Royal HaskoningDHV
Enhancing Society Together

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WAGENINGEN UR

Coca-Cola

OXFAM

Towards a climate adaptive integrated approach of the food chain

Hilde van Duijn
Rob Bonte
26 September 2014

OXFAM

- 1 out of 7 billion live in avoidable extreme poverty
- Role to help create lasting solutions to the injustice of poverty
- Range interventions: humanitarian relief, programs, lobby, campaigning
- In over 90 countries with more than 3000 partner organizations
- Program funding > USD 500 million/year

GROW
FOOD. LIFE. PLANET.

- 900.000 hungry and > 1.4 billion overweight
- 1,5 billion people rely on small-scale farming
- Many farmers and workers are impacted by the struggle for land and water and climate change
- GROW campaign seeks systemic change in the global food system
- Lobby governments and private sector

Extreme weather and changing seasons impact farming: destroying harvests, pushing food prices up.

Prices of commodities like corn and rice are projected to double by 2030

The poorest countries will suffer most. But climate change will change what we all eat.

One quarter of all greenhouse gas emissions is from food production

= ***Larger than all emissions from cars, planes, trains***

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Impact food and drink companies

Unilever: now loses €300 a year due to extreme weather events such as flooding and extreme cold

General Mills (2014): Last fiscal quarter of 2013: "extreme weather dampened sales and cost company 4% of production.

PepsiCo (2011): " We may be subject to decreased availability for commodities that are necessary for our products, such as sugar cane, corn, wheat, rice, oats, potatoes and various fruits".

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Race to the top

Role of food industry to build more sustainable and fair food system

10 biggest Food and Beverage companies: policies and commitment

Scorecard , 7 themes, 300 indicators as a central basis

Interactive web-platform for consumer campaign

Engaging companies, consumers& investors (usd$1.4trillion)

www.behindthebrands.org

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BEHIND THE BRANDS — Home | Brands | Issues | Company leaderboard | About the campaign | Campaign news — OXFAM

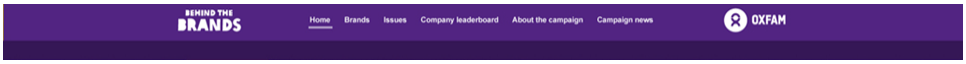
BEHIND THE BRANDS: FOOD COMPANIES SCORECARD

0 - 1 Very poor 2 - 3 Poor 4 - 5 Some progress 6 - 7 Fair 8 - 10 Good

Rank	Company	Score	Land	Women	Farmers	Workers	Climate	Transparency	Water	Total
1	Nestlé	64%	5	5	6	7	8	7	7	45/70
2	Unilever	63%	5	5	8	7	7	6	6	44/70
3	Coca-Cola	54%	7	6	2	6	6	5	6	38/70
=4	Mondelēz Internacional	33%	3	5	4	3	2	3	3	23/70
=4	PEPSICO	33%	2	2	3	3	6	3	4	23/70
=6	DANONE	31%	1	1	2	3	5	5	5	22/70
=6	MARS	31%	1	4	4	3	4	4	2	22/70
8	Kellogg's	29%	2	3	1	1	4	4	5	20/70
9	Associated British Foods plc	27%	3	2	2	3	4	3	2	19/70
10	GENERAL MILLS	21%	2	1	2	2	2	2	4	15/70

Updated February 2014.
The latest version of this scorecard is available at http://oxfam.org/behindthebrands

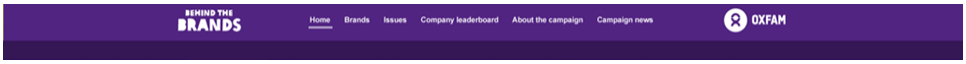
GROW Oxfam



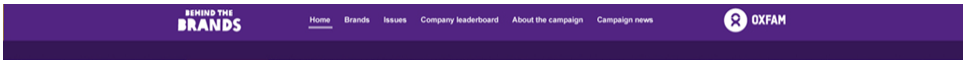
one year update

Commitment Coca Cola:
"Zero Tolerance for land grabbing"

followed by PepsiCo and Nestle in 2014



Third action: Climate Change



Climate change Wins:

General Mills and Kellogg committed to

-> Set a total supply chain GHG emission reduction target and action plan with focus on agricultural emissions in 2015
-> Disclose top 3 suppliers for palmoil and sugar cane (and soy for Kellogg)
-> Zero net deforestation policy fully implemented in 2020
-> Set up a climate change adaptation strategy for small holders (Kellogg)
-> Engage in meaningful call for climate action (signed Climate Declaration)

Food industry: Water and Climate

Water use

- Water is a scarce resource, communities are fighting for local control as businesses also demand access.
- Companies should
  - Respect the UN human right to water and reduce and better manage the use of water from water-stressed regions.
  - Train farmers to reduce the use of water for irrigation and provide smart water capture solutions.

Climate adaptation

- A changing climate impacts farmers, it adds to the vulnerability of farmers.
- Companies should
  - Disclose climate change risks and implement strategies that build the resilience of small-scale farmers, focus on women.
  - Promote more inclusive business models, include payment of living wage.
  - Develop early warning systems.
  - Train farmers to prevent soil degradation and promote crop diversification.

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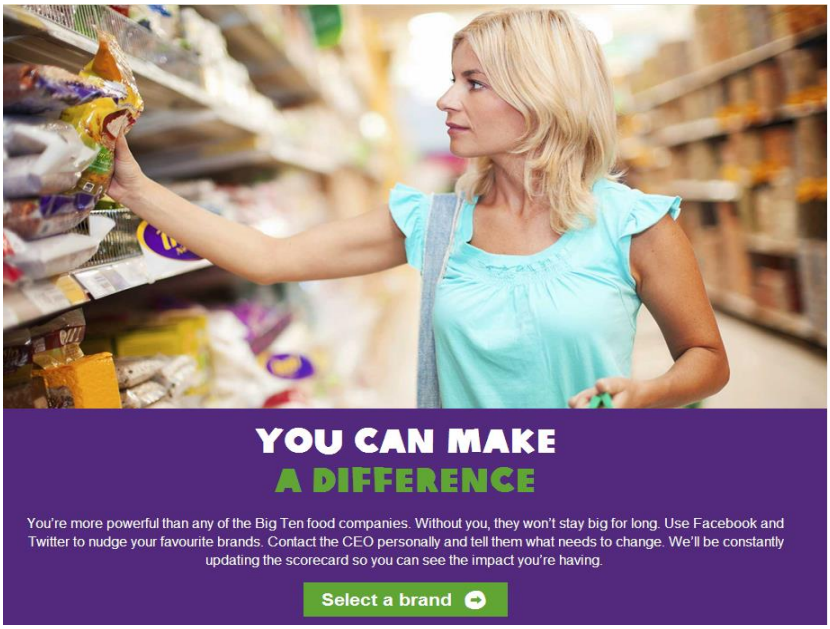
For more information please visit; www.behindthebrands.org or contact frank.mechielsen@oxfamnovib.nl



Climate change, water and food security
What is at stake?

Eddy Moors

Head Climate change and adaptive land and water management, Alterra

Professor Water and Climate, VU University Amsterdam

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Main message

- Water demand and availability
- Shifting patterns
- Human behavior
- Stimulating system innovation by incorporation of newly developed concepts, such as climate smart agriculture.

