water footprint network

fair & smart use of the world's fresh water

Water Footprint Assessment

Presented at:

Identifying the wins, addressing the barriers, and navigating the concept jungle

Swedish Water House
December 1, 2015
Stockholm, Sweden

Dr. Ashok Chapagain
Stockholm 1 December 2015
@A_Chapagain

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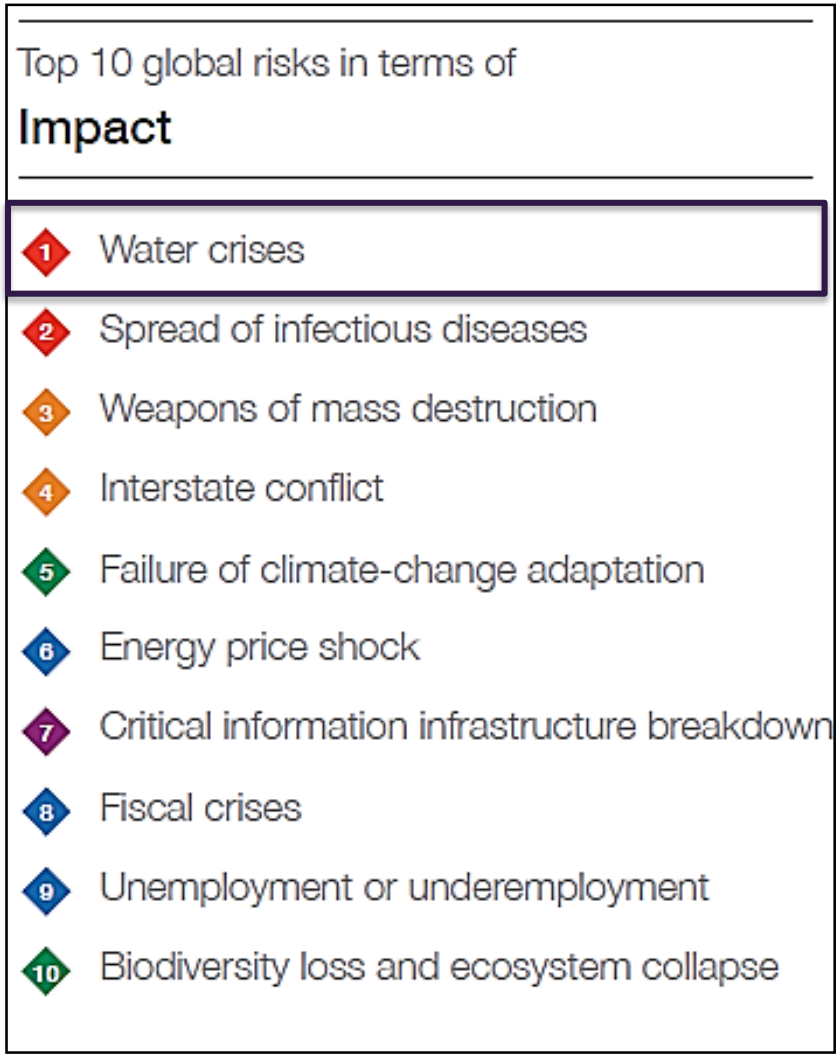
Global Water Risk



World Economic Forum, 2015

"Population growth and economic development is placing enormous pressure on our already scarce fresh water supplies."

Russ Mittermeier, President, Conservation International

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"The interest in the water footprint is rooted in the recognition that human impacts on freshwater systems can ultimately be linked to human consumption, and that issues like water shortages and pollution can be better understood and addressed by considering production and supply chains as a whole."

Arjen Hoekstra

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Sweden

Population: 8.91 million

Total water footprint: 13 000 million m^3/year

- Internal: 48 %
- External: 52 %

Water footprint per capita: 3 900 litre/day

Source: Mekonnen & Hoekstra (2011) *National Water Footprint Accounts*, UNESCO-IHE
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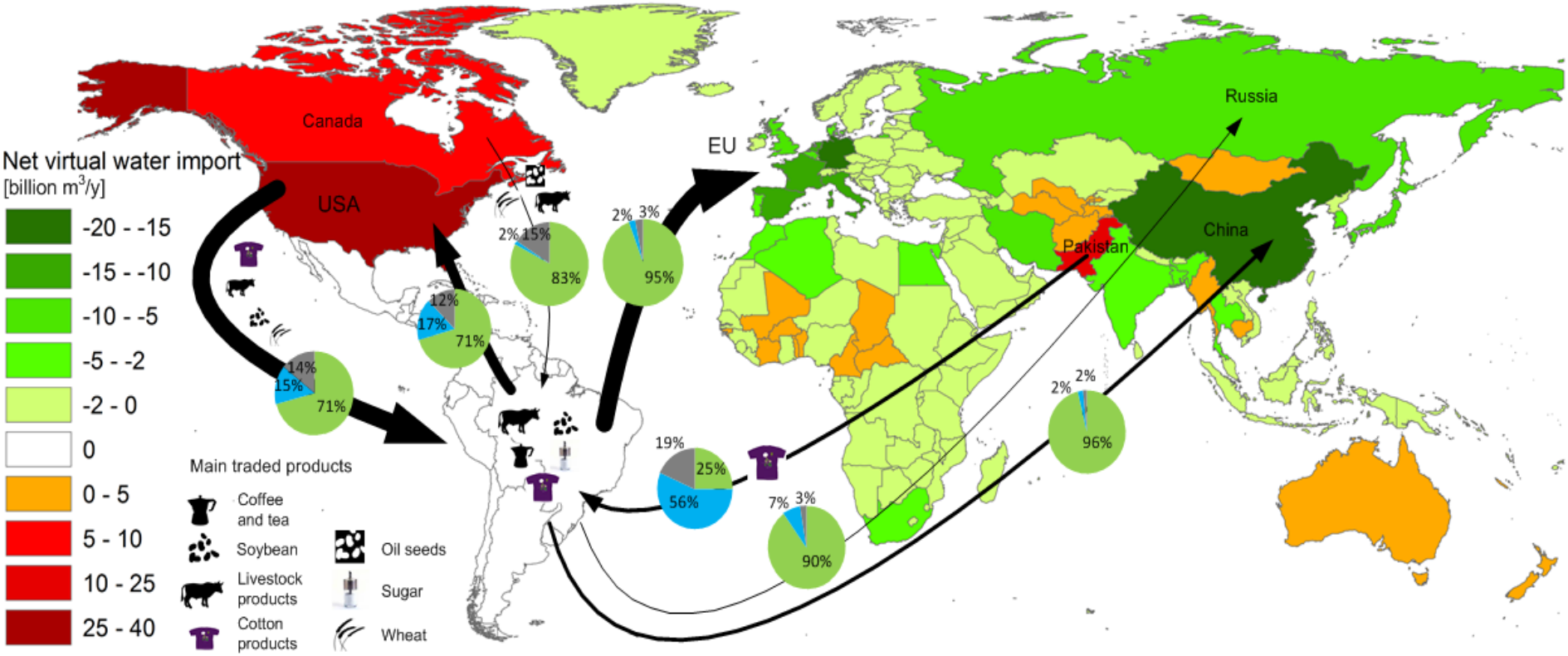
Virtual water flows through export



[Mekonnen et al. 2015]

