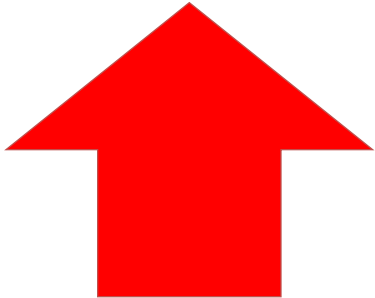




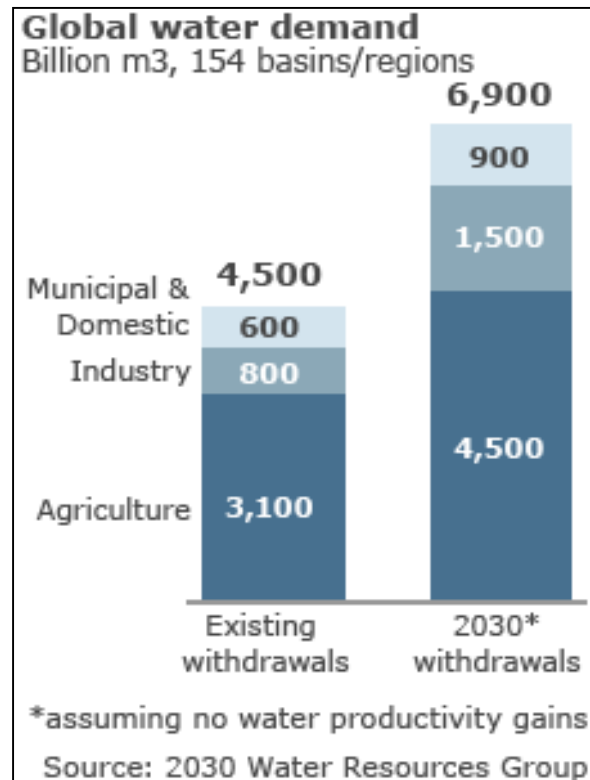
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Corporate water risk in global supply chains: the role of water efficiency

Richard Malloy



- Population due to increase to from 7 billion in 2015 to 9 billion by 2050
- Economic growth, increasingly demanding consumers
- 3.6 billion will be living in water stress areas by 2050



- Reduction in water quality through to 2050



Leading to...

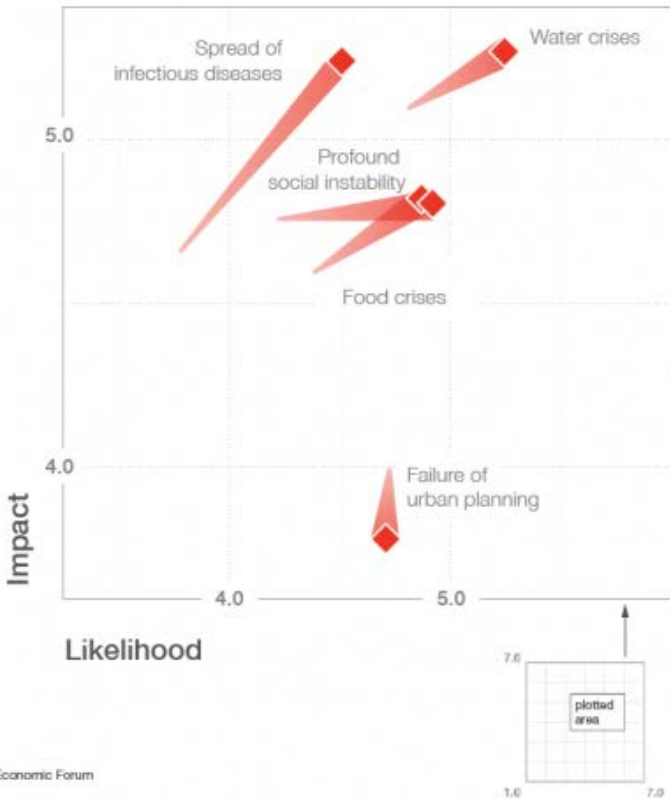
- Increasing demand
- Security of supply issues
- Rising costs
- Risks to consumers and business



The Global Risks 2015 Report

The Changing Global Risks Landscape

Societal Risks 2014 2015



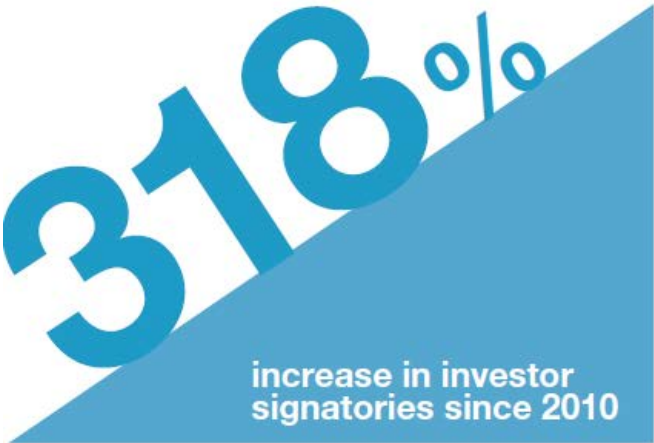
Source: Global Risks 2015 report, World Economic Forum