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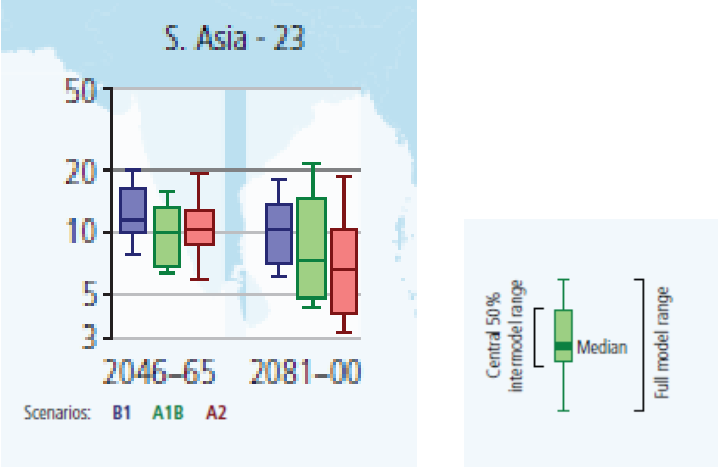
Return periods of max. daily precipitation compared to 1980-2000 with a return period of 1 x 20 years (IPCC, 2012)



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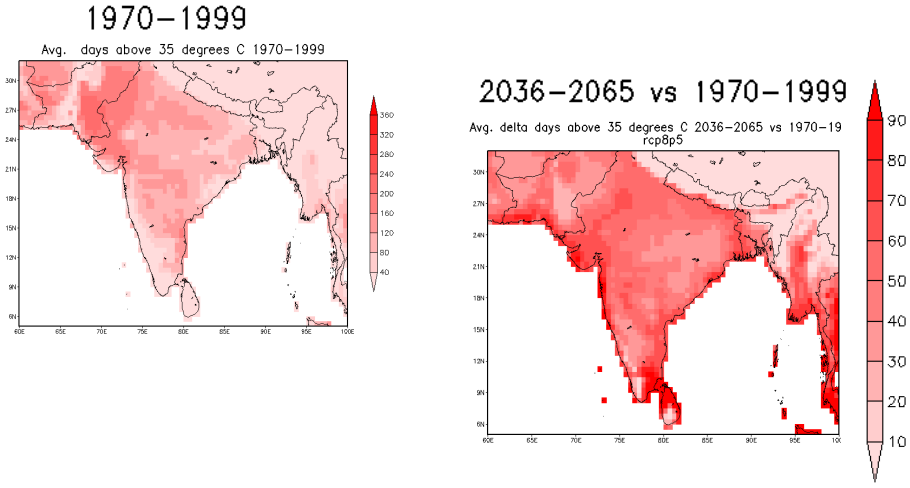
Average days with temperature above 35 Celsius



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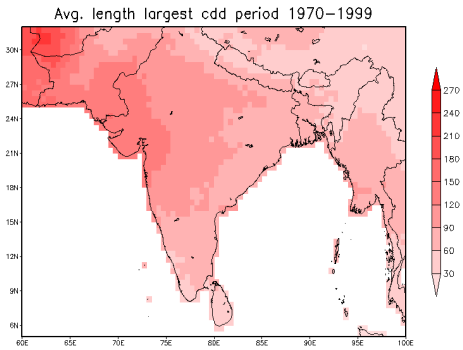
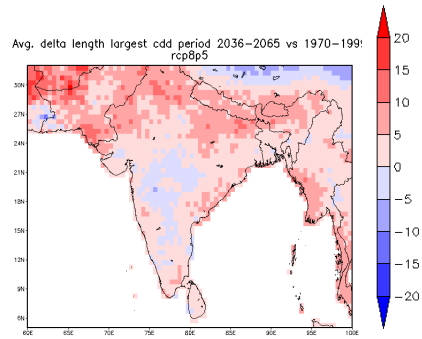
Average length of periods with continuous dry days