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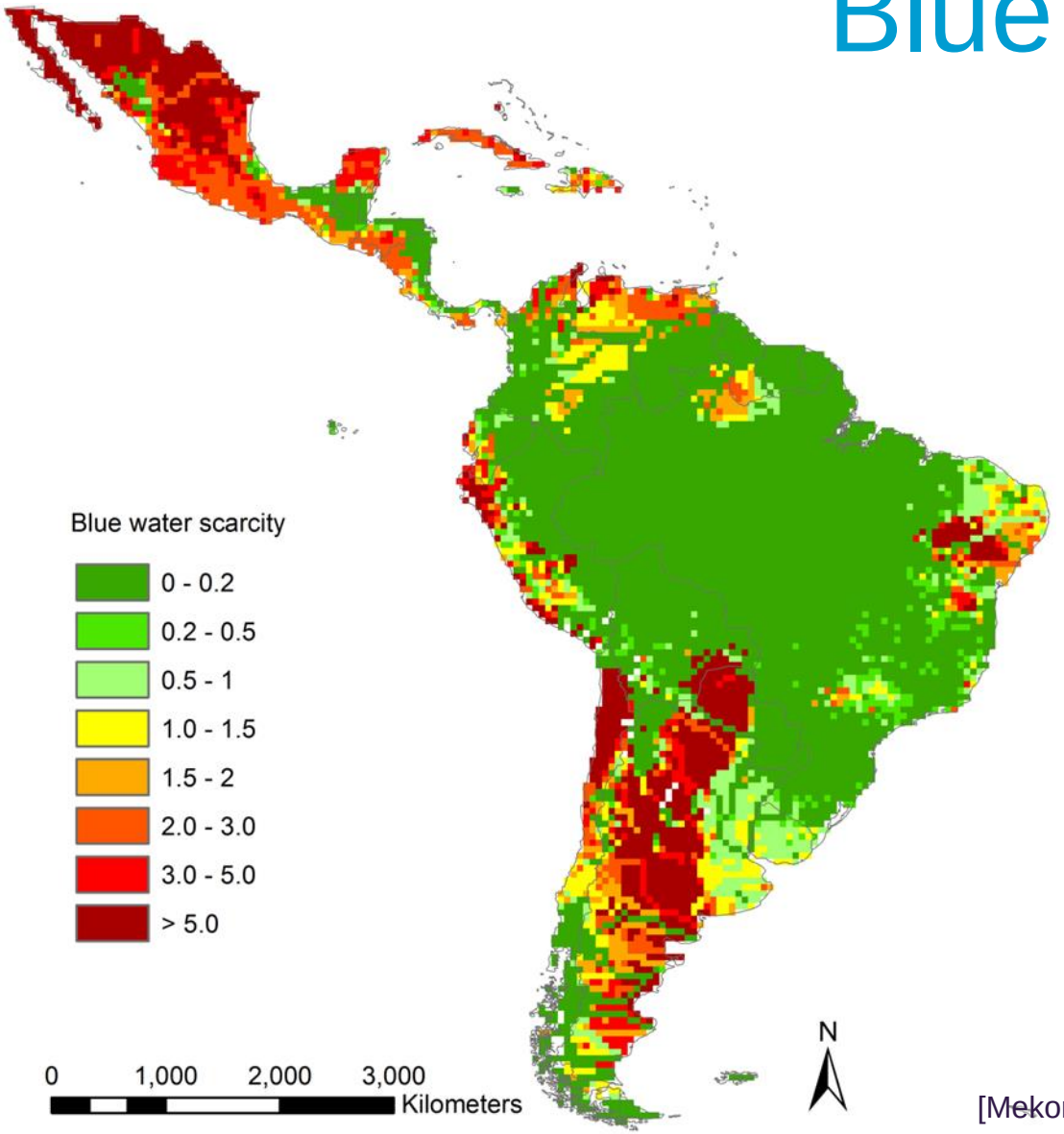
Blue water scarcity



[Mekonnen et al. 2015]

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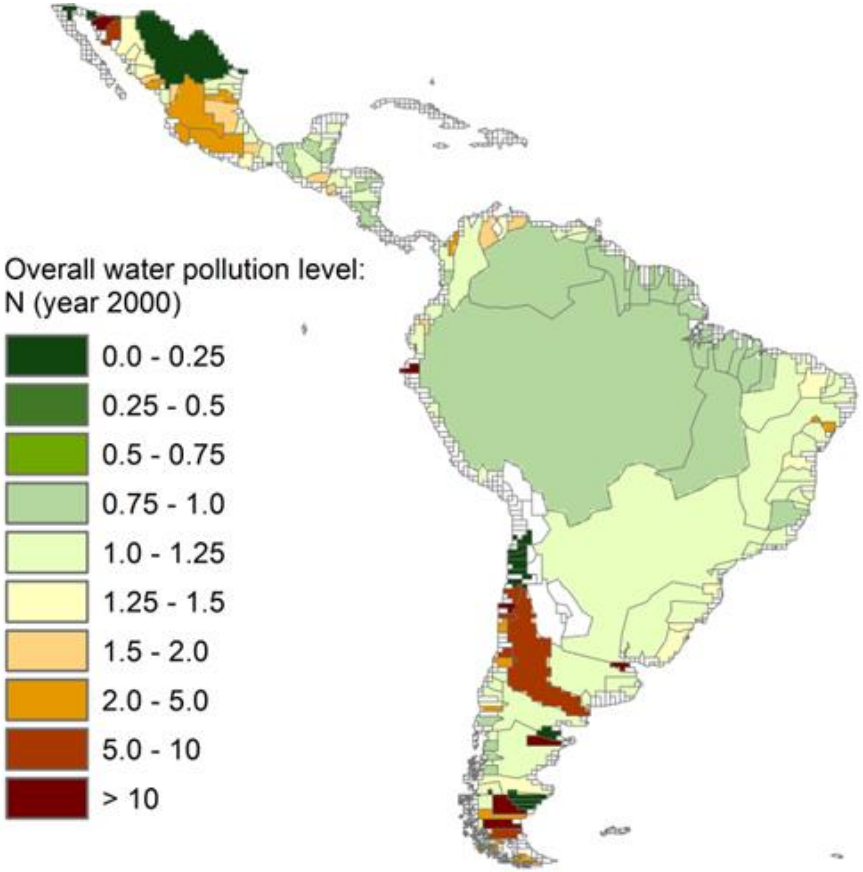
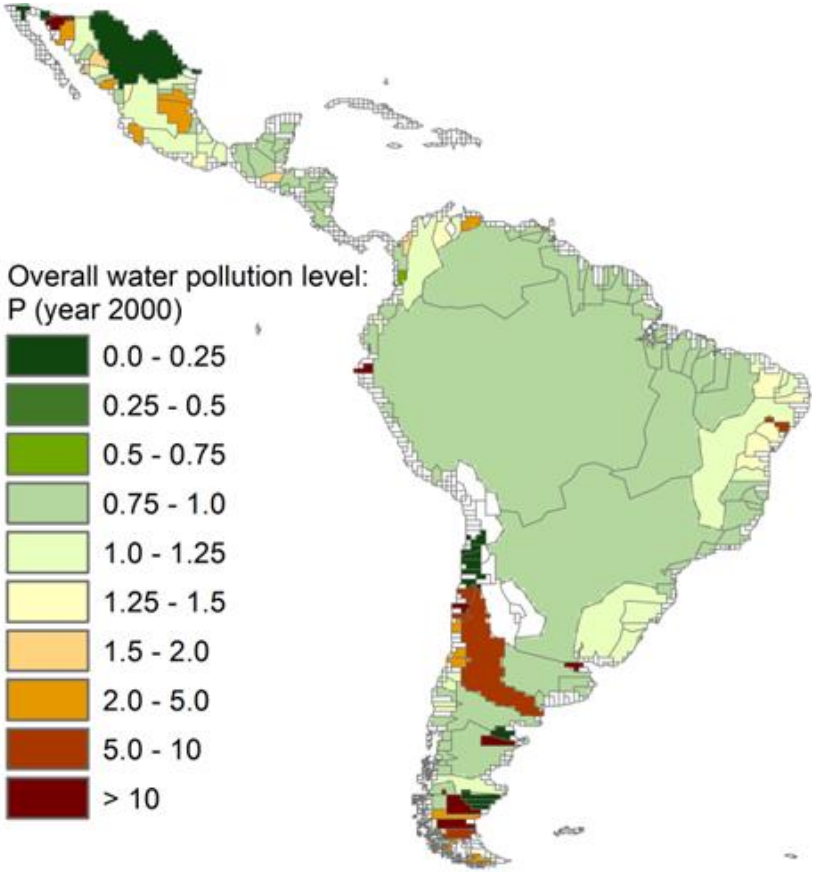
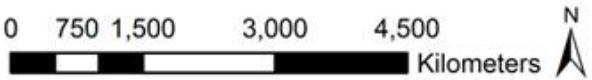
Water pollution levels







