



UPM

The Biofore
Company

UPM Pulp Sustainable growth

Heikki Vappula

EVP, UPM Biorefining

31 May 2018





UPM

The Biofore
Company

Strong outlook for pulp



UPM Pulp

Global megatrends drive demand for tissue, hygiene, packaging and specialty paper end-uses



Population growth,
urbanization



Resource scarcity,
role of renewables



Digitalisation, e-commerce

Tissue



Packaging paper and board



Specialty paper



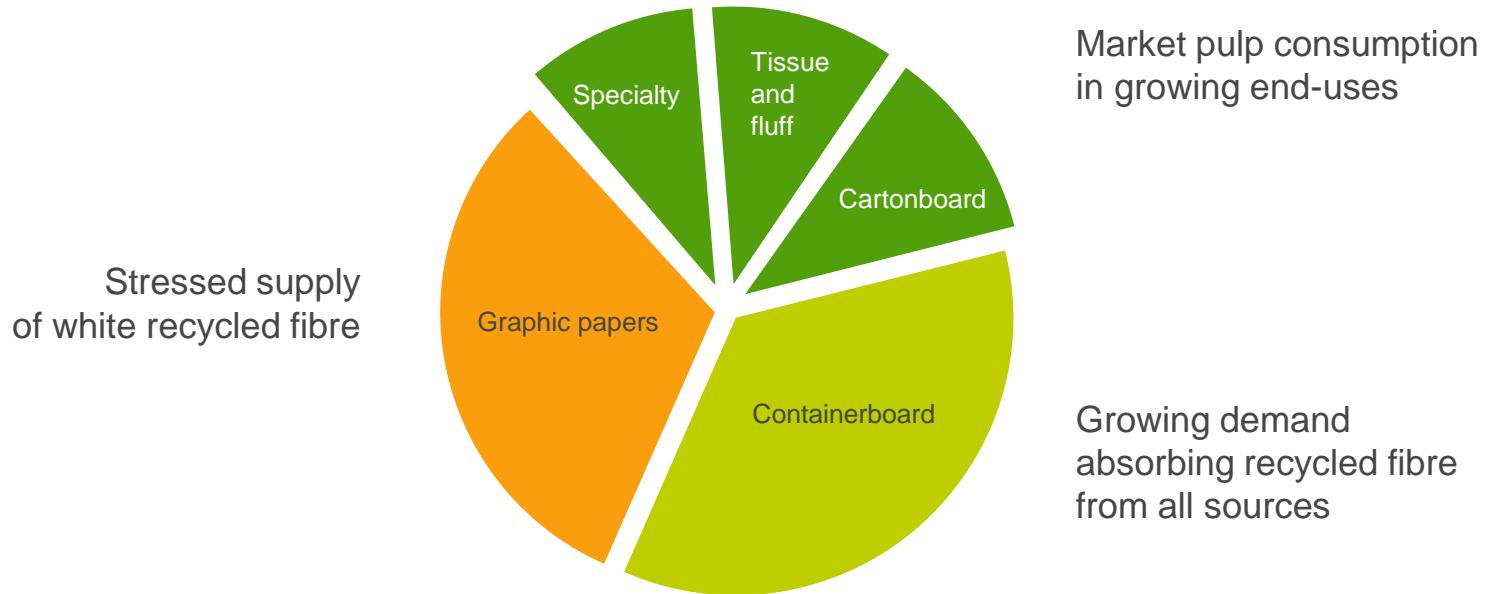
Market pulp



UPM Pulp

Market pulp consumed in growing end-uses – supply of alternative white fibres declines