1970–1999



2036–2065 vs 1970–1999



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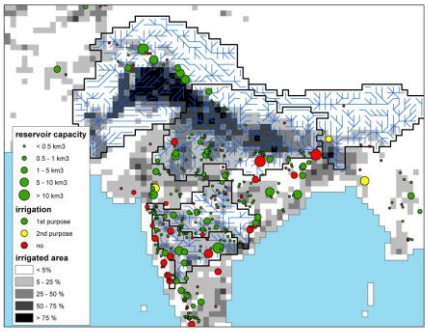
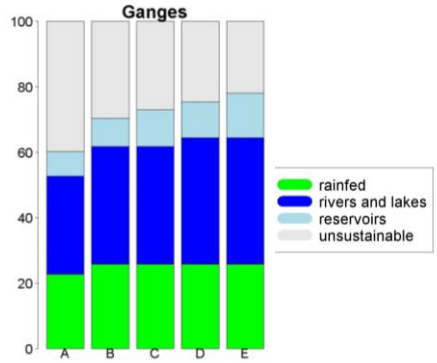
Agriculture: Food security & water demand





A: current, B: baseline, C: dam cap, D: efficiency, E: dam-eff

Rice: decrease in production in 2050 varying between 20 to 40% depending on RCM used!

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(Biemans et al., 2013 & Mishra et al., 2013. Science of the total environment, Online)

Ways forward

Sources Google images

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Ways forward

- Increase storage capacity (surface water, groundwater)
- Increase water use efficiency

But that is not enough ...

- Reduced vulnerability because of variability (e.g. weather forecasts combined with management advice)
- Improved use of rain fed agriculture (with supplementation)
- Water (energy) demand management (e.g. pricing, accounting) on a basin scale taking equity into account (e.g. PES)

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Summary

- Changes in extremes (dry, wet, hot) are taking place and are expected to increase;
- > 20% of agricultural production will remain unsustainable without further improvements;

How will we share our waters, now and in the future?

- Long term vision (20-50 yrs) needed to develop robust short term plans (1-5 yrs).
- Water demand management is essential;

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Thank you

contact: eddy.moors@wur.nl

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Food Security in times of Climate Change

From Farm to Table: Sustainability in our Supply Chain => More food, less water

26th September Panel Discussion

Coca-Cola Technical

CLIMATE GOAL

25% reduction in the carbon footprint of the drink in your hand
(through our full end-to-end value chain)

ENVIRONMENT

(WORLD)

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What is Coca-Cola's Climate Protection Program?

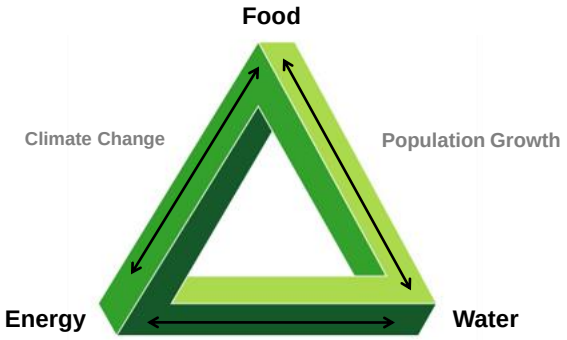
- Improving the environmental performance of our refrigeration equipment and phasing out our use of hydrofluorocarbons (HFC) refrigerants; to date the system has placed more than 1 million HFC-free coolers
- Working to stabilize emissions system-wide in our bottling plants
- Working to incorporate more fuel-efficient modes of product delivery across our fleet
- Developing innovative technologies like PlantBottle™ that reduce potential emissions within our packaging platform
- Collaborating with ingredient suppliers to reduce emissions and create a more climate resilient and more sustainable supply chain.

Confidential—For Internal

Coca-Cola Technical

Agriculture is Critically Linked to Energy and Water and all Three are at the Heart of the Sustainability Challenge

Greater supply volatility



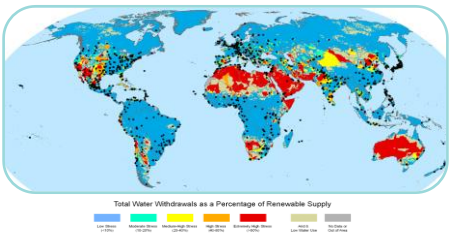
Higher production costs

Global Development

More unpredictable yields

Water is Biggest Part of Our Supply Chain and it is Under Growing Stress

- Physical availability – surface or groundwater – and the sustainability of those sources
- Infrastructure existence, pressure, service area, metering
- Pricing – too cheap or too expensive
- Droughts
- Competing use and increased demand from more people and increased GDP
- Climate change
- Regulatory limits
- Social acceptance



Water Risks in Manufacturing Locations

Water Risks in Agricultural Supply Chain

Why Sustainable Agriculture for TCCC?