[Mekonnen et al. 2015]

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Water footprint

The ***'water footprint'*** is a measure of human's appropriation of freshwater resources

- Water footprint is a measurement of the **volume of water consumed** or **assimilation capacity used.**
- The water footprint is a **geographically** & **temporally** explicit indicator.
- The water footprint is an indicator of water use that looks at **both direct** & **indirect** water use of a consumer or producer.

A water footprint can be calculated for a **process**, a **product**, a **consumer**, **group of consumers** or a **producer** (e.g. a company).

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Water footprint components

Green water footprint

volume of rainwater evaporated or incorporated into product

Blue water footprint

volume of surface or groundwater evaporated or incorporated into product, lost return flow

Grey water footprint

volume of water needed to assimilate pollutants

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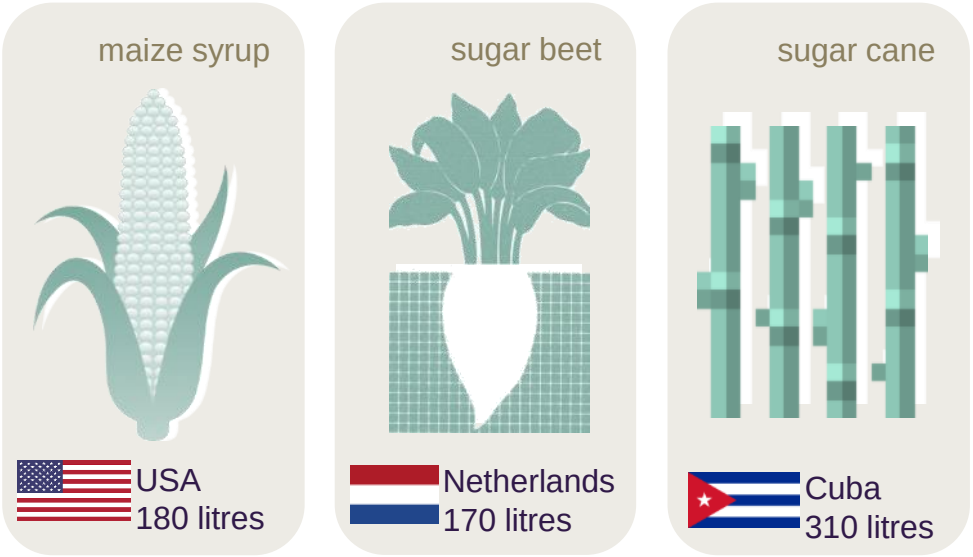
Water footprint of a product: geography and raw materials

180-310 litres



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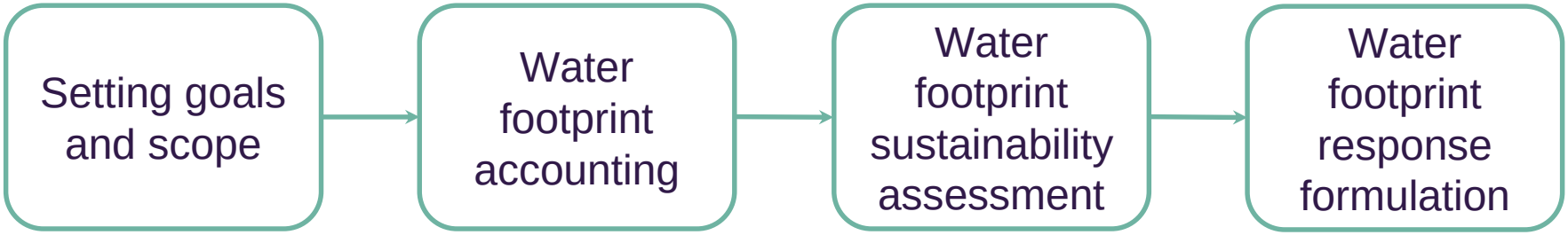
Water Footprint Assessment



- Understand the *geographic and temporal allocation of water resources* for industry, agriculture and domestic water supply
- Assess the *sustainability, efficiency and equitability of water use*: consumption & pollution
- Identify the most *strategic actions* to be taken in local, regional, national and global scales, individually & collectively

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Water Footprint Assessment in sustainable development

Environmental Sustainability	**Maximum Sustainable Limits** Water footprint allocation amongst all users *What is the cumulative impact of water use?*
Social Sustainability	**Equitable Allocation** Water footprint allocation between users/ consumers *Who is using water/ consuming products?*
Economic Sustainability	**Resource Efficient Benchmarks** Water footprint allocation for specific users *How efficiently is water being used?*

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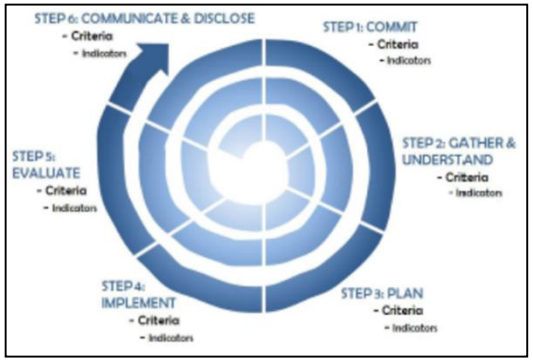
How can business respond?

Water crises are increasingly a business issue; comprehensive water strategies will be needed. Sound implementation of strategic actions can benefit business and societies. Collective action will be necessary to ensure that all river basins are managed sustainably.

"More than 70% of Global 500 respondents said water represents a strategic opportunity to improve financial and brand performance. CDP Water Disclosure (2012)"



"Corporate water stewardship is both good business and critical for the well-being of communities, ecosystems, and watersheds."
CEO Water Mandate

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Corporate water stewardhsip

Good water stewards understand their **own water use, catchment context and shared risk** in terms of **water governance, water balance, water quality and important water-related areas**; and then engage in meaningful **individual and collective actions** that benefit people and nature.

