

Water Footprint of Organizations

Local Actions in Global Supply Chains (WELLE)

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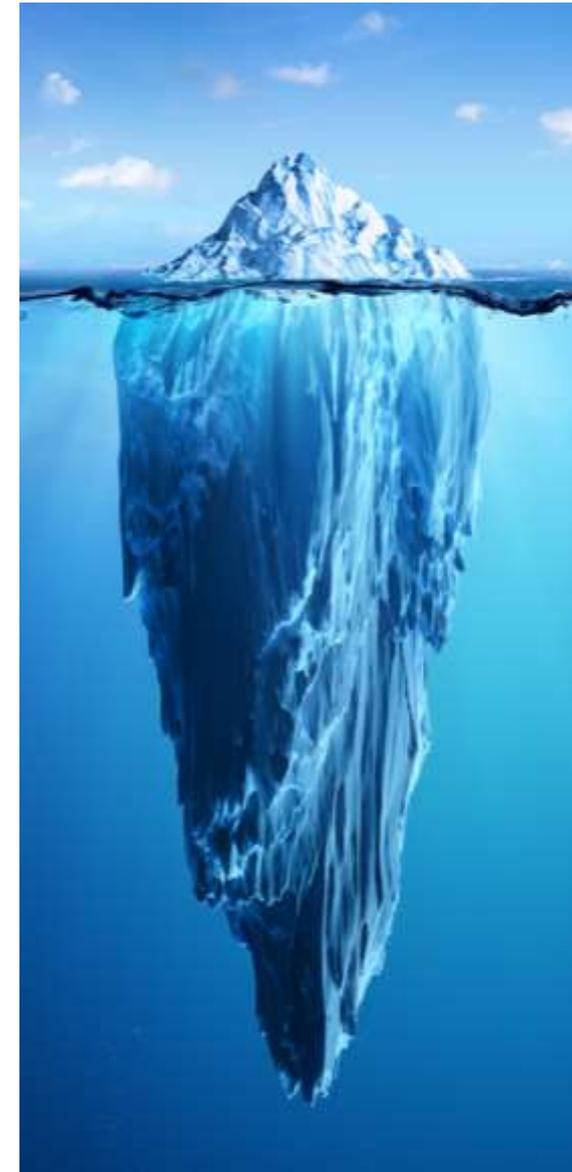
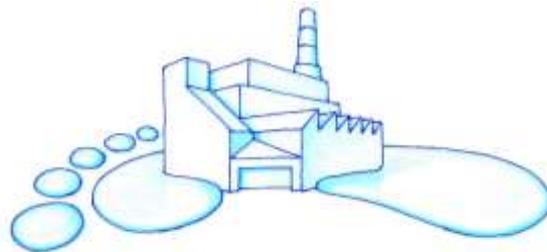


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GRoW
WATER AS A GLOBAL RESOURCE



- Companies measure, manage and communicate their direct water use and waste water discharge
- ...usually < 5% of total water footprint
- Indirect water use of mining, material and energy production more relevant - but out of scope...
- Aim WELLE: Enable companies to:
 - Determine their total water footprint
 - Identify local hotspots in global supply chains
 - Take actions in cooperation with suppliers/stakeholders





- WP1: Method for the Organizational Water Footprint
- WP2: Database for indirect water use
- WP3: Water footprint software-tool
- WP4: Case studies
- WP5: Water risk analysis
- WP6: Local actions (water stewardship)





Step 1: Review of existing approaches



REVIEW

Supply Chain Water Management



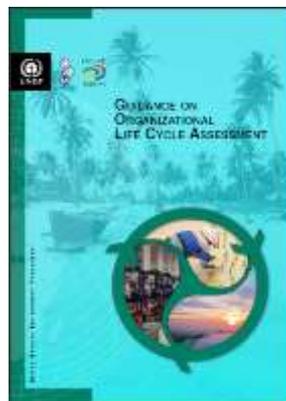
Measuring Water-Related Environmental Impacts of Organizations: Existing Methods and Research Gaps

Silvia Forin,* Markus Berger, and Matthias Finkbeiner

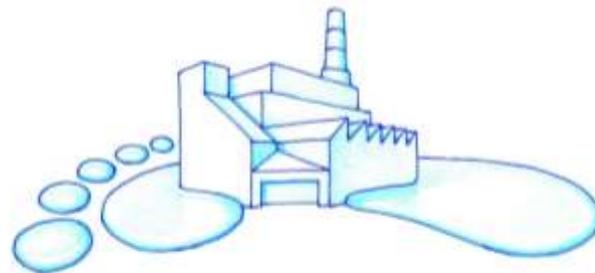
Step 2: Combining the Organizational LCA and the Water Footprint ISO Standard



