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Integrating water into investment decisions

23 November 2015

Water - we have a problem...

- 2.5bn people lack access to adequate sanitation
- 750m people lack access to clean water
- Women and children spend 140 m hours each day collecting water.
- **For every \$1 spent on water and sanitation there is a \$4 economic return**

Sources:

World Health Organisation/UNICEF Report 2014

World Health Organisation 2012

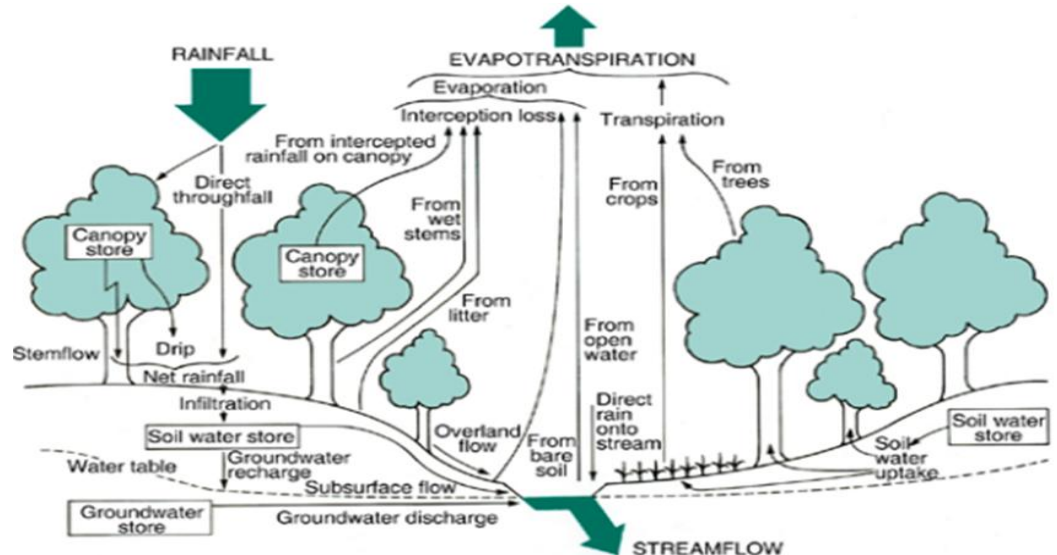
Water and climate change

- Increased frequency and magnitude of droughts and floods
- Increased number of the global population living in water stressed or water scarce regions
- Changes in seasonality and intensity of precipitation
- Decline in water quality due to increased pollution
- Examples of business impact:
 - Decrease in water permits
 - More stringent regulations
 - Higher costs for water and services around it
 - Growing community opposition
 - Increased public scrutiny of corporate water practices
 - Growing demand for water efficient products and technologies

A natural capital approach; forests and water

Deforestation and drought, examples from Brazil:

- Arabica coffee price
- Raizen job cuts over drought
- Colgate Palmolive investment into water



Sources:

Raizen; CDP 2015 Disclosure

Colgate Palmolive: CDP 2015 Disclosure

A natural capital approach; California

Drought leads to:

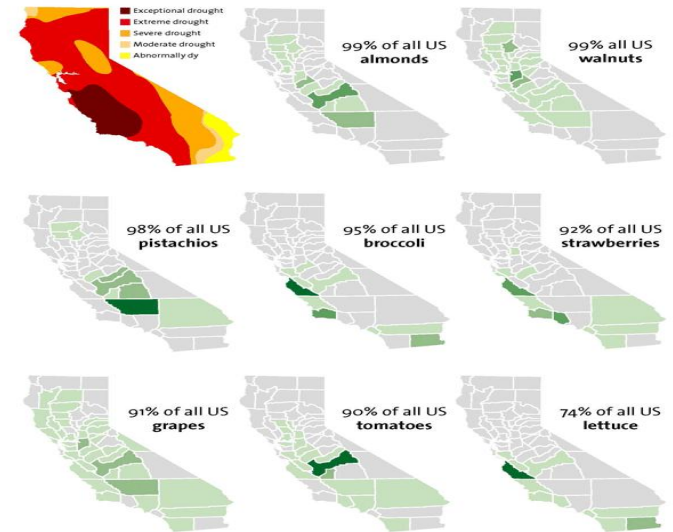
- Localised job losses
- Impacts on agriculture and food production
- Impacts on global commodity prices

Where Does Your Food Come From?