(Alliance for Water Stewardship)

From CEO water mandate

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The Water Footprint Network Experience

Working with business

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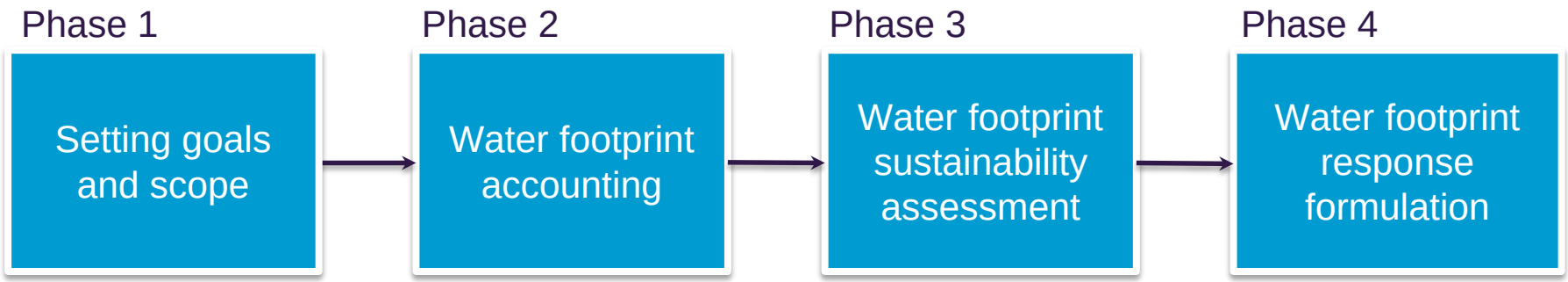
Water Footprint Assessment



Where is my WF the largest?

Where is my WF unsustainable?

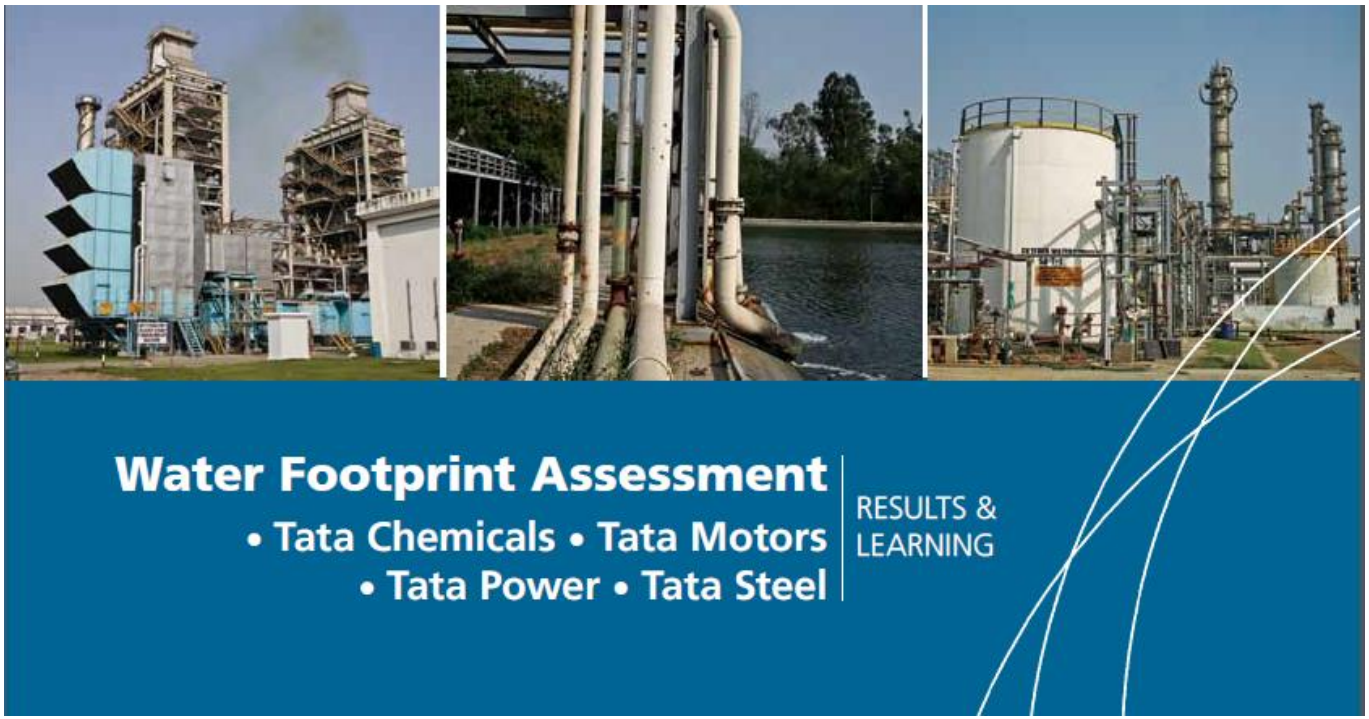
Where can my WF be reduced?

What is my green, blue, grey WF in my operations & value chain?

Is my WF environmentally sustainable, economically efficient & socially equitable?

How can I reduce my WF in my operations, value chain, sector, basin?

Where should I work first?



12 facilities in four of its companies (India)

Training of 25 water champions at the facilities

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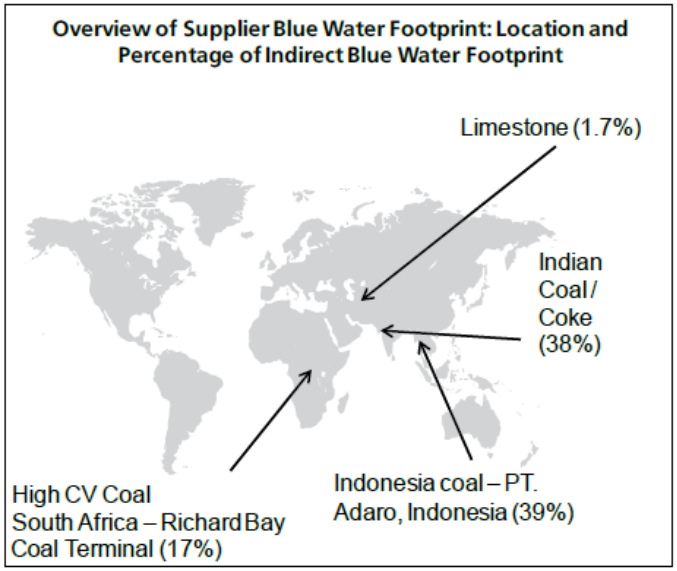
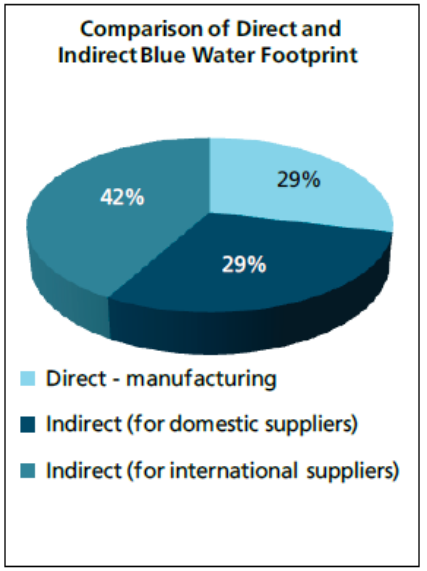
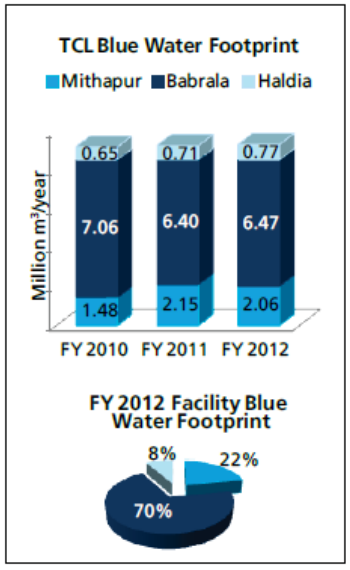
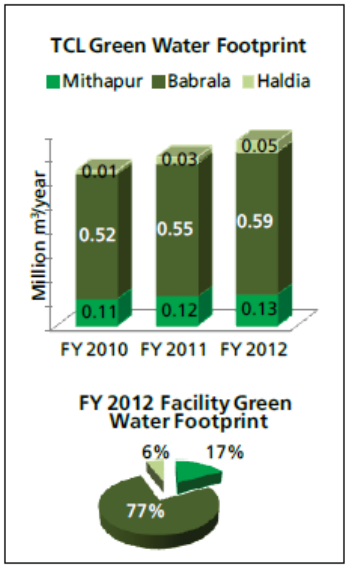
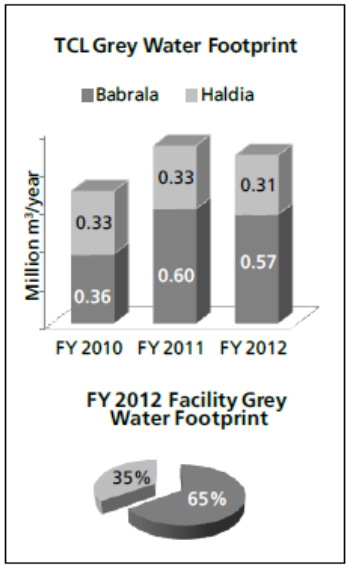
Critical insights and advice to help the Tata Group companies meet the goals of expansion in production within environmental and regulatory constraints

