



# Yksityisen sektorin rooli kestävän kehityksen tavoitteiden saavuttamiseksi kansainvälisesti

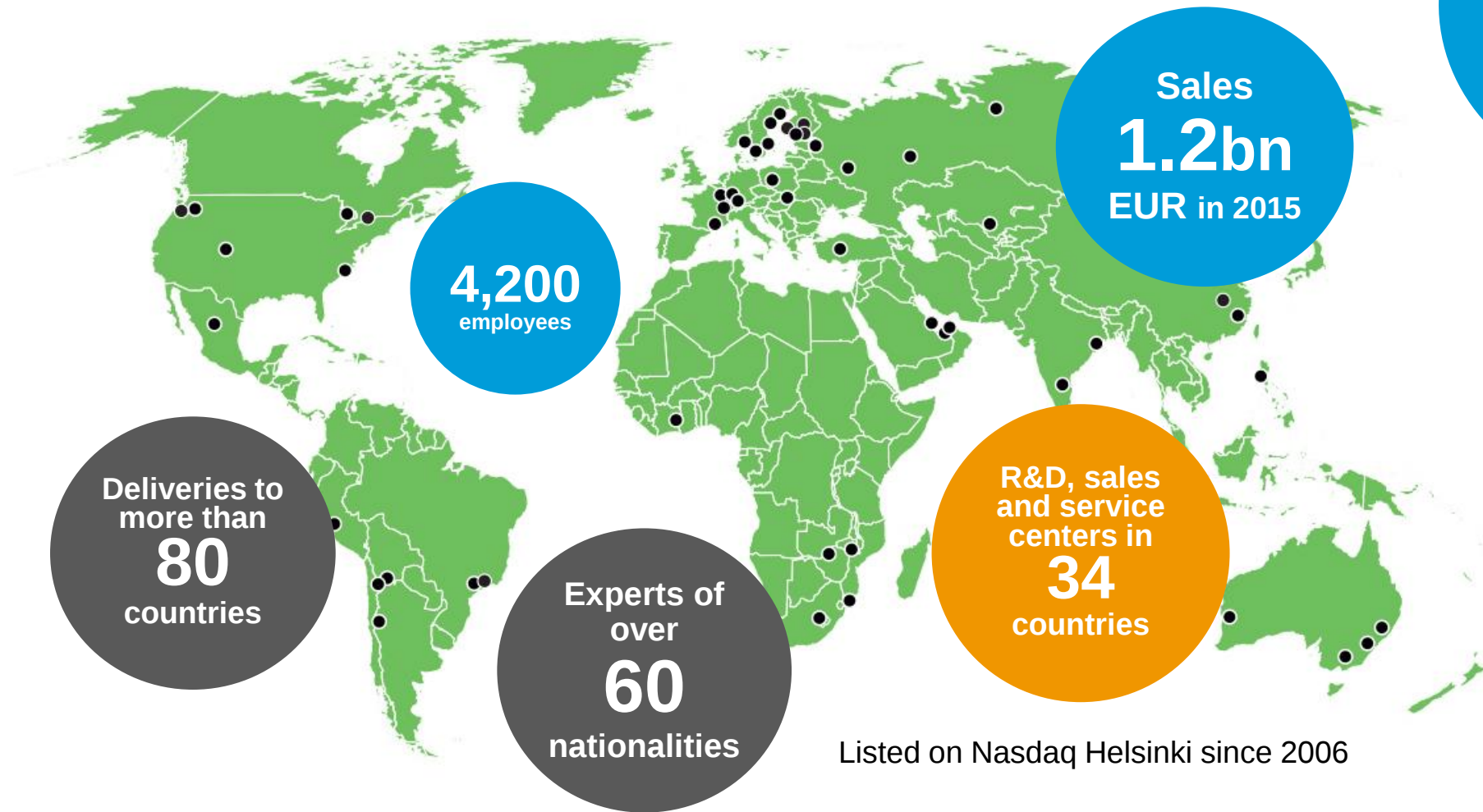
Vesikysymykset kansainvälisessä luonnonvarapolitiikassa