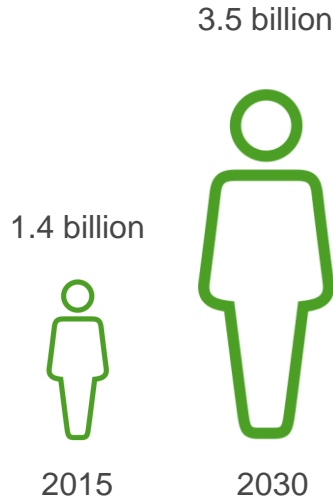
Global paper and board production



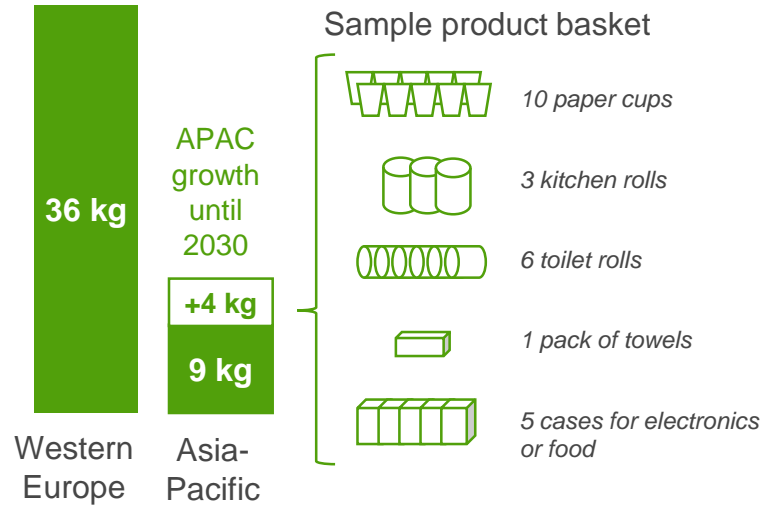
Tissue and cartonboard demand growth in Asia-Pacific



Middle class in Asia-Pacific*

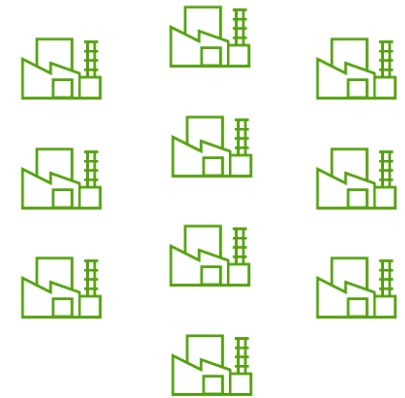


Growing middle class drives consumption** rate of tissue and cartonboard



Impact on pulp demand

Resulting demand increase represents 10 modern pulp mills by 2030***



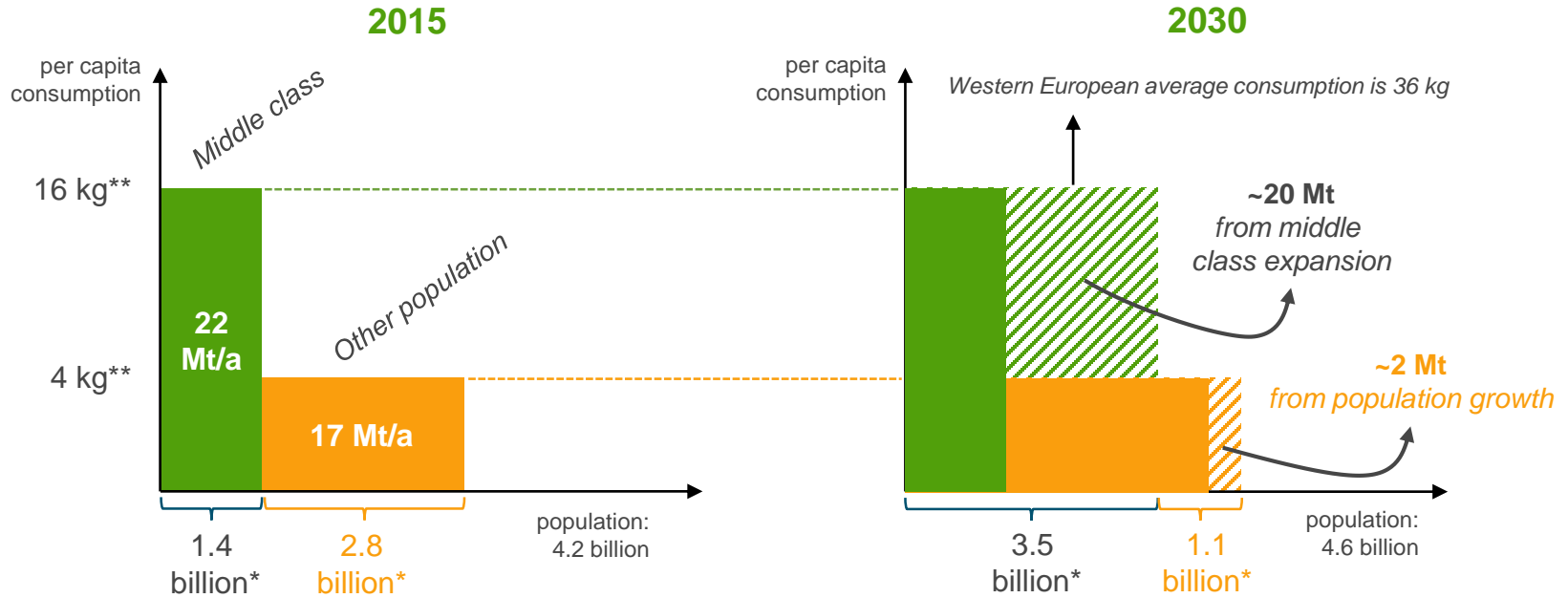
* The Unprecedented Expansion of the Global Middle Class: an Update, Brookings working paper 2017