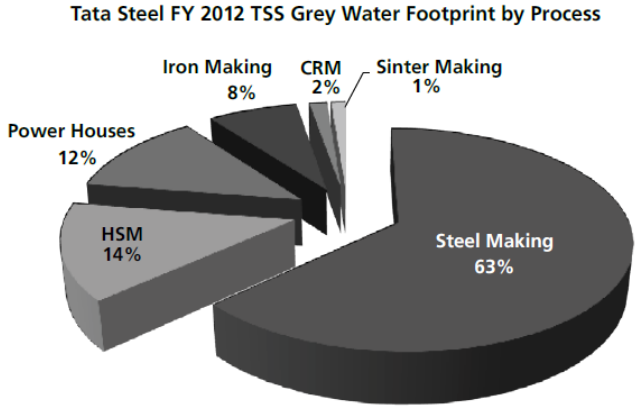












Unger et al., 2013

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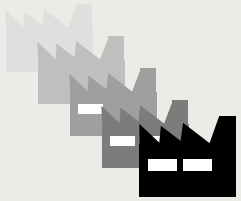
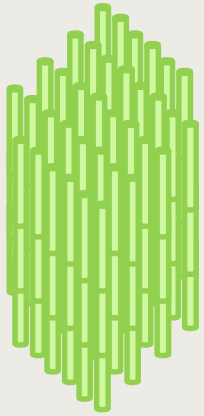
Sustainability assessment of a commodity supply chain

Food
and beverage
business



Sugar
refineries
14 countries



Sugarcane farms
& sugar mills
277 river basins

?

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Global distribution

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Where to work first?

Priority basins are selected using the following two criteria:

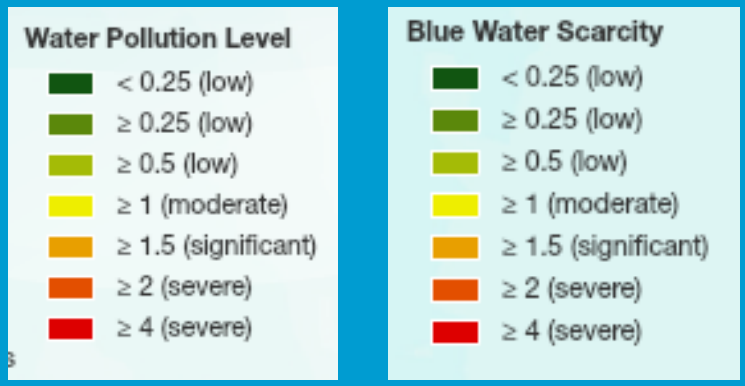
1. **Sustainability:**

   Product WF is above the global benchmark or the basin is a hotspot, or both; and

2. **Share of the WF**

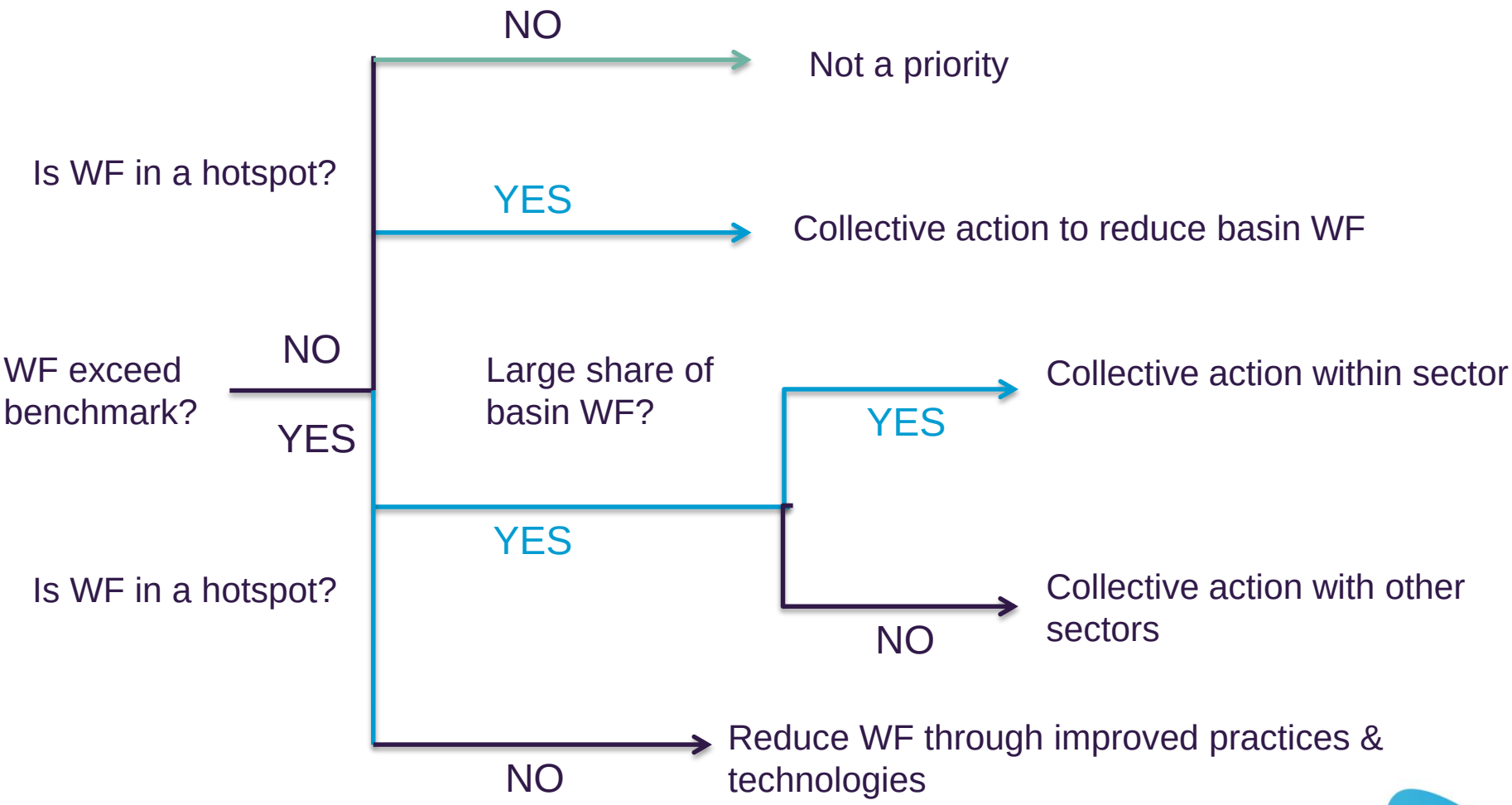
   The basin's share relative to the company's total WF is above 1%.