Kaj Jansson

Maa- ja metsätalousministeriö/Luonnonvarasto / Luonnonvara- ja vesitalousyksikkö

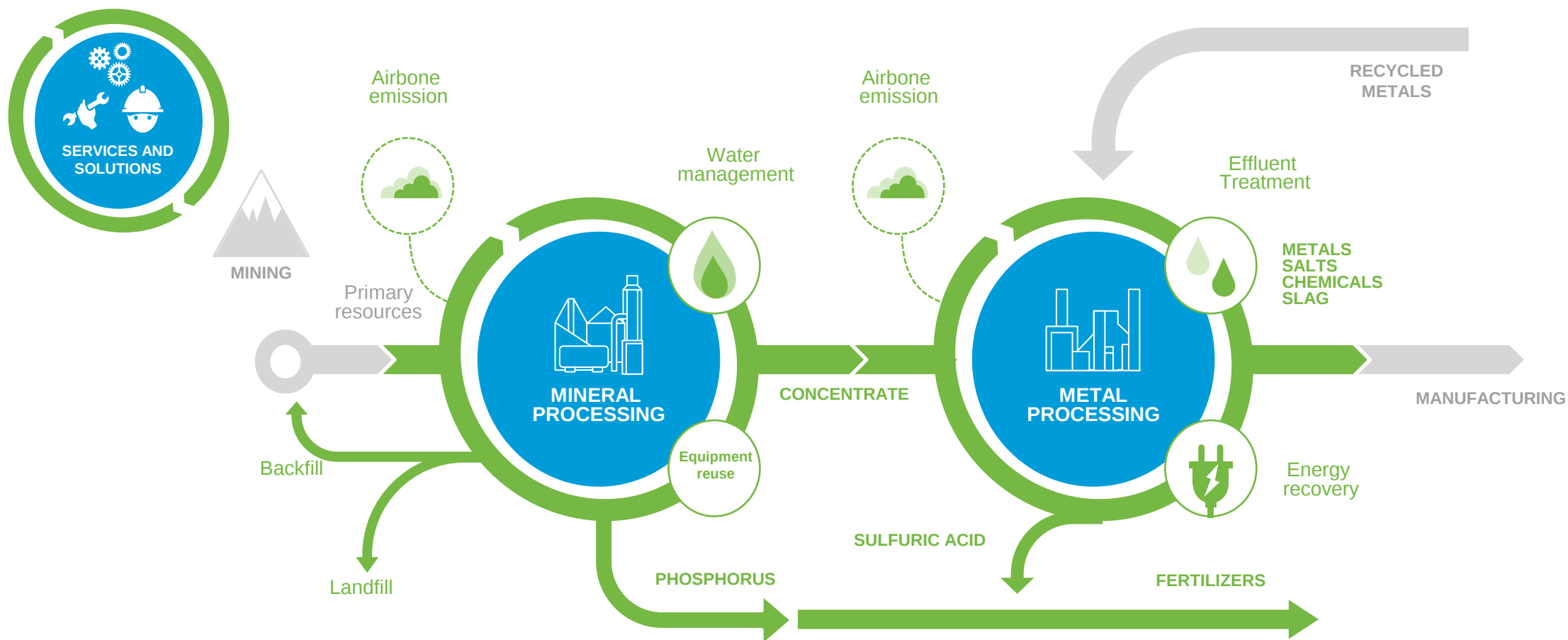
29.05.2017

# Local operations, global presence



Wide supplier network with established long-term relationships

# Our Mineral and Metal Processing technology



# World of contradictions



# Mineral and metal industry water challenges

## Water balance

- Positive / negative

## Inorganic chemistry 98%

- Soluble metals removal
  - As, Cu, Ni, Se, Sb etc
- (Halogen removal Cl, Br, F etc)
- Molecule removal
  - $\text{SO}_4$
  - CN