** RISI and Pöyry actual estimates, UPM projection

*** Not including capacity exits

Expansion of middle class in Asia-Pacific: an illustration

Consumption of tissue and cartonboard per capita



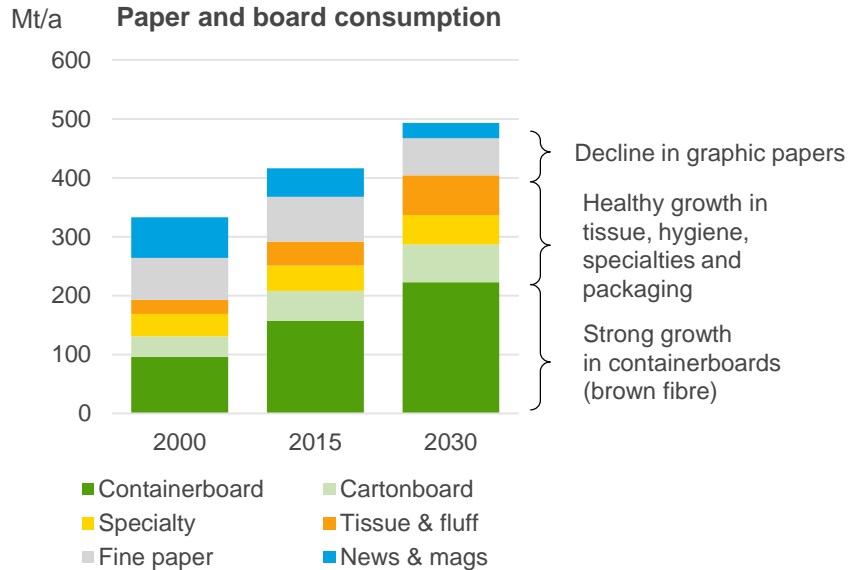
* The Unprecedented Expansion of the Global Middle Class: an Update, Brookings working paper 2017