Is the water footprint in a hotspot?



Is the water footprint above the benchmark?

The selection was done separately for blue WF and grey WF components, resulting in two lists of priority basins.


NO
Not a priority
Is WF in a hotspot?
YES
Collective action to reduce basin WF
WF exceed benchmark?
NO
Large share of basin WF?
YES
Collective action within sector
YES
YES
Is WF in a hotspot?
Collective action with other sectors
NO
NO
Reduce WF through improved practices & technologies

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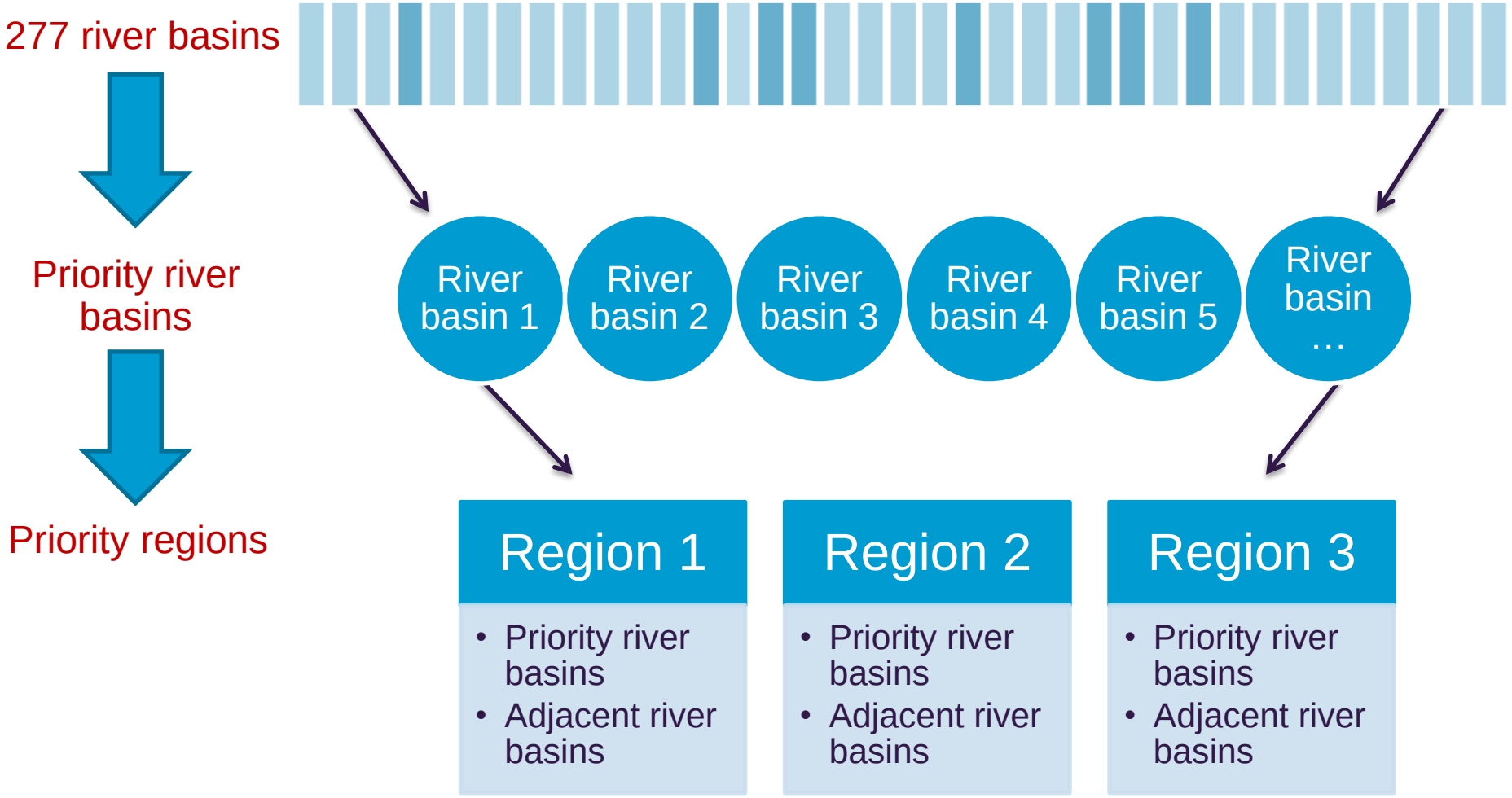

Water Footprint Strategy

- Improve the sustainability of the apparel industry and its supply chain as a whole resulting in:
  - Better conditions for communities and ecosystems
  - Long-term viability of the apparel sector
- Support C&A in making significant progress toward reducing and managing its water footprint such that it is sustainable, efficient and equitable
- Embed sustainable water use in C&A's business activities

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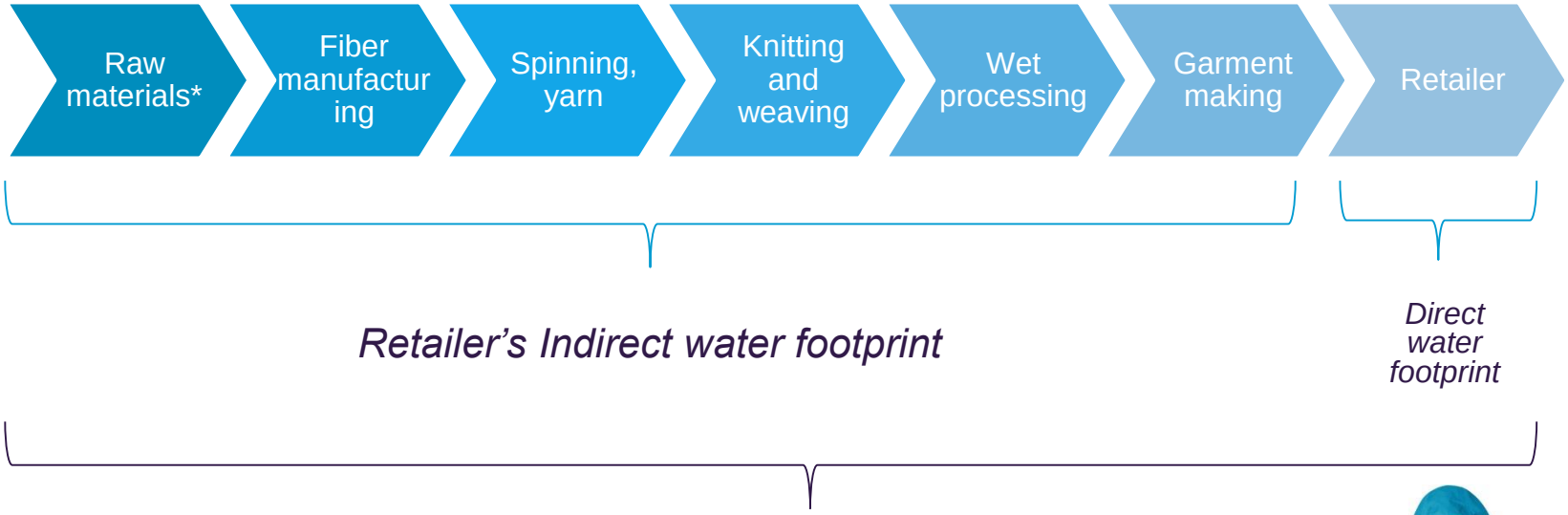
Water Footprint along a textile retailer supply chain



Business total water footprint

* Cotton fields, cellullose production forests, polymers production from oil feed-stocks, etc.