Increasing recognition of water risk



- Home
- What we do
- Members & signatories
- Reporting to CDP
- Reports & data

CDP launches a Global Water Disclosure Project to raise Business Awareness of Water-Related Risk



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Consumer Discretionary

49%



Consumer Staples

69%



Energy

42%



Health Care

72%



Industrials

50%



Information Technology

50%



Materials

73%



Utilities

74%

Considerations

- Raw material suppliers
- Geographical location

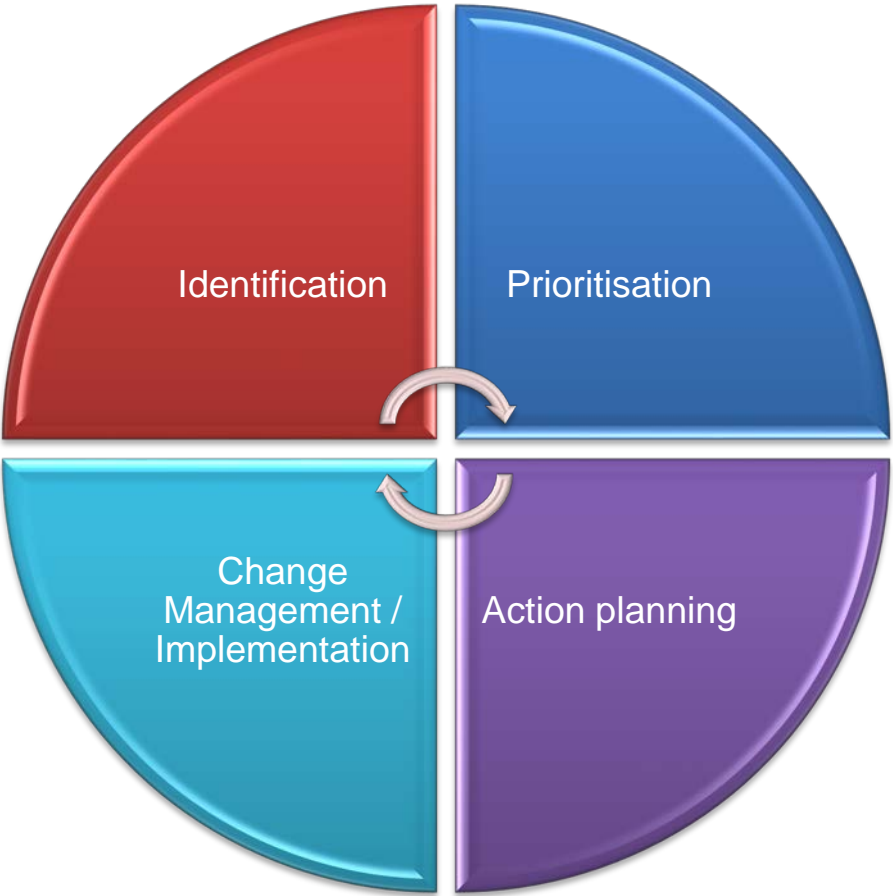
Risk factors

- Competition for finite water supplies at a local level
- Water stress – availability / quality / accessibility
- Local socio-political barriers
- Regulatory requirements
- Climatic extremes

Impacts

- Control of supply chain
- Availability of raw materials
- Economic losses
- Raw material quality
- Brand reputation



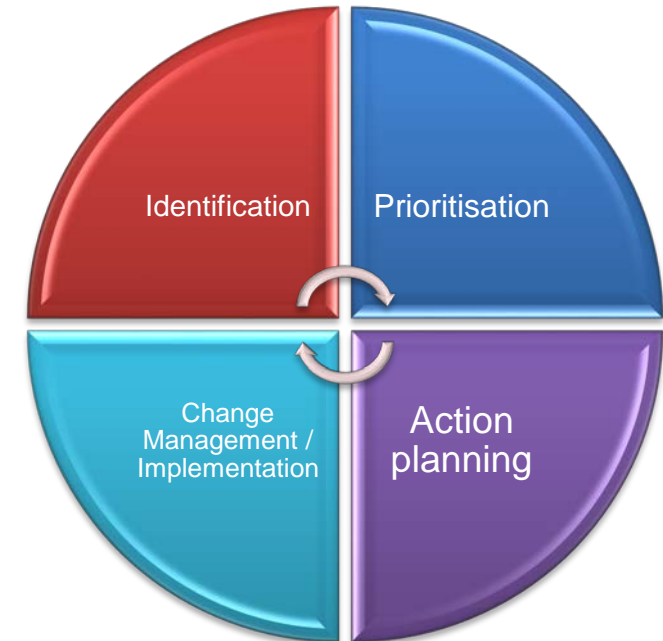


Scope:

- Holistic
- Hot-spot analysis

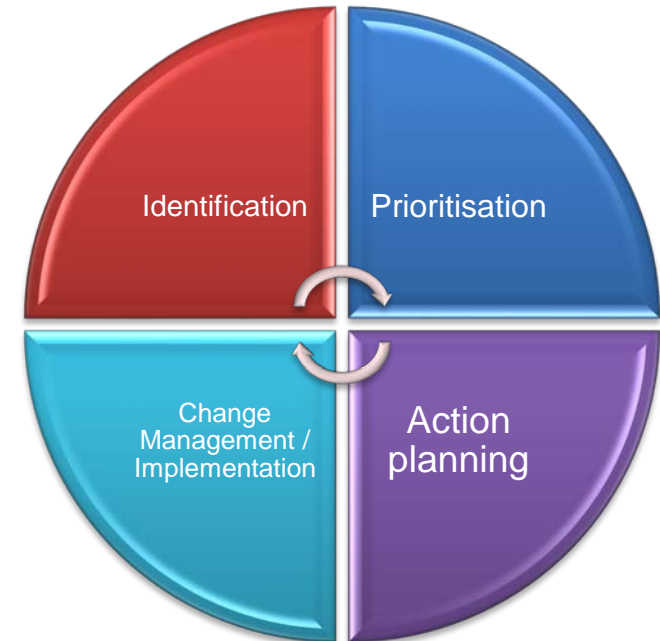
Review:

- Data availability and benchmarking
- Product / Service Components
- Water using products / processes
- Supplier information
- Site locality
- Logistical set up



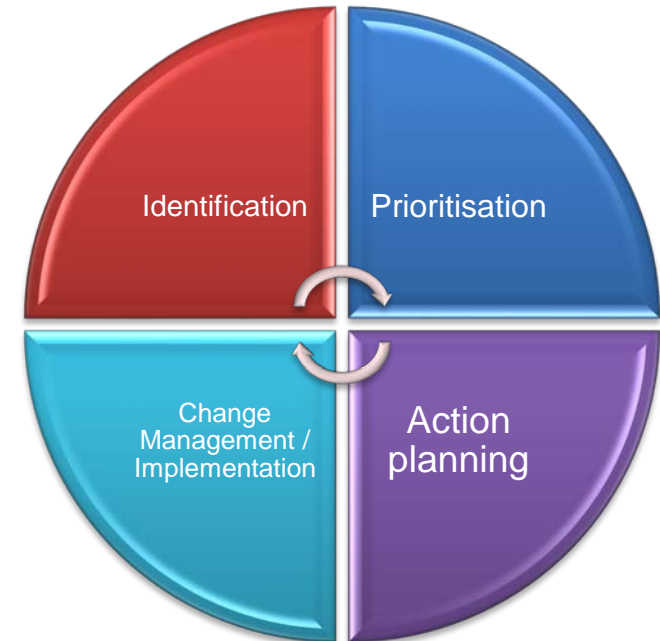
Dependent on the company, however potential areas of prioritisation will include:

- Product critical paths & processes
- Site factors (scarcity, quality, availability)
- Supplier factors (scarcity, quality, availability)
- Embedded water
- Priority customers
- Priority products (% production or profit margin)
- Financial implications
- Brand reputation
- Legislative or regulatory factors
- Predicted climate change



Water strategy and action planning:

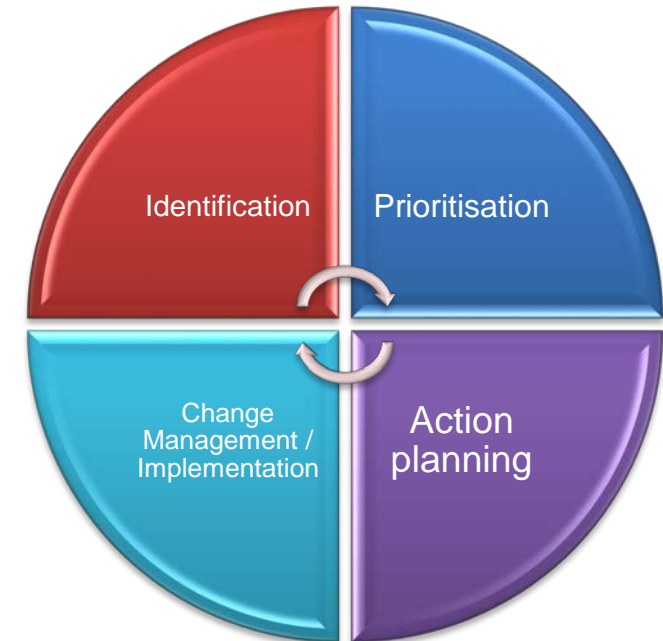
- Short / long term planning
- Demand management options
- Water re-use options
- Alternative supplies
- Corporate Social Responsibility
- Long term adaptation (e.g. climate change implications and population changes)
- Legislative assessment