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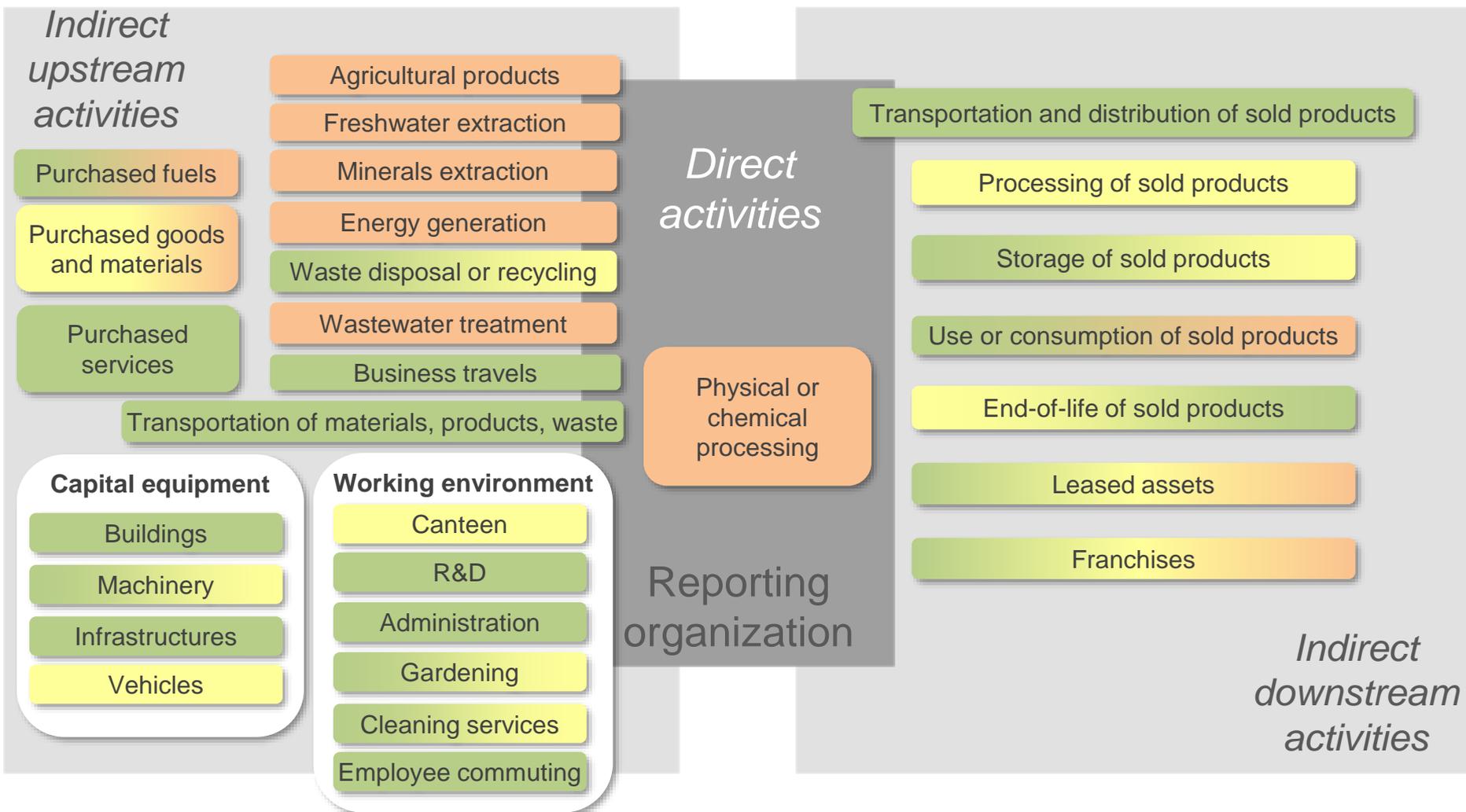


Organizational Water Footprint (OWF)