** Illustrative; derived from total per capita consumption and regional differences

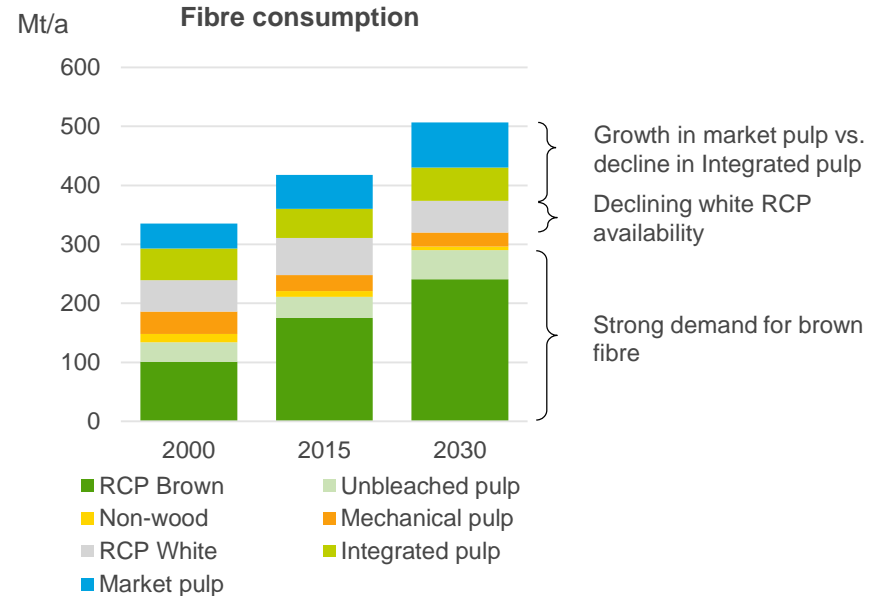
UPM Pulp

Pulp demand outlook

Increase in end use ...



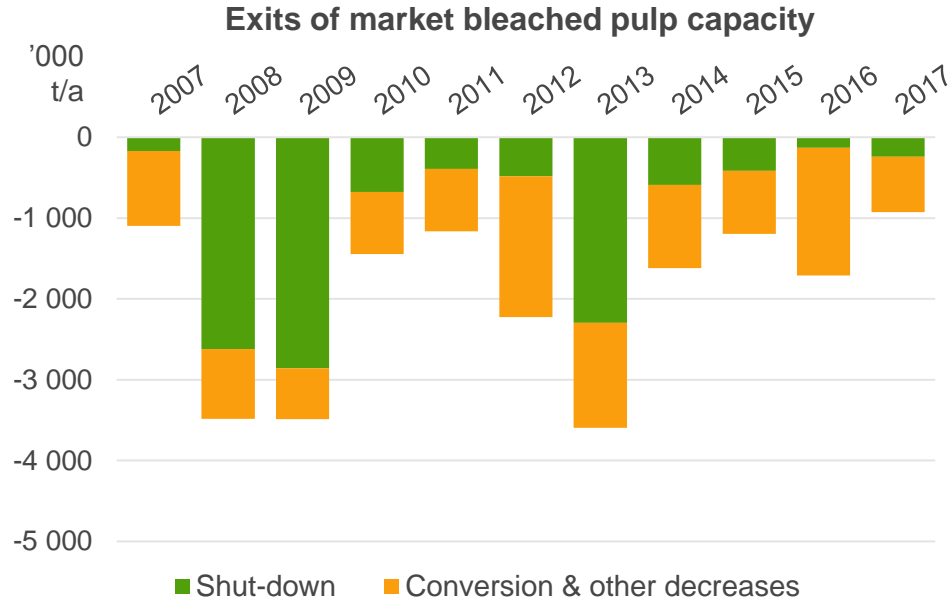
... will drive fibre demand



Source: UPM, Pöyry, RISI

UPM Pulp

Between 1-3 million tonnes of market pulp capacity closed yearly; trend expected to continue



Note: including BHKP, BSKP, PG-sulfites and non-wood grades, excluding fluff and dissolving

Capacity exits are inevitable over time:

Asset reaching end of lifecycle

Poor competitiveness

Closure of integrated paper capacity

Environmental regulation

Swing capacity e.g. to dissolving or fluff

Integrating to downstream products

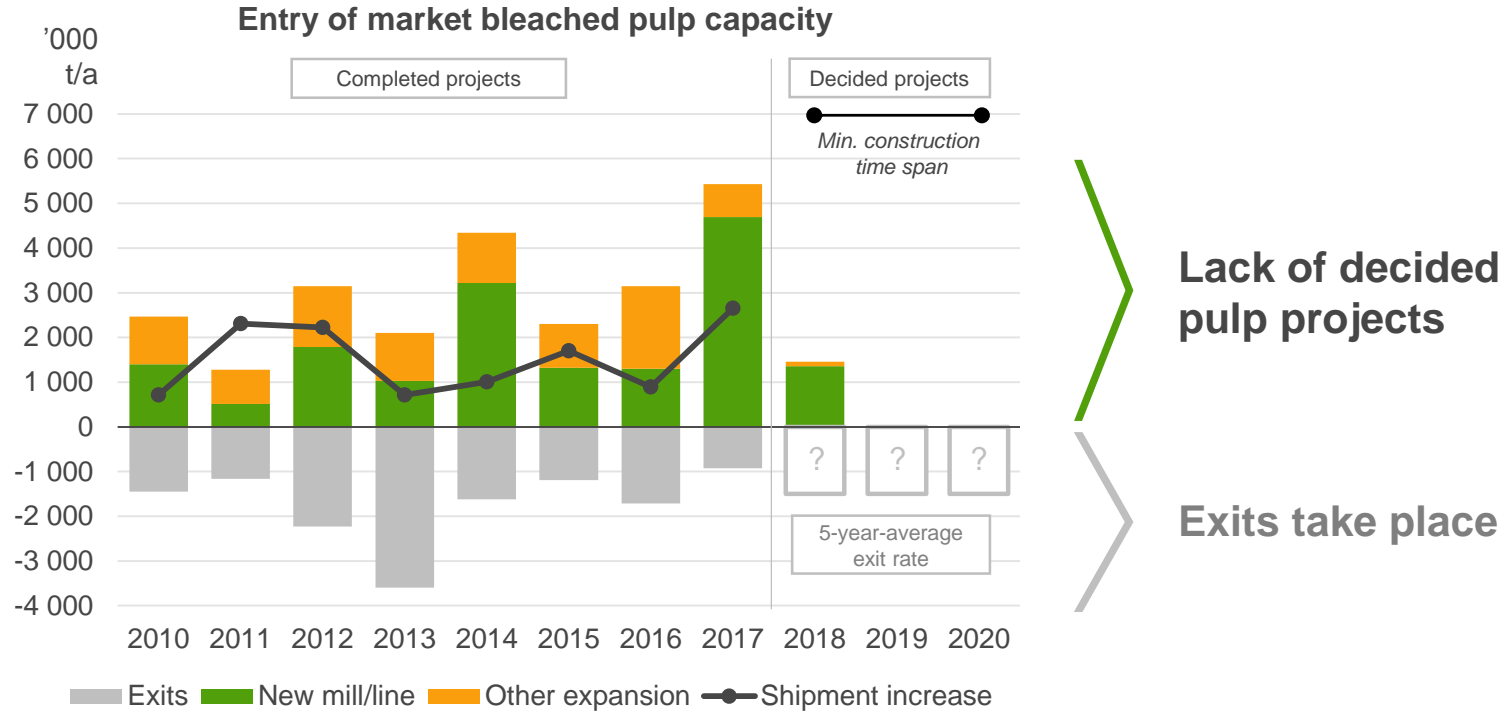
Source: Pöyry



The Biofore Company

UPM Pulp

Few decided projects coming on stream in the short-term



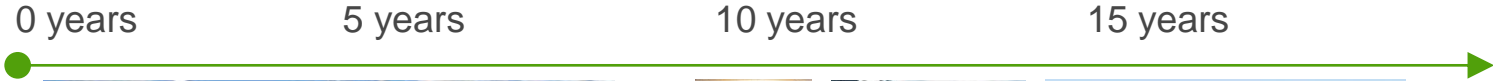
Note: including BHKP, BSKP, PG-sulfites and non-wood grades, excluding fluff and dissolving

Source: UPM, Pöyry

UPM Pulp

Investment execution time frame for plantation-based greenfield pulp mill

The long time frame provides great visibility but requires commitment from participants



Share of total CAPEX (illustr.)