Understanding your corporate water risk – Change management / implementation

Implement and educate:

- Contingency plans
- Supplier management
- Alternative suppliers
- Customer engagement & promotion
- Water efficiency improvements



Technological solutions:

- Process improvements (e.g. CIP, auto-shut off, concentrated products)
- Water re-use
- On-site effluent treatment
- Domestic water efficiency measures (e.g. taps, toilets, showers)
- Alternative supplies (e.g. rainwater / greywater harvesting, borehole)

In conjunction with...

- Improved water monitoring / Leak detection
- Agreed contingency plans / issue raising
- Staff / supplier engagement and education to install water efficient behaviours

Reducing demand reduces risk

Reduce water demand, and mitigate through improved water efficiency and demand management activities leading to:

- Increased security of supply
- A reduction in energy and carbon consumption
- Improved growth potential
- Cost savings
- Benefits the environment
- Opportunities for positive PR

Aim

- Scope the key water resource risks in the agricultural supply chain
- Use climate data to model and assess risks to key crops and supply chains in Europe.

Approach

- Key growing areas were identified and climate and irrigation data applied.
- Ricardo-AEA's Risk Governance Framework was applied to scope and model key risks in the supply chain.
- A supply chain review and water audit was conducted which considered the water footprint and embedded water in the products (accounting for Green, Blue and Grey water)

Outcome

- Identified savings of £180,000 by carrying out low cost / no cost water saving activities
- A reduction in water use brought about by increasing product concentrate
- Capacity built among decision makers and growers to deal with future risks to water resources from climate change.
- Shareholder value protected



The laundry:

- Commercial laundry
- Over 375,000 pieces per year

The issue:

- Increasing demand and expansion
- River Wensum - SSSI/SAC

2010 review:

- Sept 2011: 500m³/day
- Mar 2012: 450m³/day
- Apr 2013: 324m³/day

The outcomes

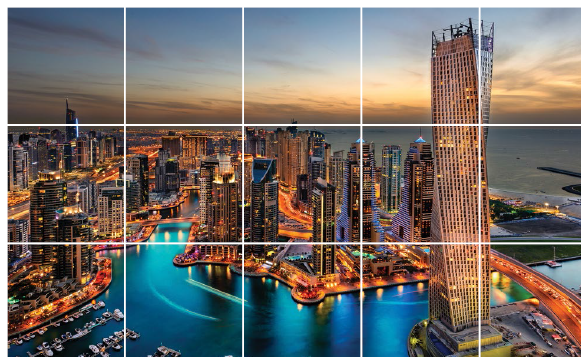
- Developed long term strategy - water reduction measures
- Improved monitoring and optimised wash processes
- £105,000 investment
- Condensate return
- Reduced water use by approx. 65%
- Increased productivity - 7.5l to 4.2l per piece (2009-11)
- Best performing site within the Group



Thank-you!

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Corporate water risk and security

For organisations operating in a global supply chain and market, raw materials and logistical operations are critical to business success. However, they can be susceptible to in-country water availability issues; hydro-climatic extremes (such as drought or flooding); and political, social, economic and regulatory influences. How you identify and manage these risks determines the resilience and sustainability of your business.

Globally, supplies of fresh water are under increasing stress from the impacts of climate change, and population and economic growth. Extreme weather events are not only becoming more widespread, but are also increasing in severity and frequency. This results in supplies of fresh water being more vulnerable and unstable, and makes the issue of water risk of interest to investors. In addition, to meet the needs of the world's growing population, there is an increasing demand for fresh water for food and energy production. This leads to security of supply concerns for people and businesses around the world.

To ensure the long-term viability and sustainability of a product or service, businesses have to understand and manage the short, medium and long-term water risks across their entire supply chain – from sourcing and procuring raw materials, through the processing of these into products or services, to the logistics associated with customer delivery. These risks could relate to constraints on growth due to water scarcity, operational and supply chain disruptions, conflicts with other stakeholders over limited supply and the increasing cost of water.

Ricardo-AEA combines technical expertise of business operations and supply chains with experience in determining resource risks and reducing reliance on water supplies. This is further complemented by our track record of working with a range of clients and stakeholders to link climate adaptation and development goals, and providing support for the design, implementation and assessment of climate-resilient solutions.

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