- Detailed comparison of methodological requirements → Establish OWF method



Step 3: Practical guidelines on application of OWF

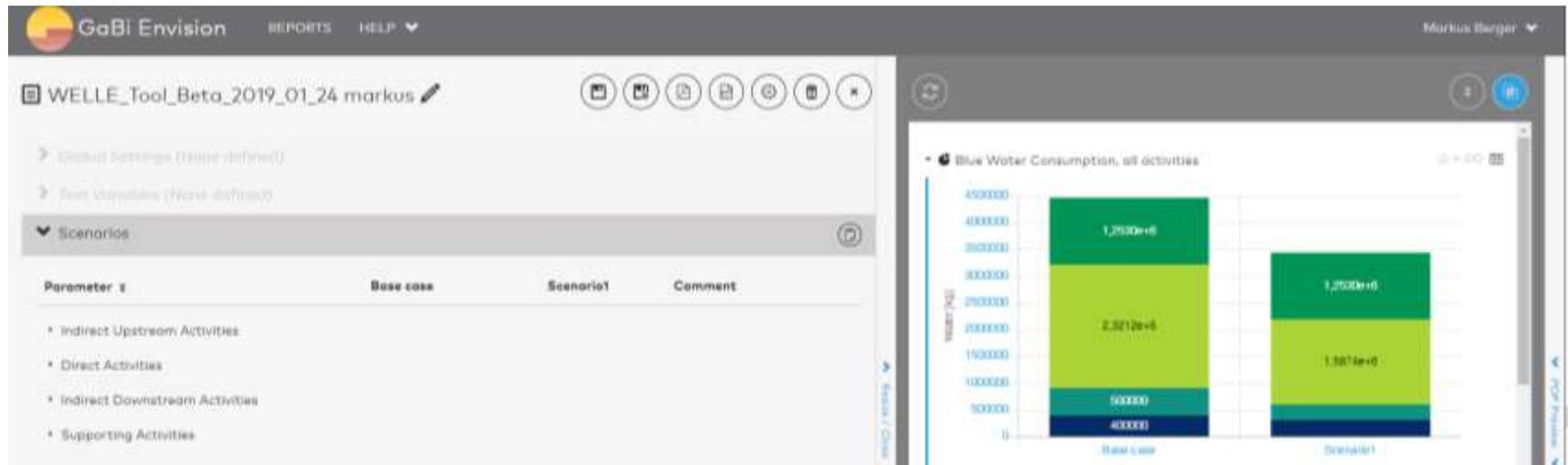


- Based on thinkstep's LCA database, a WELLE database is established providing the geographically explicit water use data for >100 materials & energy carriers

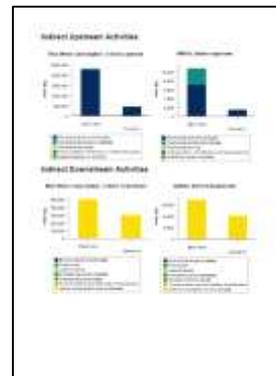
1 kg aluminum = 108 L



- To make the method applicable, a software tool is currently developed
- Users enter direct water use and indirect upstream/downstream activities
- By linking inputs to the WELLE database (WP2), OWF is determined



- Reports and maps can be exported
- Tool is currently refined and will be made available online



WELLE PROJECT – CASE STUDY

ORGANIZATIONAL WATER FOOTPRINT – VOLKSWAGEN PLANT UITENHAGE, SOUTH AFRICA

Goals of the case study

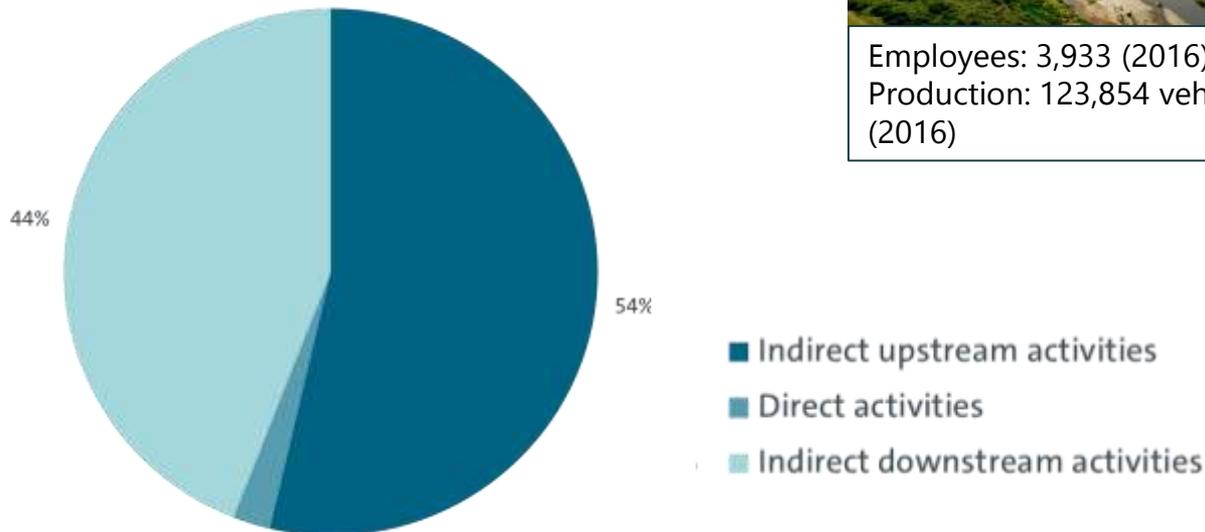
- Identify water-related hotspots and risk exposure
- Reduce pressure on the environment,