Vision 2020 growth	+	Ag ingredient supply constraints	+	Global trends magnifying market forces	=	Changed operating conditions for TCCC
• Double revenue by 2020 • Requires 2x sourcing of agricultural ingredients		• Population growth • Emerging global middle class • Biofuels • Climate volatility • Water stress • Soil degradation and yield decline • R&D investment lag		• Social media • Increased power of civil society • Connectedness • Globalization • Increasing power & declining trust in corporations		• Increasing brand risk tied to sourcing • Increasing risk of supply disruptions • Rising cost and price volatility of key ingredients • Changing consumer preferences

Business value at stake

Our sustainable ag commitment will:

- Enhance brand by improving social and environmental outcomes at the farm
- Increase continuity and resiliency of our ag supply chains through more strategic supplier relationships
- Support required top line growth through increasing yields
- Protect our license to operate in developing geographies dependent on agricultural economies

Coca-Cola Technical

Coca-Cola's 2020 Sustainable Agriculture Goals and Commitments

SUSTAINABLE AGRICULTURE

GOAL: 100% of priority commodities meet sustainable procurement standards

Sweeteners:

Sugar (Cane) | Sugar (Beet) | Corn (HFSS) | Stevia

Fruit:

Lemon | Orange | Grape | Mango | Apple

Other:

Tea | Coffee | Pulp & Paper (Forestry products) | Soy | Palm Oil

Sustainable Agriculture Guiding Principles

LAY THE FOUNDATION FOR "SUSTAINABLY SOURCED" EXPECTATIONS

Human and Workplace Rights	
1. Freedom of Association and Collective Bargaining	4. Work Hours and Wages
2. Prohibit Child, Forced or Abuse of Labor	5. Safe and Healthy Workplace
3. Eliminate Discrimination	6. Community and Traditional Rights
Environment	
7. Water Management	10. Soil Management
8. Energy Management and Climate Protection	11. Crop Protection
9. Conservation of Natural Habitats and Ecosystems	
Farm Management Systems	
12. Harvest & Postharvest Handling	14. Management Systems, Record Keeping and Transparency
13. Reproductive Material Identity, Selection & Handling	15. Business Integrity

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innocent

Case story on making supply chains more resilient

innocent

spanish strawberry

A thirsty fruit grown in an area of extreme water scarcity, next door to global wetland

WWF lobbying against farmers, uninformed regional debate raging

Local university appointed to conduct water footprinting over 3 seasons

10% of farms represented by study

Partnership of customers and strawberry processor

More water ≠ more strawberries

WWF target unrealistic

15% water reduction across region possible through better knowledge and small investment

A further 10% reduction possible across region with greater investment in irrigation systems

Strawberry is not the worst offender

Best practice for water usage identified including impact on yield and quality, no need to diversify, strengthened relationships along chain

- Extend programme across region
- inform regional water management planning

1. Irrigation field trials

SEASON 2013-2014 RESULTS

Tunnel	Water volume recorded in flow meters (m^3/ha)	Applied water/ Theoretical water needs	Yield	
			Kg/ ha	g/ plant
1	3492.4	1.14	52437.1	806.7
2	3492.4	1.14	51675.6	795.0
3	3721.5	1.22	53327.8	820.4
4	3344.6	1.09	51138.1	786.7
5	3451.3	1.13	50422.1	775.7
Farmer´s tunnel	6120.5	2.00	50720.1	780.3

40 % reduction in water use with slightly higher yields!

Proyecto financiado por la fundación Coca-Cola

The Doñana Strawberry and Sustainable Water Management Group

WE
ME
WORLD
Coca-Cola