C&A Water Footprint Strategy II

C&A Water Footprint Strategy 2013-2015

WS1	Reduce the WF of cotton to levels at or below benchmarks and contribute to the overall improvement of water scarcity and pollution in relevant catchments
WS2	Reduce the WF of processing stages of WDF mills to levels at or below benchmarks and contribute to the overall improvement of water scarcity and pollution in relevant catchments
WS3	Evaluate the sustainability of non-cotton raw materials and conduct comparative analysis of alternate fibre types
WS4	Embed the goal of sustainable, efficient and equitable water use throughout C&A business activities

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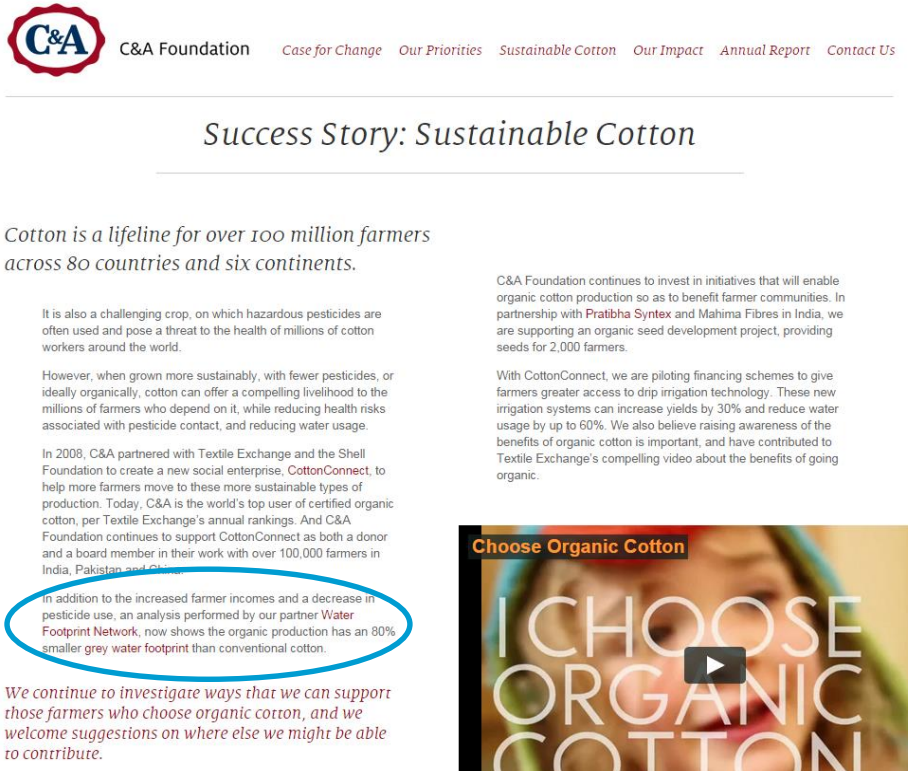

C&A Foundation

Case for Change | Our Priorities | Sustainable Cotton | Our Impact | Annual Report | Contact Us

Success Story: Sustainable Cotton

Cotton is a lifeline for over 100 million farmers across 80 countries and six continents.

It is also a challenging crop, on which hazardous pesticides are often used and pose a threat to the health of millions of cotton workers around the world.

However, when grown more sustainably, with fewer pesticides, or ideally organically, cotton can offer a compelling livelihood to the millions of farmers who depend on it, while reducing health risks associated with pesticide contact, and reducing water usage.

In 2008, C&A partnered with Textile Exchange and the Shell Foundation to create a new social enterprise, CottonConnect, to help more farmers move to these more sustainable types of production. Today, C&A is the world's top user of certified organic cotton, per Textile Exchange's annual rankings. And C&A Foundation continues to support CottonConnect as both a donor and a board member in their work with over 100,000 farmers in India, Pakistan and China.

In addition to the increased farmer incomes and a decrease in pesticide use, an analysis performed by our partner Water Footprint Network, now shows the organic production has an 80% smaller grey water footprint than conventional cotton.

We continue to investigate ways that we can support those farmers who choose organic cotton, and we welcome suggestions on where else we might be able to contribute.

C&A Foundation continues to invest in initiatives that will enable organic cotton production so as to benefit farmer communities. In partnership with Pratibha Syntex and Mahima Fibres in India, we are supporting an organic seed development project, providing seeds for 2,000 farmers.

With CottonConnect, we are piloting financing schemes to give farmers greater access to drip irrigation technology. These new irrigation systems can increase yields by 30% and reduce water usage by up to 60%. We also believe raising awareness of the benefits of organic cotton is important, and have contributed to Textile Exchange's compelling video about the benefits of going organic.

> The studies we've done with the Water Footprint Network have provided us with valuable insights that will help us to further reduce our water footprint along the entire value chain.

Philip Chamberlain, Head Of Sustainable Business Development – C&A; Europe

Bangladesh Partnership for Cleaner Textile

Buyers' Engagement

- Development of shared procurement guidelines
- Application of buyer wet processing WFA

Factory Engagement

- Support to factories on Cleaner Production and WF reduction
- Investment facilitation for water efficient technologies

Multi-stakeholder Engagement

- Development of a Textile Sustainability Platform for awareness building
- Textile Technology Business Center for database of technical & business case info