Scope

- Entire plant Uitenhage, South Africa, reference year 2016
- Lifecycle based consideration

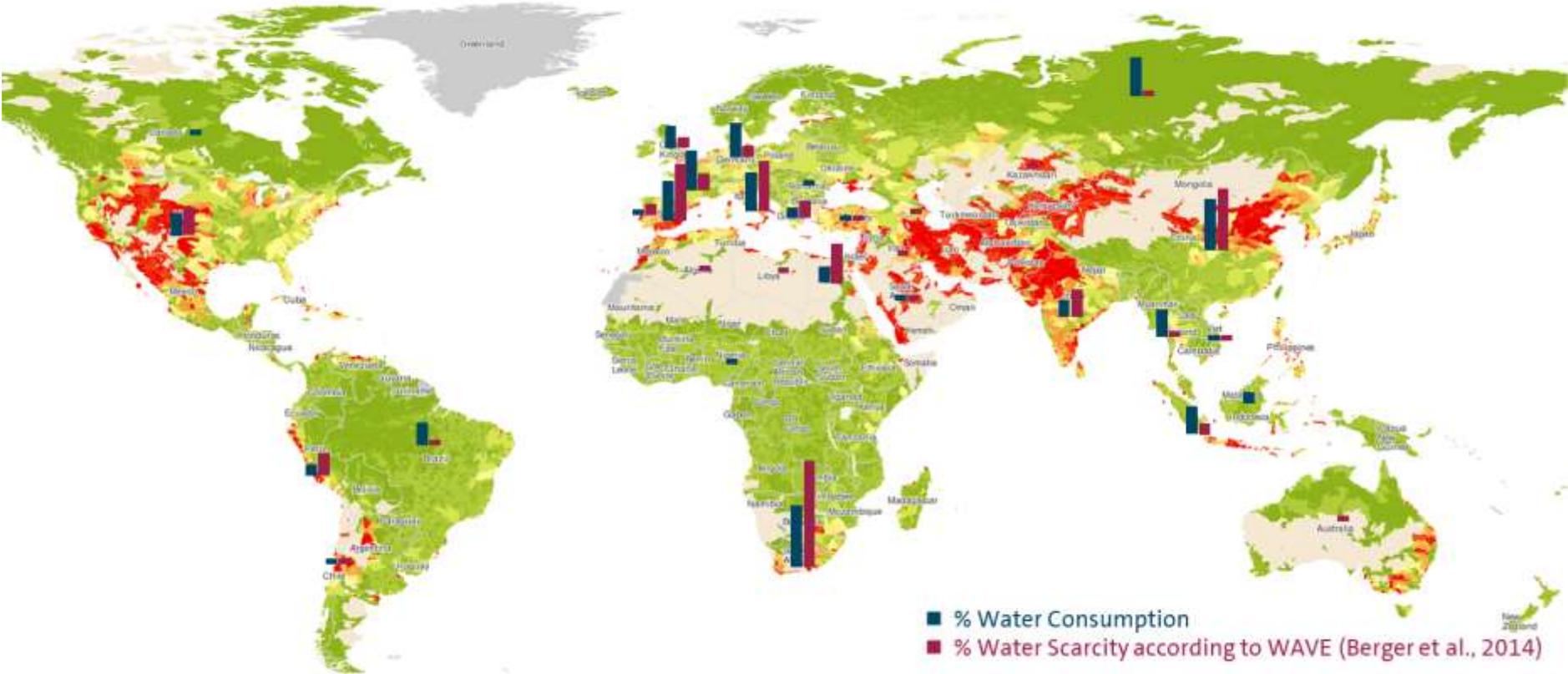


Employees: 3,933 (2016)
Production: 123,854 vehicles, 122,222 engines (2016)



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ORGANIZATIONAL WATER FOOTPRINT – VOLKSWAGEN PLANT UITENHAGE, SOUTH AFRICA

