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Water Risks, Materiality, Relevance, Capital Expenditure

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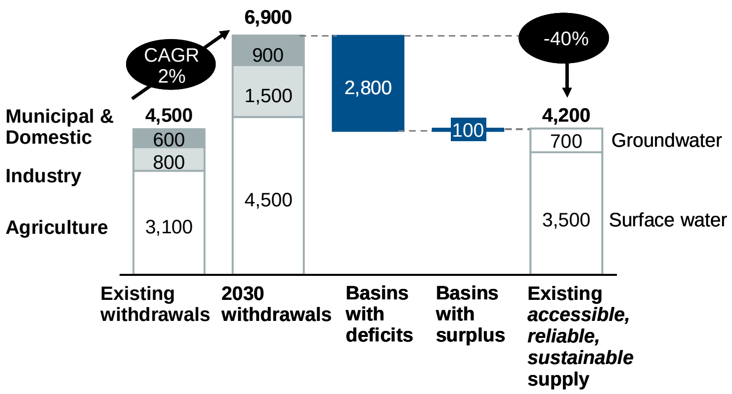
16 May 2011

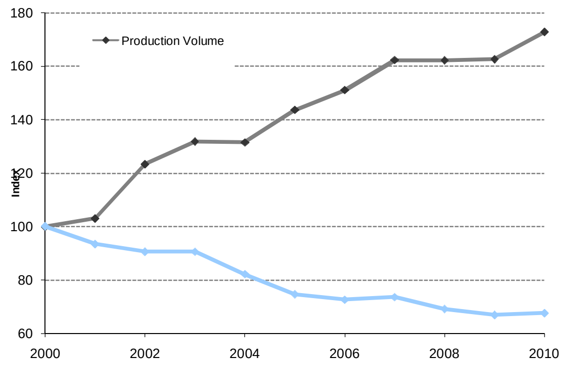
Global freshwater availability vs. needs

- Global freshwater withdrawal increased nearly **seven-fold** in the past century…



- Demand/Availability gap by 2030 will be **>40%**

Freshwater withdrawals at Nestlé factories



Freshwater withdrawals 2010: **144 million m3**

Since 2000:

- Production **+ 72.8%**
- Water withdrawals **– 32.4%** (relative to production **– 61.2%**)

Water Stress Index for Direct Operations

Two main types of water stress indicators

- **Freshwater availability per capita**: *"the smaller the amount of water available per person in a river basin, the higher the water stress".* Focus on areas where competition around water among different sectors is strong and will exacerbate (World Resources Institute- Washington DC).

- **Water withdrawals to water availability**: *"the larger the volume of water withdrawn, used and discharged back into a river, the more it is degraded and/or depleted, and the higher the water stress".* The higher the water stress the stronger the competition between society's users and between society and ecosystem requirements (ETH, Institute for Environmental Engineering – Zürich).

Water Resources Review for Direct Operations

The WRR program is deployed in factories with high water related challenges:

- *located in specific water stressed/water scarce regions* and/or
- *use of large amount of water in their process* and/or
- *represent a strategic interest in value creation* and/or
- *possible recorded issues encountered in the local water resources management.*

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Mapping Direct Operations with Combined Index (450 Factories)

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Country	Site	Google Earth ETH	Global Water Tool WRI 2025	Combined Index (WRI/ETH)
A	Factory	1	2	1.5
B	Factory	1	2	1.5
B	Factory	1	2	1.5
B	Factory	1	2	1.5
C	Factory	5	2	3.5
C	Factory	5	5	5.0
C	Factory	5	5	5.0
D	Factory	5	2	3.5
D	Factory	1	1	1.0
D	Factory	5	2	3.5
E	Factory	2	5	3.5
E	Factory	3	4	3.5
E	Factory	1	3	2.0
F	Factory	5	2	3.5
F	Factory	5	3	4.0
G	Factory	4	4	4.0
G	Factory	4	5	4.5
G	Factory	5	5	5.0
G	Factory	5	5	5.0
G	Factory	5	5	5.0
G	Factory	5	5	5.0
G	Factory	4	4	4.0
G	Factory	4	4	4.0
G	Factory	4	5	4.5
H	Factory	3	2	2.5
H	Factory	4	3	3.5
H	Factory	1	2	1.5
H	Factory	1	1	1.0
H	Factory	1	1	1.0
H	Factory	1	2	1.5

WSI (ratio withdrawals to availability)	Class	GWT 2025 projection (m3/person/year)
<0.1	1	>4000
0.1-0.2	2	1700-4000
0.2-0.4	3	1000-1700
0.4-1	4	500-1000
>1	5	<500

Water Resources Review (WRR) programme

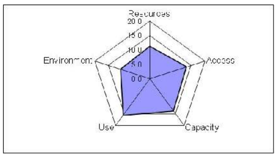
Field survey to assess **sustainability level** related to local water resources management

Rolled out in **88** Nestlé (including NW) sites to date since 2006

5 pillars:
- Quantity
- Quality
- Site Protection
- Regulatory compliance
- Relationships with stakeholders

- to **raise awareness** on water resources at factory level
- to **estimate risk level and identify key issues** in local water resources management
- to set up **specific action plans** toward sustainable water use

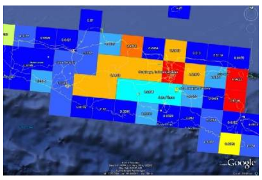
WRR Example 1: Kejayan Indonesia



Country level: medium-low risk (WPI=64.9)

Watershed level: medium-high risk (CI=3.5)