## Organic chemistry

- $\text{NO}_2$  and  $\text{NO}_3$
- Residual flotation chemistries

## Services

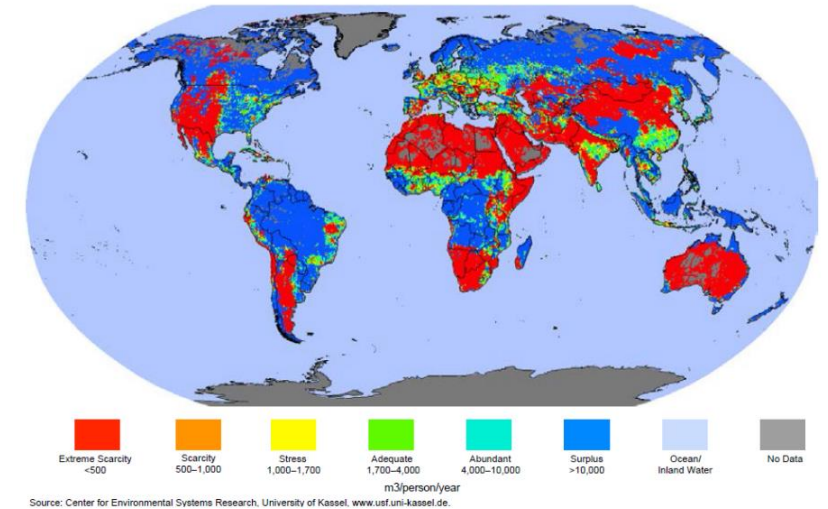
- Environmental monitoring & control
- Containerized modular and mobile solutions



# Water scarcity is a bigger threat around the globe



Projected water scarcity in 2025



- Water scarcity is stroking violent conflicts in a country, which is already battling insurgency