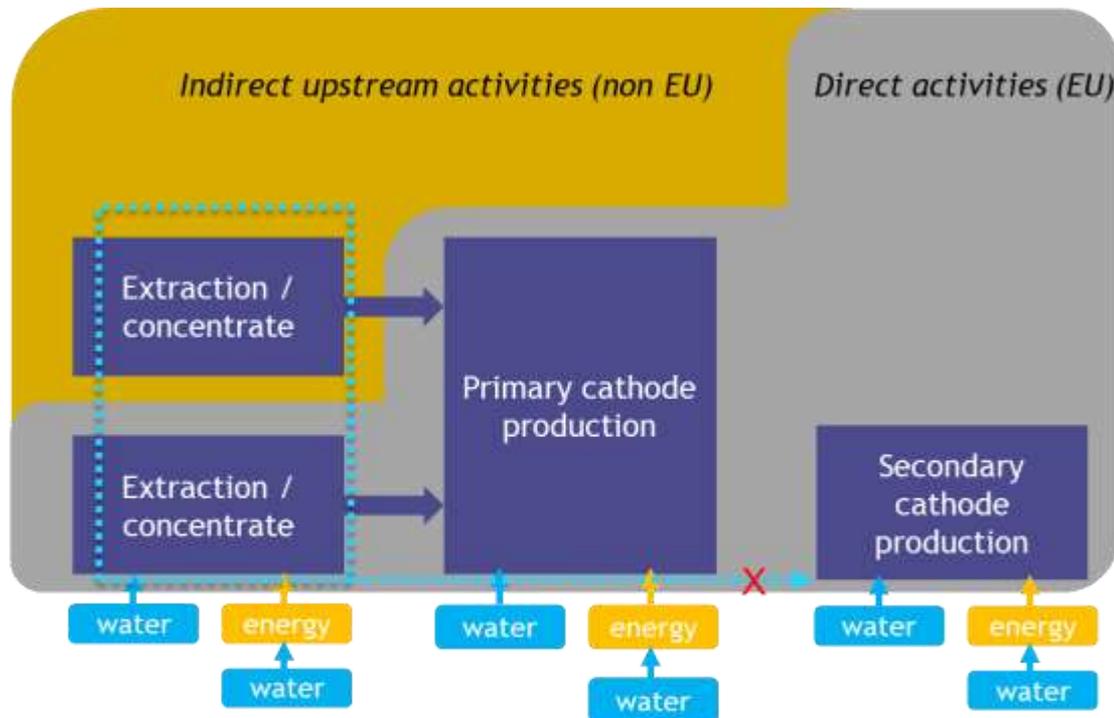


Deutsches Kupferinstitut e.V.

Water Footprint of European Copper Production

Cu

- 1 Tonne Copper cathode, produced in Europe
- Cradle-to-gate analysis



1 t Cu = 59.3 m³

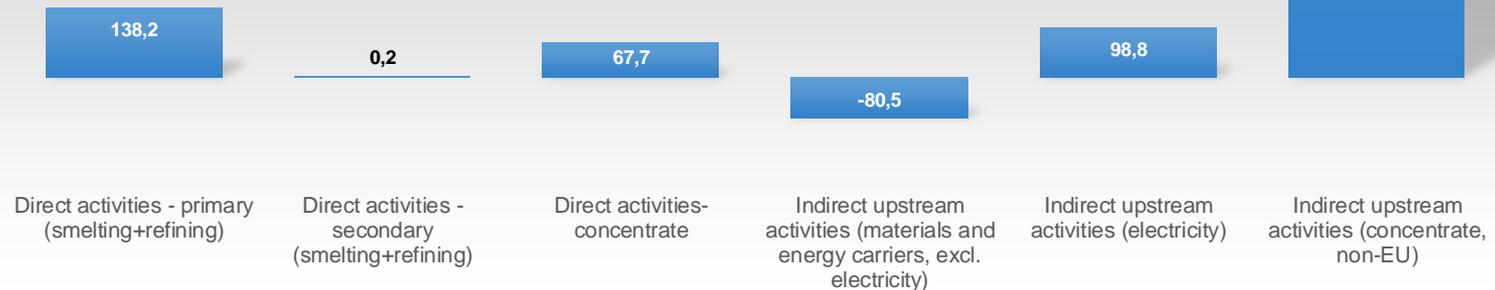
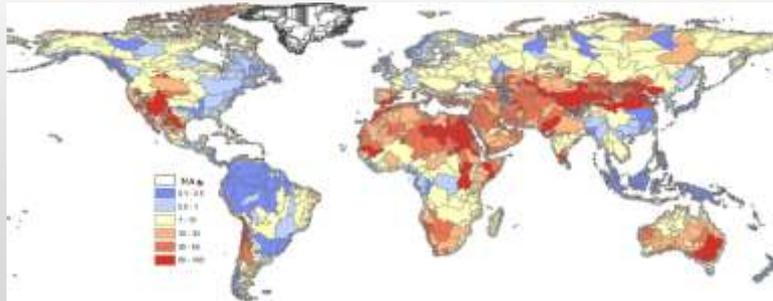
*Share of EU concentrate imports; source: LCA study on copper products, European Copper Institute 2016

Deutsches Kupferinstitut e.V.