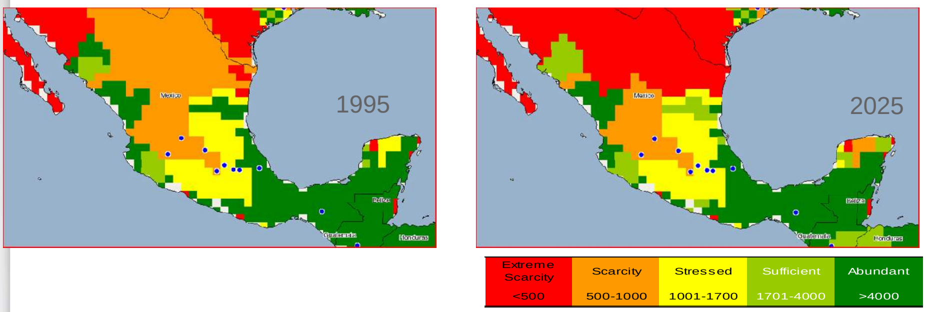
Local level: low risk



On site:
- Abundant groundwater resources
- Treated wastewater effluents to farmers for irrigation
- !!!Risk of long term aquifer overexploitation due to free flowing water at artesian wells used for irrigation

Example 2: Mexico – Milk factory

•Located in a water scarce basin*



Total Renewable Water Resources (TRWR) per person (m^3/person/year) (Source: FAO, 2003-2007)

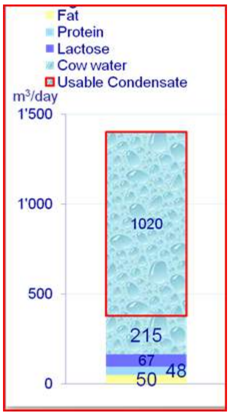
•High fresh milk intake (1.4 mio lt/day)

•High fresh water withdrawal (2.0 mio lt/day = ~1 Olympic swimming pool/day)

*WBCSD = World Business Council for Sustainable Development

Local analysis shows risks and the opportunity to use cow's water instead of water withdrawal

Factory daily milk intake



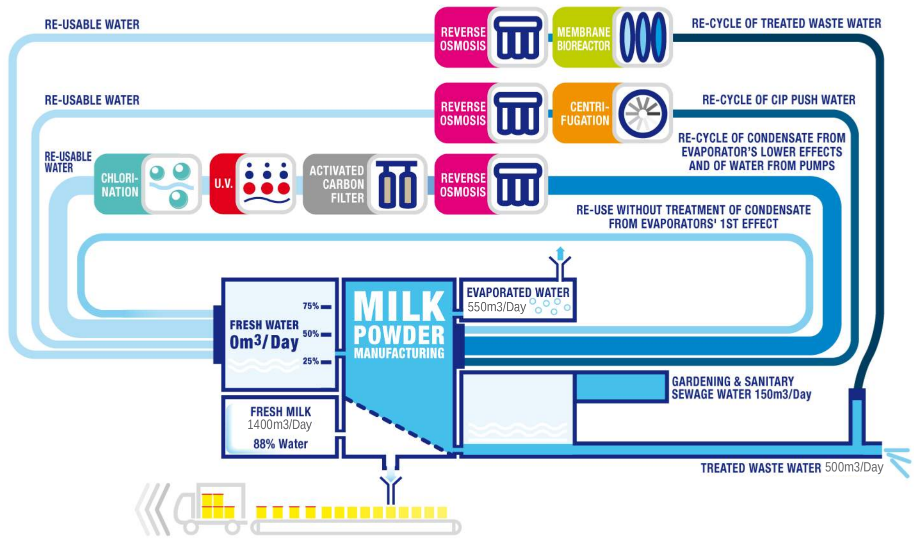
Three major components:

➢Cow water recycle to potable

➢Reduction of water use by main processes (e.g. CIP, steam use, rinse water, etc.)

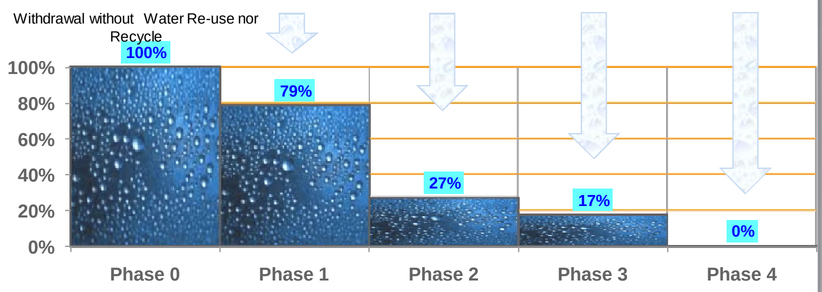
➢Recycling, of factory wastewater for industrial uses (cooling tower, onsite irrigation, truck washing, etc.

Project ZER-Eau



ZerEau - 5 Phases

Water Conservation	Phase 0	Phase 1	Phase 2	Phase 3	Phase 4
	Reduction Train Measure Control	Re-use of Evaporators' 1st effect Monitor quality	Re-cycle Evaporators lower effects' condensate RO, Activated Carbon Filters, UV, Chlorination	Re-cycle CIP push water Centrifuge RO	Re-cycle waste water Membrane Bio-Reactor RO



Impact of the Phases on Ground Water Withdrawal

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Finally

- Water risk analysis is critical for longterm business success.
- Risk and impact assessments have to be local.
- It is less about whether there or not there is a risk, but about how water risks and opportunities are managed.
- Water disclosure has be both harmonized and take into account the local nature of water risks as well as sustainable water risk management practices.

Thank you!

What else…?

www.nestle.com/csv
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