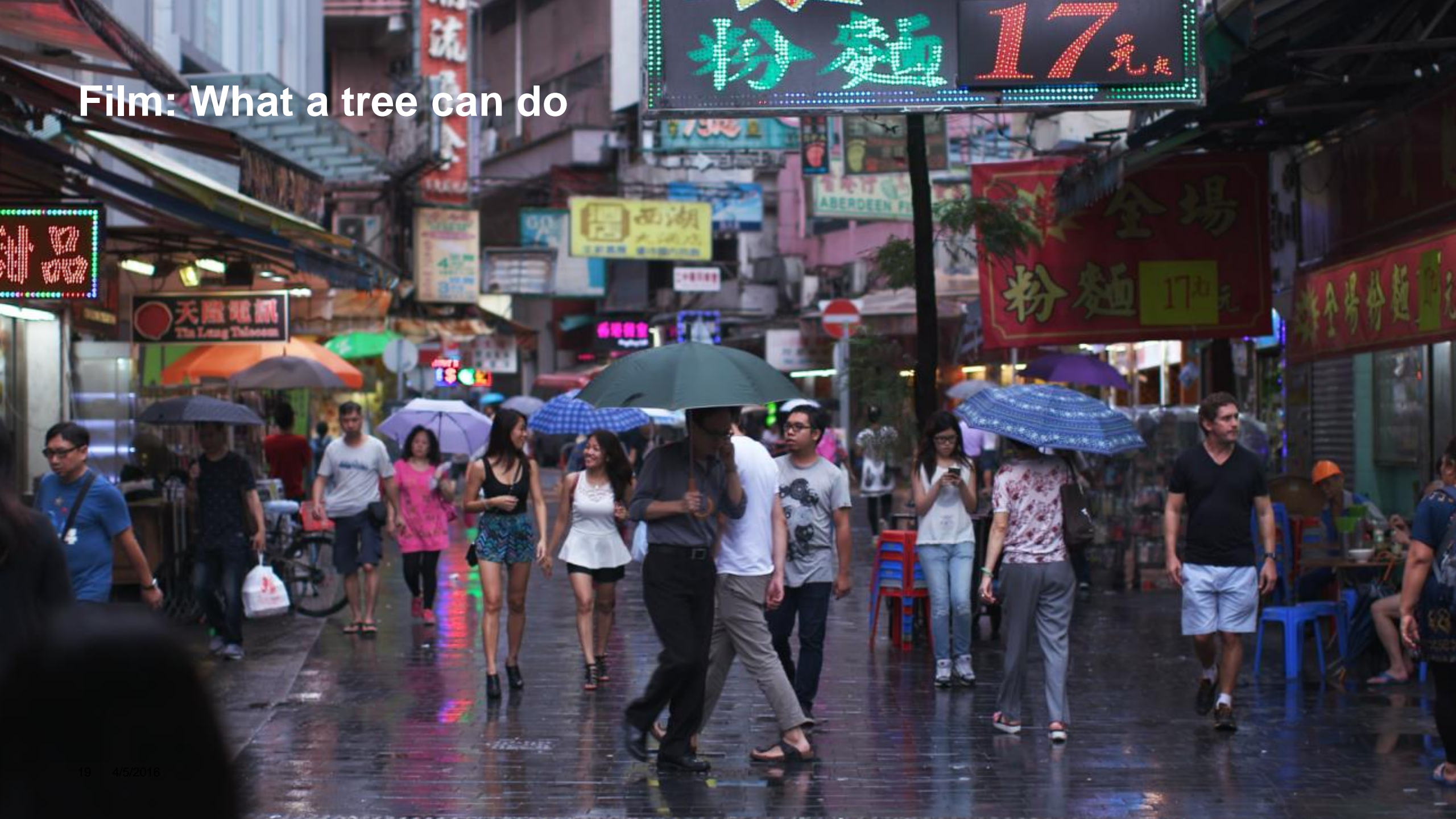
1 Apply a holistic policy approach – i.e plastics and climate are interlinked

2 Utilize the full European potential of sustainable forestry

3 Implement policy for substitution of fossil based materials in all areas

4 Keep research & Innovation high on the bioeconomy policy agenda

Film: What a tree can do





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THE RENEWABLE MATERIALS COMPANY