30 %

- Land acquisition or rental
- Permitting
- Planting → 7-12 years until harvest
- Infrastructure development



70 %

- Investment decision



- Mill start-up

Construction → 2 years



UPM

The Biofore
Company

What does it take to establish a greenfield pulp operation?



The Biofore
Company

UPM Pulp

Key requirements for competitive greenfield pulp mill

Factors

Competitive, secure and sustainable wood supply



Suitable location – proximity to wood, access to fresh water and efficient outbound logistics



Reliable high-voltage grid and functioning electricity market



Stable and predictable business environment – taxation, regulation and land ownership



UPM Pulp

Key requirements for competitive greenfield pulp mill

Factors

Competitive, secure and sustainable wood supply



Plantation base in Uruguay; continued improvement of productivity and quality

Suitable location – proximity to wood, access to fresh water and efficient outbound logistics



Possible project along river within plantation base with road network; planned high-standard railway to deep sea port

Reliable high-voltage grid and functioning electricity market



Commitment by Uruguayan government to reinforcement of national grid and long-term agreement for purchase of electricity

Stable and predictable business environment – taxation, regulation and land ownership



Long-standing cooperation with Uruguayan government and society with local presence for almost 30 years

UPM Pulp

Establishing a competitive operating platform in Uruguay – we are now in preparation phase II

Current operations

- Plantation base in West Uruguay
- Fray Bentos pulp mill 1.3 million tonnes
- ~100 km of river barging for outbound logistics
- Sea port in Nueva Palmira loading half vessels
- Ocean vessels to pulp markets

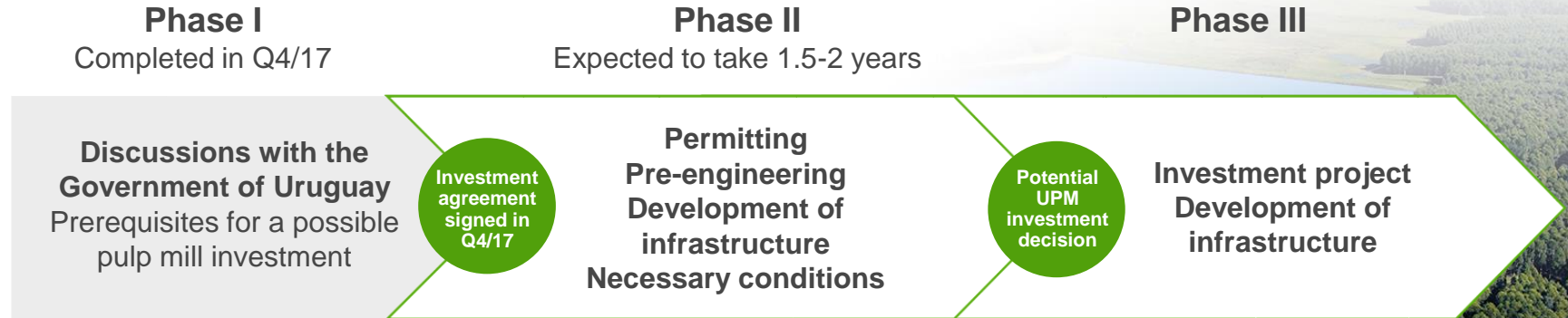


Uruguay prospect

- Plantation base in Central and North Eastern Uruguay
- Potential new pulp mill about 2 million tonnes, on-site investment estimate EUR 2bn
- Railway with high technical standards
- Deep sea port in Montevideo loading full vessels
- Ocean vessels to pulp markets

UPM Pulp

Second preparation phase for the potential new pulp mill in Uruguay proceeding



Main items in preparation phase II:

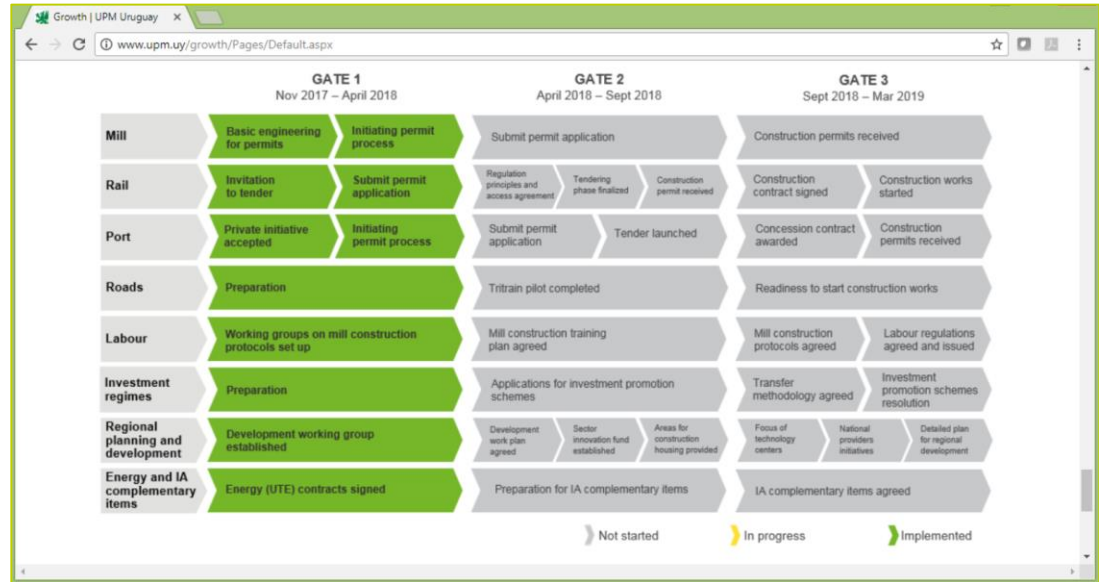
- Mill permitting, pre-engineering
- Rail permitting, tendering, start construction
- Port permitting, tendering, concession
- Roads
- Labour protocols, regulation
- Investment regimes
- Regional planning and development
- Energy and complementary items

Growth opportunity with a potential new mill



To follow development of UPM growth opportunity in Uruguay, visit

<http://www.upm.uy/growth/>



UPM Pulp

UPM's impact in Uruguay

Tree breeding programme



Nurseries



Plantations



Planning



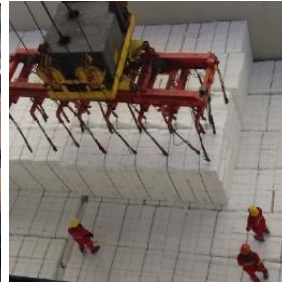
Harvesting



Transport



Pulp production



Exports

7,000 direct, indirect and induced jobs

500 technicians

300 university graduates

1 in 5 workers of the forestry industry belongs to UPM'S value chain



UPM

The Biofore
Company

UPM Pulp

UPM Pulp

UPM Pulp



The Biofore
Company



- Pulp mill
- Sales
- Technical customer service

TONNES
OF TRUST
UPM PULP



4 modern mills in
Finland and Uruguay

255,000 ha
land in Uruguay



1,500
Employees in Europe,
Uruguay and China

150+
customers
in selected
markets

3.7 million t/a
production
capacity

500,000 tonnes
capacity increase
through investments
of **MEUR 380**
2014–2017

UPM Pulp

UPM Pulp's commercial strategy is based on multi-fibre product strategy and technical support



Source: UPM

- Broad pulp grade offering combined with technical service strengthens UPM's customer relations and enhances regular business
- UPM is large in specialty end-use segments where quality, product range and technical support matters the most
- Trusted business partner with own sales and marketing network, advanced technical service offering and outstanding environmental performance as well as stable quality pulp
- Modern and cost efficient assets, committed to grow with the customers

UPM Pulp

Sustainability and environmental performance are increasingly important differentiators

Performance of wood supply & mill operations



* Including certificates, eco-labels, footprint analyses etc.