California's drought affects the whole country's fruits, veggies, and nuts.

Percentage of Total US Production by County

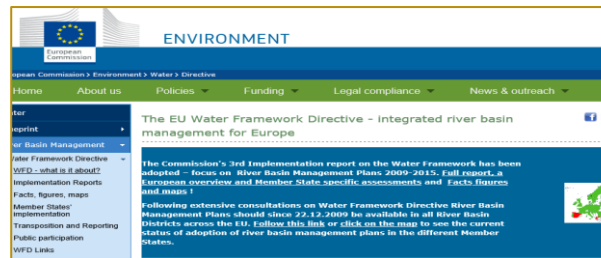
<10% 10-20% 20-30% >30%



Crop maps based on 2012 figures. Data: US Drought Monitor, California Department of Food and Agriculture, US Department of Agriculture. Art: US Drought Monitor, Wikimedia Commons.

Mother Jones

Tougher regulation



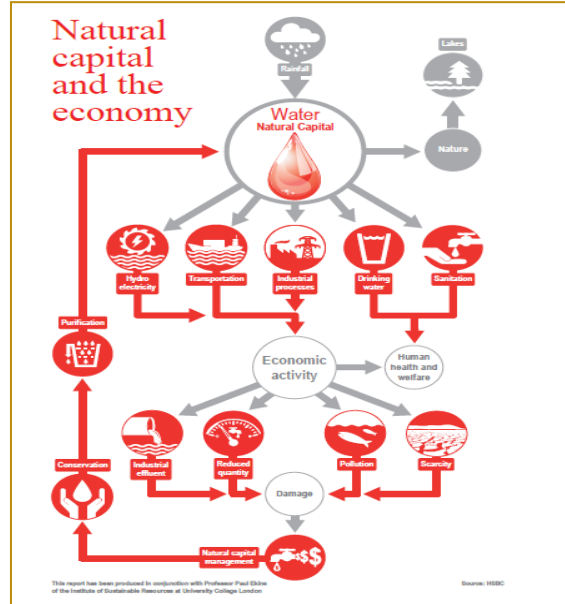
Sources:

Rules; Federal Register, Vol.80, No. 124, June 2015

2013-2014 Key Water Policies Review; Dawn McGregor, China Water Risk, March 2014

The EU Water Framework Directive - integrated river basin management for Europe; European Commission , November 2015

Investment research is responding



Thematic Investing

Equity | Global | Thematic Investing
04 April 2014

Blue Revolution – global water primer

Water: a global thematic megatrend

As part of our research on global megatrends, we update our thematic analysis on water with a Primer and Primer Pulse reports. Water scarcity is a pressing people and planet issue – 760m people have no access to clean drinking water and 2.5bn have no access to proper sanitation. Freshwater accounts for only 2.5% of global water – and we have already reached peak water. Increasing water demand, water pollution and water stress mean that demand is set to overshoot supply by 40% in the next 20Y.

A perfect storm is brewing, water is the 21st century oil

The WEF has recognised water as one of top-three global risks for 2014. Further, 50% of the world's population will be living in conditions of "water stress" by 2030 and 40% in "severe water stress" by 2050. Globally, 45% of projected 2050 GDP is at risk and as many as 50 countries are potential locations for conflicts over water. Given how closely food, water and energy security are connected, an impending "perfect storm" of events appears to be looming for the food and energy sectors, in a world constrained by extreme weather and climate change.

Thematic Investing

Equity | Global | Thematic Investing
04 April 2014

Bank of America Merrill Lynch

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Read the report
Click the image above to watch the video

Morgan Stanley

February 18, 2015

Sustainable and Responsible

Food Producers: Water as a Risk to Valuation

At least a third of the world's production of three key agricultural commodities is in areas of high or extremely high water stress. Establishing a sustainable and reliable supply of food commodities is essential for the food producer industry.

Establishing a sustainable and reliable supply of food commodities is essential for the food producer industry. Water scarcity is a key risk that could disrupt supply chains and drive commodity prices higher. In this report we analyse the risks and show the impact it could have on company valuations.

At least a third of production of three major food commodities is exposed to water stress, we estimate. We have analysed approximately 70% of the global production of three key agricultural commodities: wheat, corn and soybeans. By assessing the water risk in these key production areas we can show that 50% of wheat, 54% of corn and 48% of soybean production that we analysed is grown in areas of high or extremely high water scarcity. This equates to \$220bn of agricultural production worldwide (2012 prices).