# True value of water in mining operation

Business  
constitution

+

Licence to  
operate

+

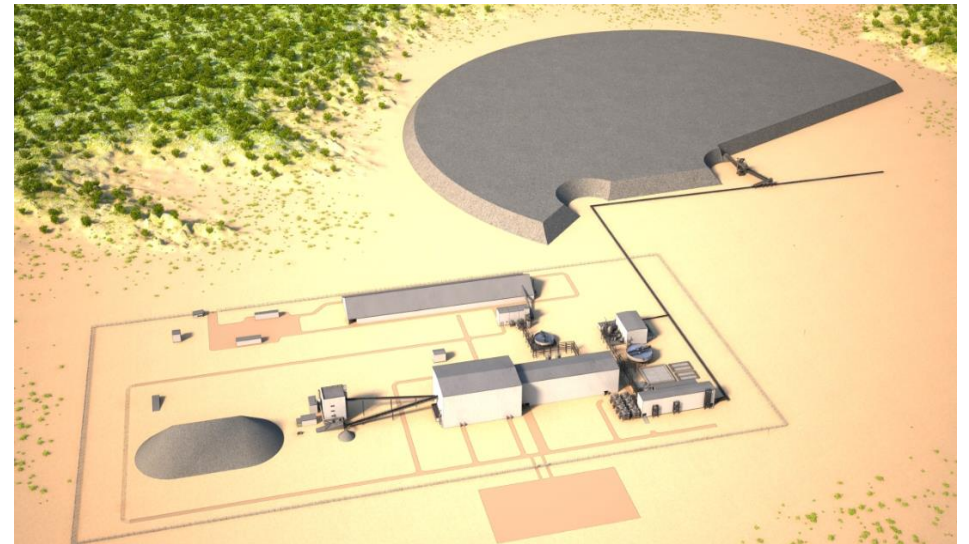
Brand Value

=

True Value of  
Water

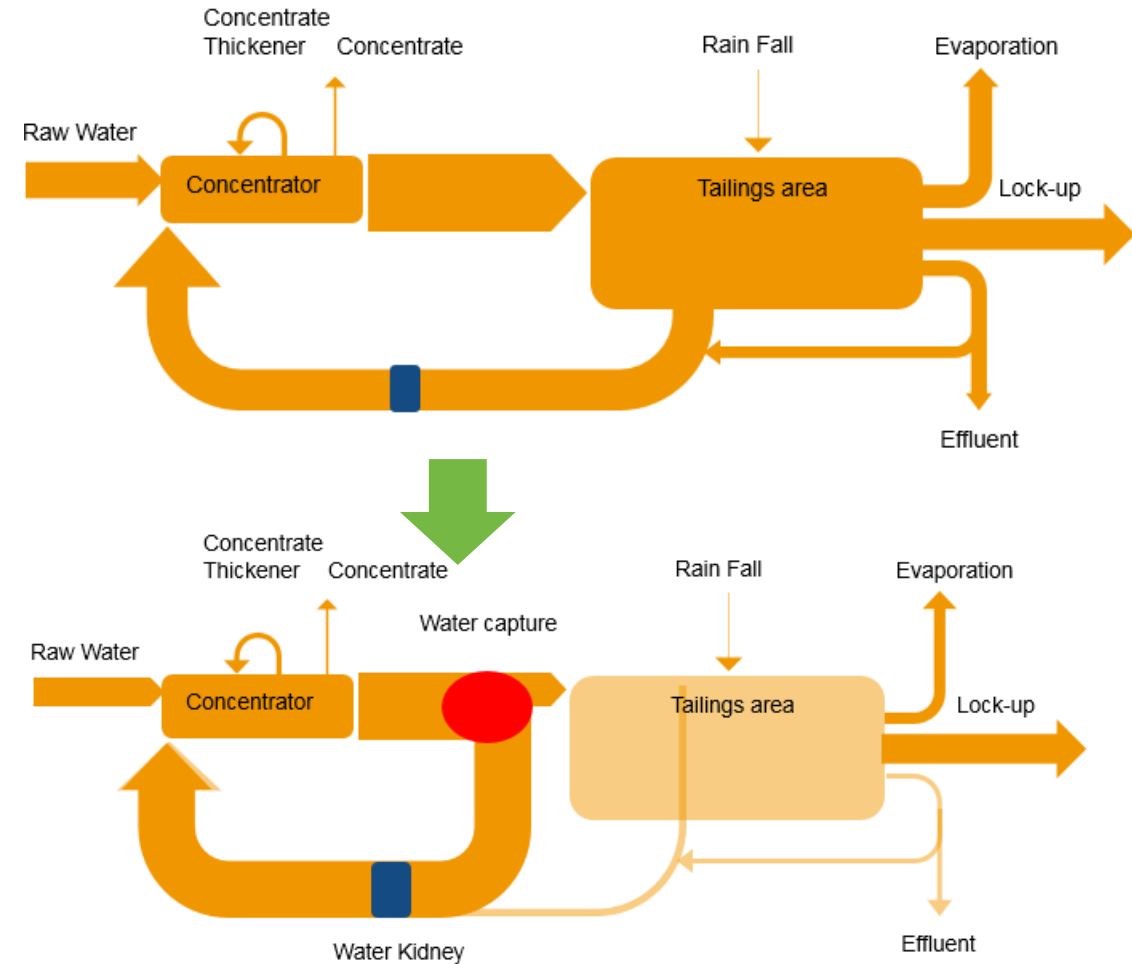
# Increased reuse and operational efficiency

- Towards water and energy efficient concentrator plants
  - Water savings by more closed loops
  - Energy savings through incoming mineral sorting
- Right quality water improves recovery and quality of the metals
- In combination with selected mineral and dewatering process



# Water efficiency - closing water loops

- Reduce fresh water consumption
  - >80% - related to conventional technology and local weather patterns
- Reduced fresh water intake
- Minimal effluent
- Less socio-political issues
- Decreased operational risks



# Smaller environmental footprint by better tailings dewatering

- Reduce tailings footprint area
  - > 80% - depending on mineral and process
- Reduce tailings facility costs
  - >60% - depending on mineral and process
- Reduce Socio-political risk related to environment
- Reduce Operational risk



# Reduced energy consumption

- Decrease milling costs based on metal in concentrate production by selection of incoming material
  - – up to 15 to 95 %, leads to significant production capacity increase
  - – milling costs are ~50% of the full concentrator plant usage
- Increase in-situ value of deposit
- Increase efficiency of water use
- Reduce amount of fine tailings



# Co-operation with Outotec

Outotec is constantly looking for technologies and services

- It has to fit our visions, missions and strategies
- Technical and economical feasibility needs to be verified

Work straight project oriented

- (customer cases)
- Fast route

Work via R&D

- Tekes, Nordic and European R&D levels
- University co-operations
- Slower route

Focus on International work

- Working with Outotec international teams



# Our Target

- Minimized water usage
- Improve raw material usage
- Reduced operational cost for tailings
- Reduce energy cost by sorting technology
- Combine these to
  - Water recovery and treatment plants solutions
  - Dewatering plant & Mineral management solutions
  - Full beneficiation plant



*If you always do what you've always done,  
You will always get what you've always got  
-A. Einstein-*

Outotec



Sustainable use of  
Earth's natural resources