Water Footprint of European Copper Production



AWARE (OECD+BRIC average for unspecified water)
[m³ world equiv.]
1.192 m³ per ton Cu cathode



Water Footprint of production lines for amino acids

- Chemical synthesis: Antwerp (Belgium) 
- Biotechnological route: Blair, Nebraska (USA) 
- In both cases, preliminary results indicate a share of **over 80% to which raw materials contribute** to the total Blue Water Consumption (BWC).
- This highlights the tremendous **relevance** of the raw materials' **geographical origin** an the linked **local water scarcity**.
- This can be depicted by the example of Blair (where Biolys® produced) where respective local AWARE water **scarcity factors show a wide variety** of 1 to 63 within a 100 km radius

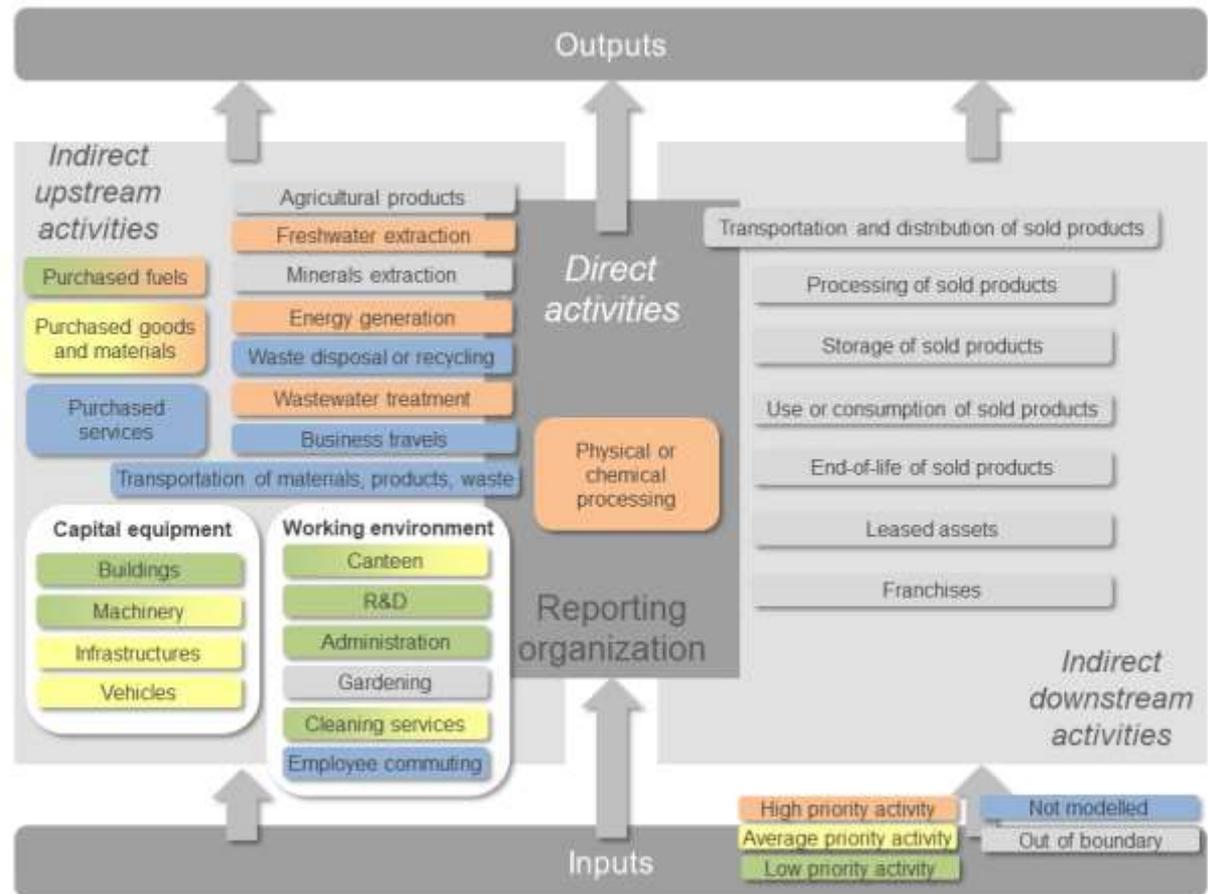
Neoperl GmbH: Water footprint of the company's main facility in Müllheim, Germany