Sustainable and Responsible | February 18, 2015

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Sources:

Broken Models? Economics and ecosystem services; Alliance Trust, Newton Investment Management and Schrodgers 2013

Natural Capital and the economy: Natural Capital, Identifying implications for economies; HSBC Global Research Nov 2013

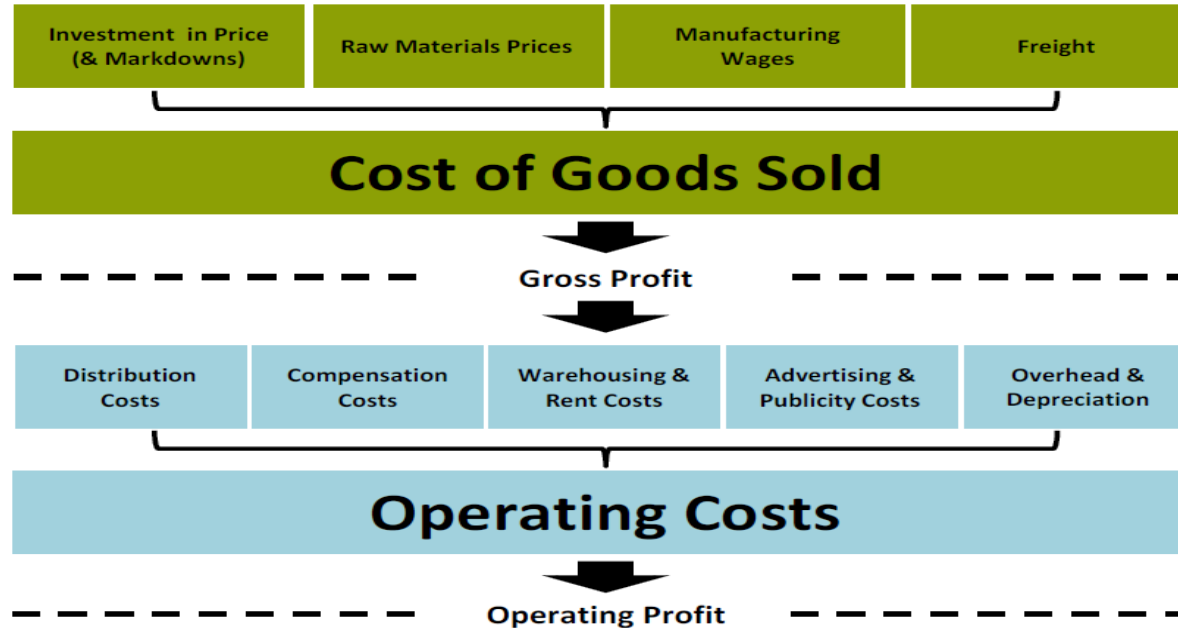
Blue Revolution – global water primer; BoAML Apr 2014

Food Producers: Water as a Risk to Valuation; Morgan Stanley Feb 2015

Power Generation Utilities; Navigating Global Water Risk; Morgan Stanley and CDP, December 2014

Focus on core value drivers - Textiles

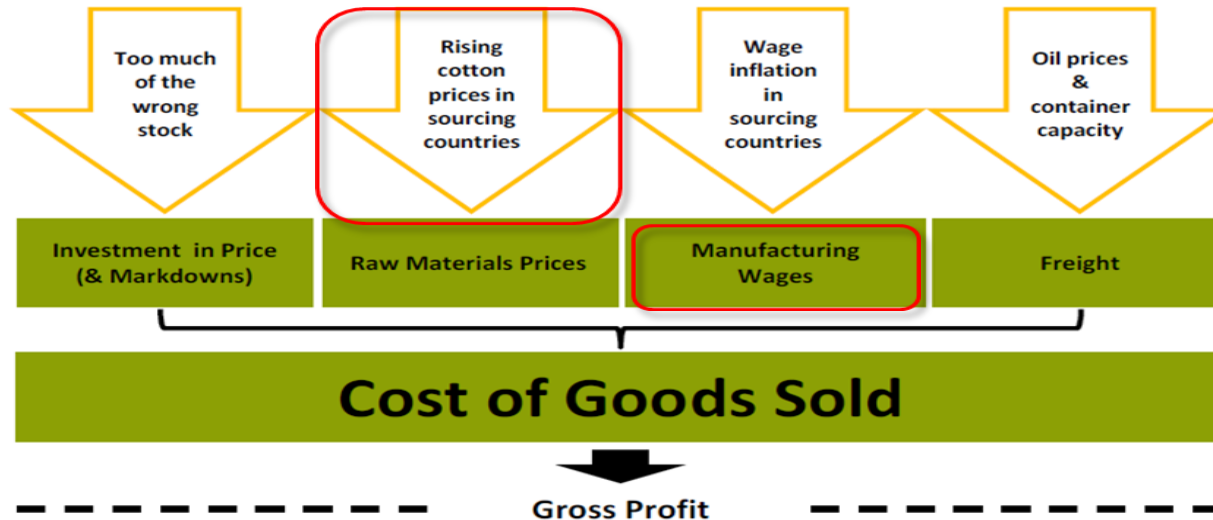
The Key Components of Cost that Drive Gross & Operating Margin for Apparel Retailers



