BUSINESS VALUE OF WATER FOOTPRINTS:
A VALUE CHAIN AND FINANCIAL RISK PERSPECTIVE

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Outline

- Motivation and Background
- Approach
  - Value chain
  - Financial Risk Metrics
- Water Footprints for Financial Risk Mitigation
  - Risk distribution on value chain
  - Specific risk targets
  - Applicability to beverage industry
- Lessons learned & Path forward
Motivation and Background:
Water Footprints and Business Risk Metrics

- Relevance of water footprints for corporate strategy and investment decisions - so what?

- Role of financial services industry and government in risk management - external drivers?

Business case beyond PR?
Approach

- **Value Chain Analysis**
  - How is value creation distributed?
  - How is water risk distributed?

- **Financial Risk Metric Assessment**
  - Which financial metrics drive corporate action?
  - How are financial risks distributed across value chain?

- **Water Footprint Risk Mitigation**
  - Management and technology investment options
  - Translation to beverage industry
Corporate Value Chain Systems

VALUE CHAIN: Material (supply) and non-material (e.g. financial services)
VALUE CHAIN SYSTEM: Value chain across industries (outsourced activities)
Financial Risk Metrics: Definitions

1. Market valuation
2. Risk Management
3. Corporate debt rating
4. Project finance
Overview: Water Footprint Risks

<table>
<thead>
<tr>
<th>Value chain segment/risk</th>
<th>Raw material production</th>
<th>Suppliers</th>
<th>Direct operations</th>
<th>Product use/end of life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market valuation</td>
<td>Med</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Risk Mgmt (Liability)</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Corporate Debt Rating</td>
<td>Low</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Project Finance (Lending rates)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
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Market Valuation

- The stock market gives better share price valuation to companies that are perceived of as sustainable (Global 100 list; Dow Jones Sustainability Indices).
- Due to the amount of value of stocks in global markets, the implications are enormous.

Prediction of a 15% difference in P/E ratio, which would mean billions of dollars of stock market increased value for most large companies traded on major exchanges.
Sustainable vs Non-sustainable Company Indices

Dow Jones Sustainability World Index (in EUR, TR)
MSCI World (in EUR, TR)

DJSI World: -20.5%
MSCI World: -23.2%
Risk/Liability Management

- Reduce risk of agricultural crop price volatility for client
- Transfer Risk to financial players (ie. Reinsurers or investors)
- Broad Range of weather related instruments available
- Reduce product liability costs
- Reduce Insurance Premiums
- SwissRE Pilot Program

Details? Insurance payout of weather insurance kicks in when rainfall 10 " below 30yr average, per in. increments - max 10-20% of lost business value
Project Finance

- Large capital intensive projects dependent on water supply
- Hydroelectric, food processing facilities
- Increased lending rates, lack of proceeds from loans
- Sacramento Municipal Utility District (SMUD) case study
  - Details? Rate impact of passing on weather insurance costs/losses to customers
Corporate Debt Rating

- Directly related to a company’s balance sheet
- Supply chain analysis to locate risks
- Public or Private debt markets affected
- Insurance amounts to 2-3% of Cost of Goods Sold (COGS)
Water Footprints - Financial Risk Mitigation

- Lessons learned
  - Improve market valuation by 15%
  - Reduce project lending rates by 10%
  - Reduce crop price volatility by 10%
  - Reduce insurance premiums

- Path forward
  - Method to calculate economic/financial impact of corporate water footprint goals
  - Translate to beverage Industry
  - Tighten financial risk impacts
  - Benchmark against industry competitors
  - Evaluate financial and technology investment tradeoffs
  - Limnotech partner with insurer who has financial expertise