Source: UPM

Sustainability principles for UPM pulp

Wood supply

- Legal and certified
- Biodiversity integrated in operations
- Net positive environmental gain

Mill operations

- BAT and continuous improvement
- Eco-label criteria fulfilled

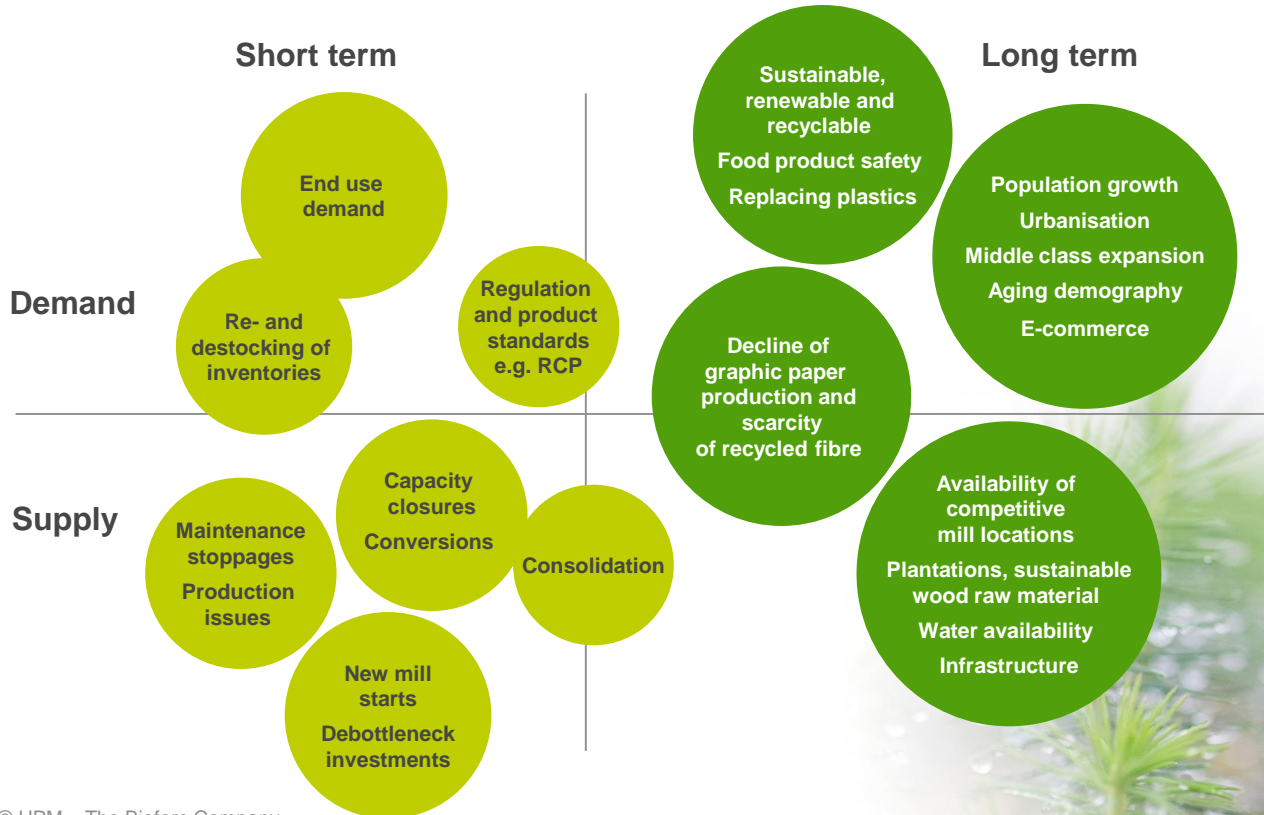
Stakeholders

- Active dialogue and engagement of local, national and international stakeholders
- Code of conduct strictly enforced

Proof

- Verified for internationally recognized eco-label
- Footprint analysis; carbon, water
- Recognized in Dow Jones sustainability index

Demand-supply drivers of pulp market





UPM

The Biofore
Company