Source: Bernstein analysis

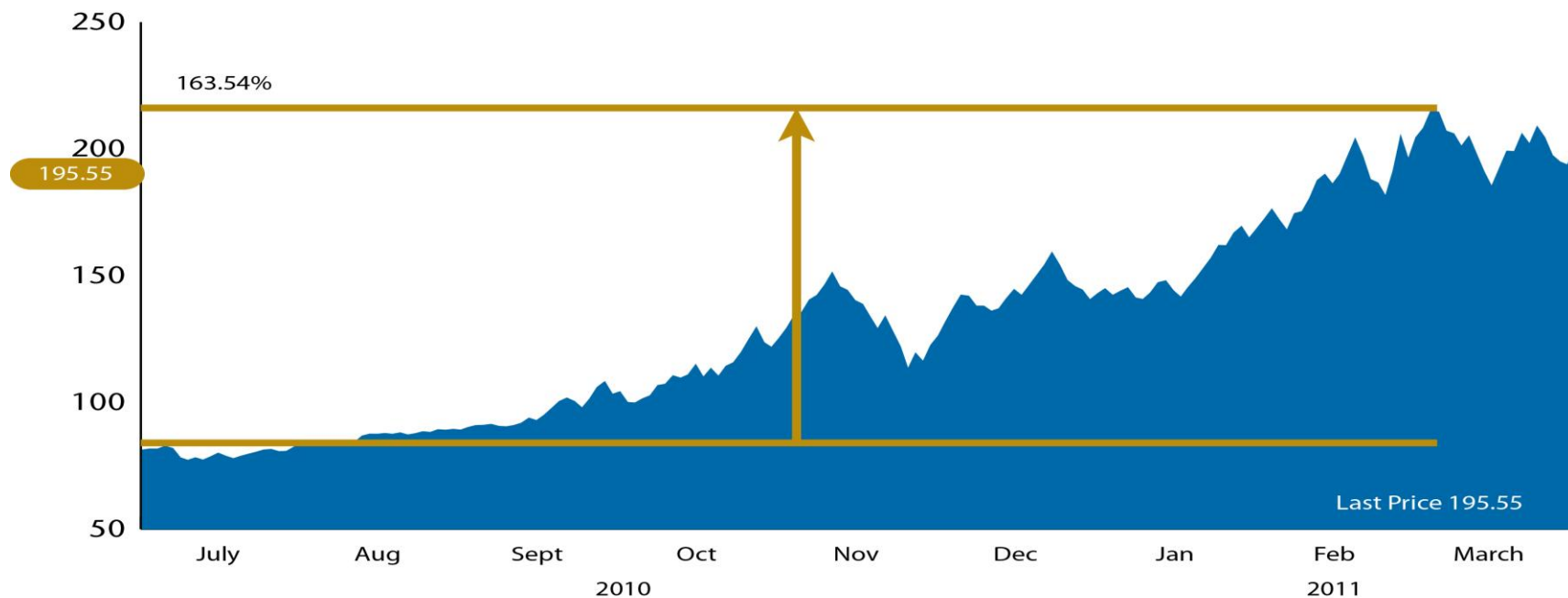
Need the mechanisms to Natural Capital

COGS is a Function of Trends in Sourcing and Manufacturing Geographies and Retailer Market Positioning