Goal:

- Calculate the company's water footprint
- Identify Neoperl's most relevant materials and processes contributing to overall water footprint

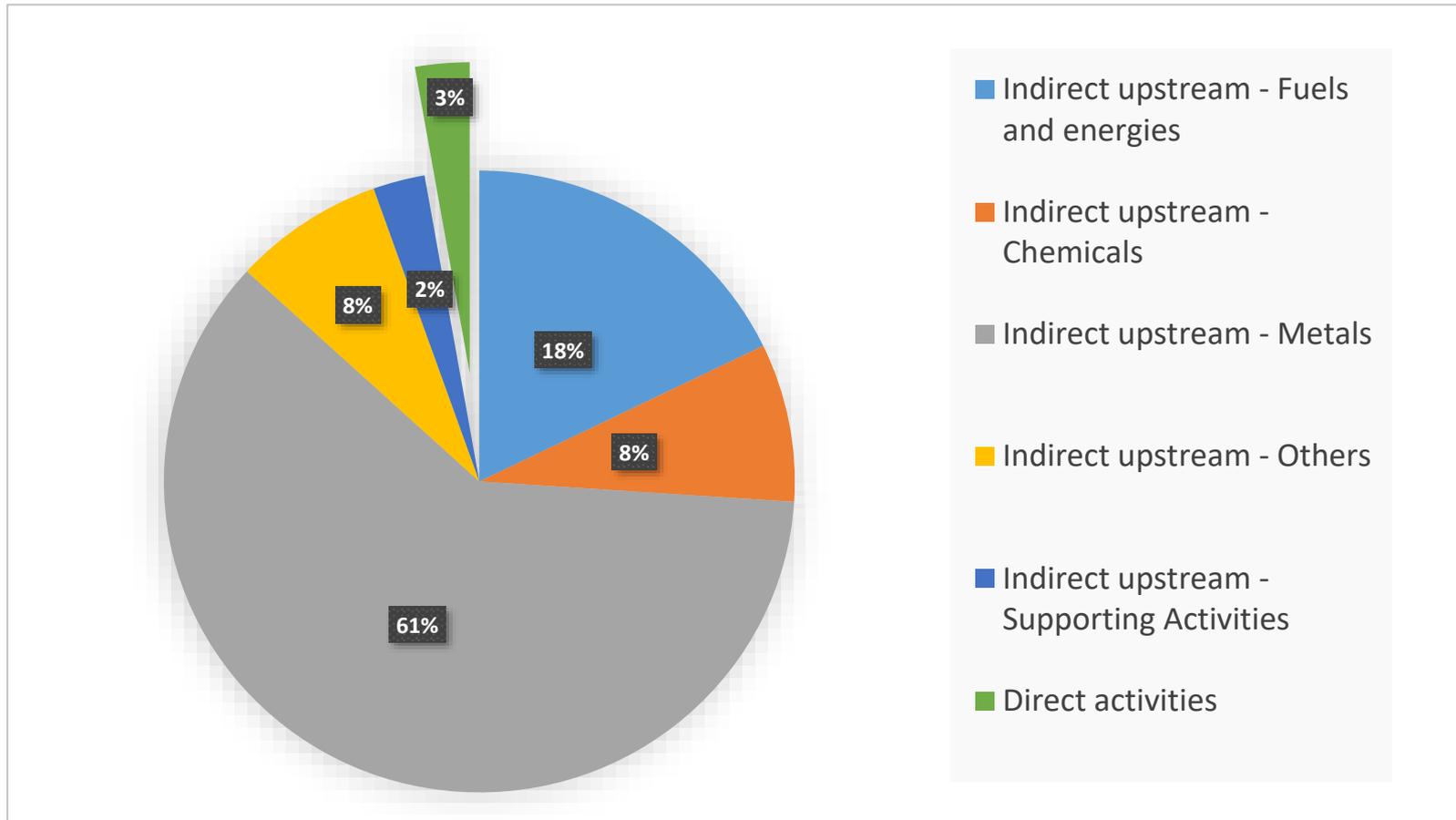
Scope:

- Cradle-to-gate analysis of ENTIRE company
- Reference year 2016



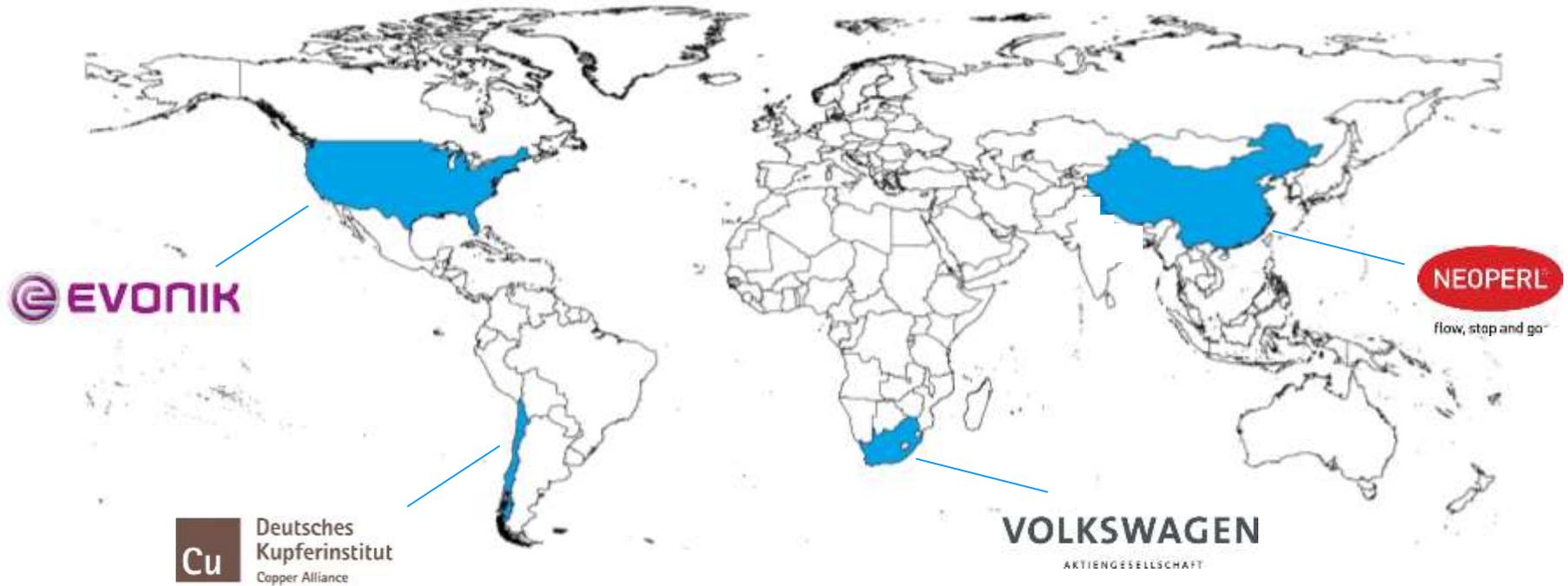
Neoperl GmbH: Water footprint of the company's main facility in Müllheim, Germany

Results: Annual water footprint: 89.500 m³





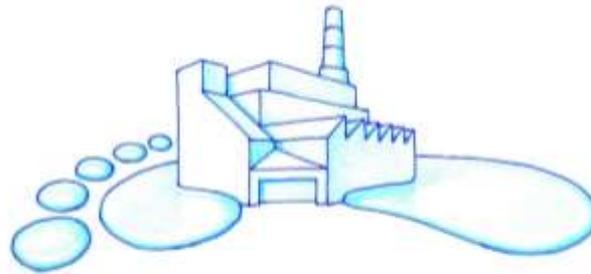
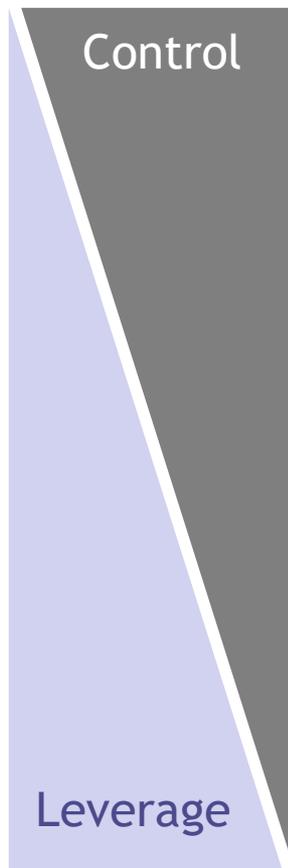
- Case studies identified hotspots in global supply chains of industry partners



- Project partners approach suppliers to validate results



- Initiate local actions at hotspots in global supply
- Involve suppliers, local stakeholders, and water stewardship community
- Relevant but challenging...



Thanks a lot for your attention!

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