Source: Bernstein analysis

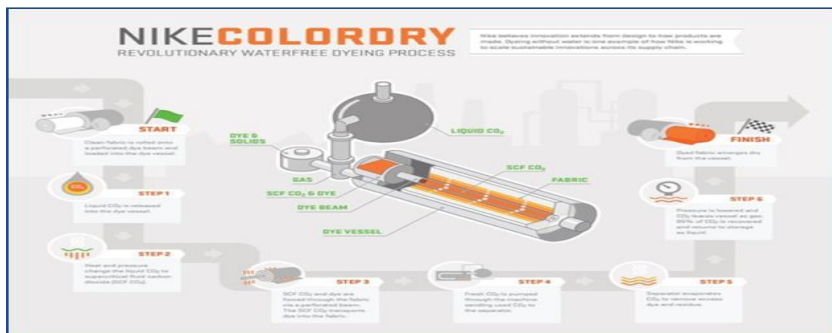
Water and COGS: raw material prices



Source: Bloomberg, as at 15th January 2015

Water and COGS: manufacturing costs

We have examples of greatness



Sources:

Nike Colordry; Nike, December 2013

Levi's Water<Less Jeans, Levi Strauss & Co, 2013



- How much of this technology is deployed?
- In which river basin?
- What is the impact on COGS?
- Have you audited that data?

Quantifying = narrative benchmark

Financial/ Valuation	Allows integration into financial analysis improving company's ability to measure, manage and report in financial terms.			YES					NO	NO	NO	NO
KPIs/Goals/ Targets	Can see their progress and the relative picture compared with peers.	YES	YES	YES	YES one on cotton	on efficiency		on efficiency				
Efficiency Measures	Significant variances in levels, where are they in long term progress as well as snap shot, are they looking at efficiency through out their whole supply chain?	YES	YES	YES	YES	YES	YES	YES future	YES token	NO		NO
Basin Level Management	There is no point being a clean fish in a dirty pond.	YES				NO	NO	NO	NO	NO	NO	NO
Working with suppliers	Enhances supply chain security and should pre empt material impacts taking place to a business.	YES	YES	YES EP&L	YES	YES	NO though starting to	Token		Requires assurance from them		
Working outside their own supply chain	Shows enhanced commitment and shows that a company is thinking about water management as a pre-competitive issue.					NO	NO	NO	NO	NO		NO
Beyond Compliance	Ahead of the regulators as litigation defence and proactive rather than reactive that should reduce costs over the long term.	YES	YES	YES	YES	NO	NO	NO	NO	NO		NO
Hazardous Chemical Water Management	Avoid fines and legal disputes, reduces spend on waste water treatment and allows reuse more economically.	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO
Partnerships	Pre-competitive – sharing expertise – likely to come up with a more effective solution.	YES	YES	Through ZDHC	Through ZDHC	Through ZDHC	Through ZDHC	Through ZDHC	NO	NO		NO
Restricted Chemical List	Shows commitment to the above and going further.		YES	YES	YES	ZDHC but unclear	ZDHC but unclear	ZDHC but unclear	NO	NO	NO	NO
Sites have own Waste Water Treatment Plants or effluent Treatment Plants (or will have)	Initial CapEx outlay so should prefer those who are currently spending or who have spent if we consider that all will have to ie Bangladesh law change. Closing the loop.	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Source: Integrating water into investment decisions; Alliance Trust Investments and Emma Lupton, 2015

Focus on the mechanism = core value drivers

New tech in production	Innovative mindset, low waste in cutting. Waterless drying etc. Cost implementations – once the initial outlay has been spent, there should be good cost saving.		YES Lyocell	YES metal free leather	YES DryDry	YES but not textile as far as I can see	NO	NO	NO	NO		NO
New Materials	Looking at new ways of producing textile and apparel as opposed to continuing to design with pressurised resources. Sustainability of production = greater longevity of business.											
Raw Materials and Fabric Production Analysis	If they are analysing and footprinting all their fabrics, they know where the pressure points are – therefore where their risks and opportunities lie. They will also know what percentage of their business is reliant on say cotton – so they know the material impact it would have if they had to stop using cotton as a product for example.	YES		YES		NO	NO	NO	NO	NO	YES?	NO
Water Related Outreach/Charity		YES	YES			NO	NO	NO	NO	NO	NO	NO
Education/Awareness		YES	YES	YES EP&L	YES	YES	NO though starting to	Token	NO	NO	NO	NO
Detailed Water Strategy		YES	YES			NO	NO	NO	NO	NO	NO	NO
Recycling Clothes		YES		YES	YES	NO						

Source: Integrating water into investment decisions; Alliance Trust Investments and Emma Lupton, 2015

Even ground breaking integration

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Exhibit 11: Integrating water risk into a DCF valuation methodology

TRADITIONAL ANALYSIS		WATER RISK ANALYSIS
GDP growth, consumer spending trends	Volume of units sold	Availability of water could limit production and/or future production
	x	
Inflation; competitive dynamics; FX.	Revenue per unit	Higher operating costs may be passed on to consumer, this could lead to headwinds for sales in the long-run
	-	
No. of employees, wage inflation, cost of goods sold; marketing; overheads; logistics etc.	Operating costs	Measures to reduce water consumption can be costly; higher fees for water abstraction; higher costs for commodities/raw materials
	-	
Expansion of production facilities	Capital Investment	Capital expenditure to comply with regulation/improve water efficiency
	-	
Current tax rates; countries of operation	Tax	
	-	
Interest rates; amount of debt	Interest	
	=	
	FREE CASH FLOW	
	x	
Age of production facilities	Useful Life of Assets	Factories may need to shut due to insufficient water
	+	
Debt/ Equity split; cost of capital.	Discount Rate	All the risks above could impact the discount rate
	EQUITY VALUE	

Source: Morgan Stanley Research

Source: Food Producers, Water as a Risk to Valuation; Morgan Stanley February 2015

Relies on the narrative

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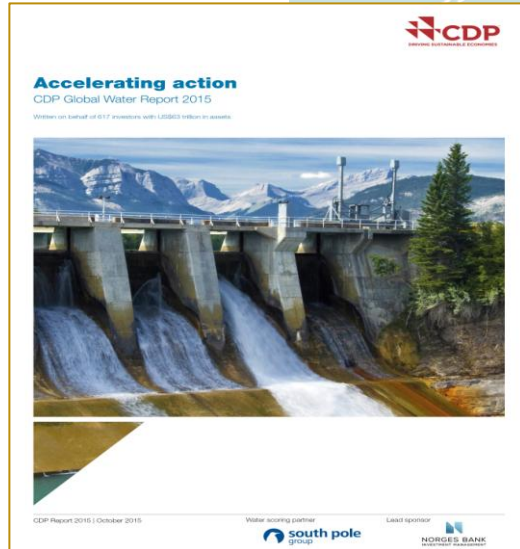
What are companies doing to mitigate water risk in their supply chains

Exhibit 34: Mitigation Strategies - Direct Operations and Supply Chains (1 of 3) - in Market Cap order.

Company	Mitigation Strategies in Direct Operations	Mitigation Strategies in Supply Chains
Nestle	<p>CHF 18mn approved to spend on water-saving programmes. Reducing water intensity (33.3% reduction in water withdrawals per tonne of product from 2005-2013). Aims to reduce water withdrawals per tonne of product in every product category to achieve overall reduction of 40% by 2015 vs 2005.</p> <p>Improving water efficiency at confectionary factory at La Penilla, Spain. EUR1mn investment reduced water consumption per tonne of product by 60% in less than 12 months following employee awareness campaign and investment in cooling towers and closed refrigeration loop.</p> <p>Investment opportunities: "to inform decision making, we place a notional cost on water, ranging from CHF 1 to CHF 5 per m3 (depending on physical level of water stress)".</p>	<p>Nestlé works directly with around 686 000 farmers, many of whom benefitted from assistance ranging from technologies that make agricultural processes less water intensive, to drought-resistant plantlets.</p> <p>The Sustainable Agriculture Initiative at Nestlé (SAIN) is a global programme to support farmers. It focuses on a range of commodities including milk, coffee and cocoa, and seeks to address some key challenges in water management and irrigation – such as farmer and crop resilience to drought and flooding; wastewater and organic waste treatment; and farm intensification techniques. For example, Vietnam coffee growers – results of a consultation revealed over-irrigation was commonplace and accounted for 50% of water loss.</p>

Source: Food Producers, Water as a Risk to Valuation; Morgan Stanley February 2015

What are companies doing?



Sources:

Accelerating action CDP Global Water Report 2015; CDP 2015
CDP Water Microsite; CDP, 2015



Conclusion

- We understand the problem
- Businesses are coming to terms with the risks and opportunities
- Great work is being done in investment research
- We are identifying the mechanisms to integrate water into investment decisions.
- But we need data that is:
 - Timely
 - Comparable
 - Audited
 - Localised

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