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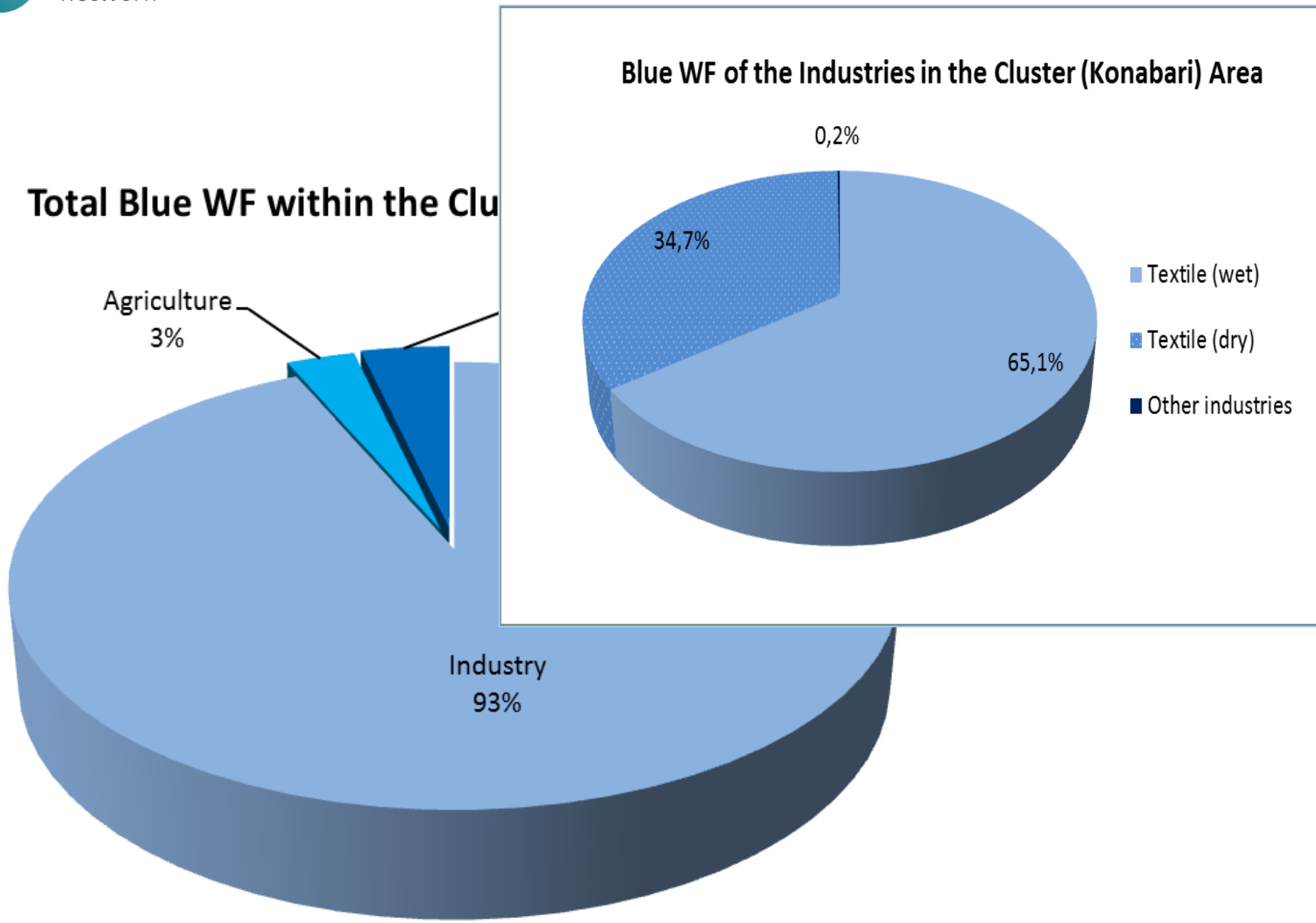

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How we can help

- Understanding business water footprint, including supply chain
- Identifying priorities of intervention to reduce water footprint
- Developing corporate water stewardship plans/programs
- Training and capacity building

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Why Water Footprint Assessment?

- Water Footprint Assessment offers a new perspective for developing a well-informed water strategy
- Provides understanding of local watersheds' contexts and local processes' water use efficiency
- Identifies where water use is not sustainable and/or efficient, and identifies water related physical and reputational risks and where these are located
- Provides strategies and answers for:
  - Promoting efficient and sustainable water use
  - Improvement of operational and supply chain performance
  - Mitigation of risks
  - Equitable sharing

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Interactive tools

- Water Footprint Assessment Tool
- National water footprint explorer
- Product gallery
- Personal water footprint calculator

http://waterfootprint.org/en/resources/interactive-tools/

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Knowlede base

- WaterStat Data
- Library of scientific literatures and related publications on WFA
- Training materials, and knowledge sharing platforms e.g. webinar, trainings, WFRA etc.

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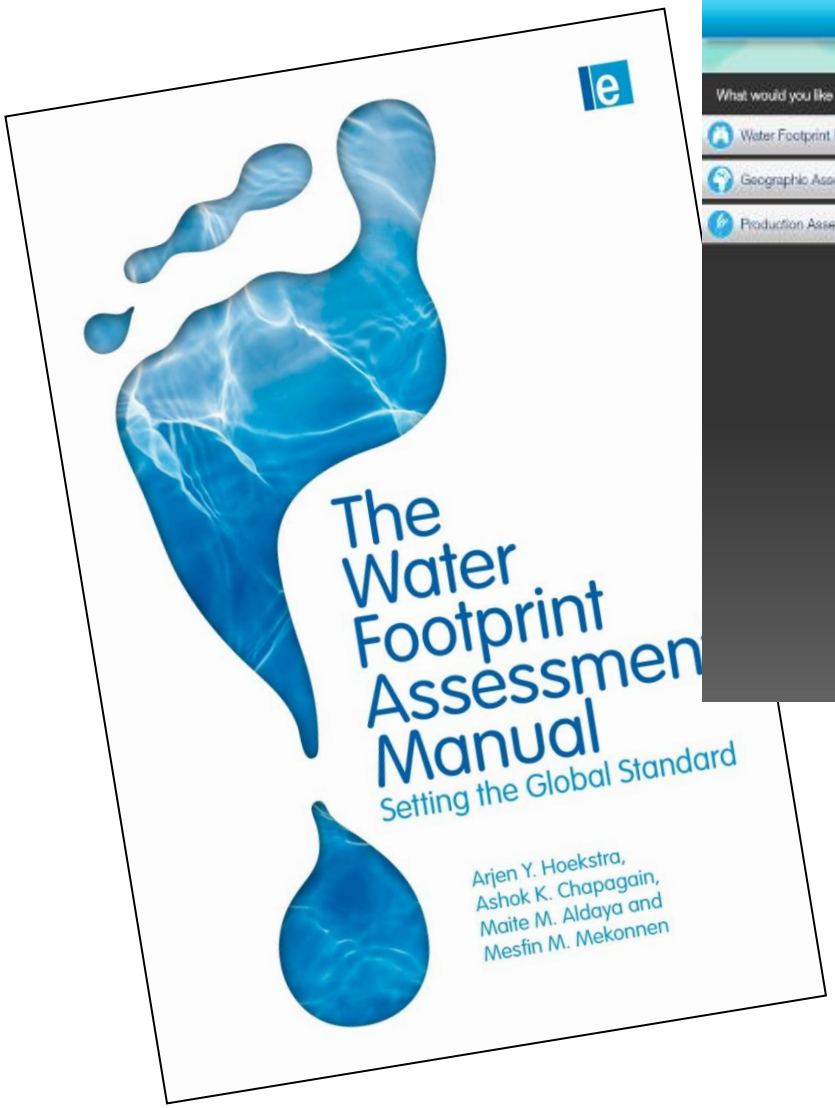

The Water Footprint Assessment Manual

Published by Earthscan, 2011

WaterStat Database

Maintained by Water Footprint Network

Freely downloadable from: www.waterfootprint.org

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CDP Water Questionnaire

- Disclosure on assessment and management of business-related water risks
- Reporting on best practices employed
- Scoring of current status and progress toward better practices

IHG®
InterContinental Hotels Group

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CEO Water Mandate

- Signatory of Global Compact required: annual reporting on progress toward 10 Principles
- Letter from CEO and annual reporting on progress toward 6 elements of water stewardship progression
- Participation in events and working groups on emerging topics and exchange with experts and other multi-national companies on best practices
- Disclosure, human rights, collective action, supply chain engagement

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Alliance for Water Stewardship

- International Water Stewardship Standard
- Introductory membership 2.500 GBP
- Participation in global best practice for water stewardship
- Certification at hotels

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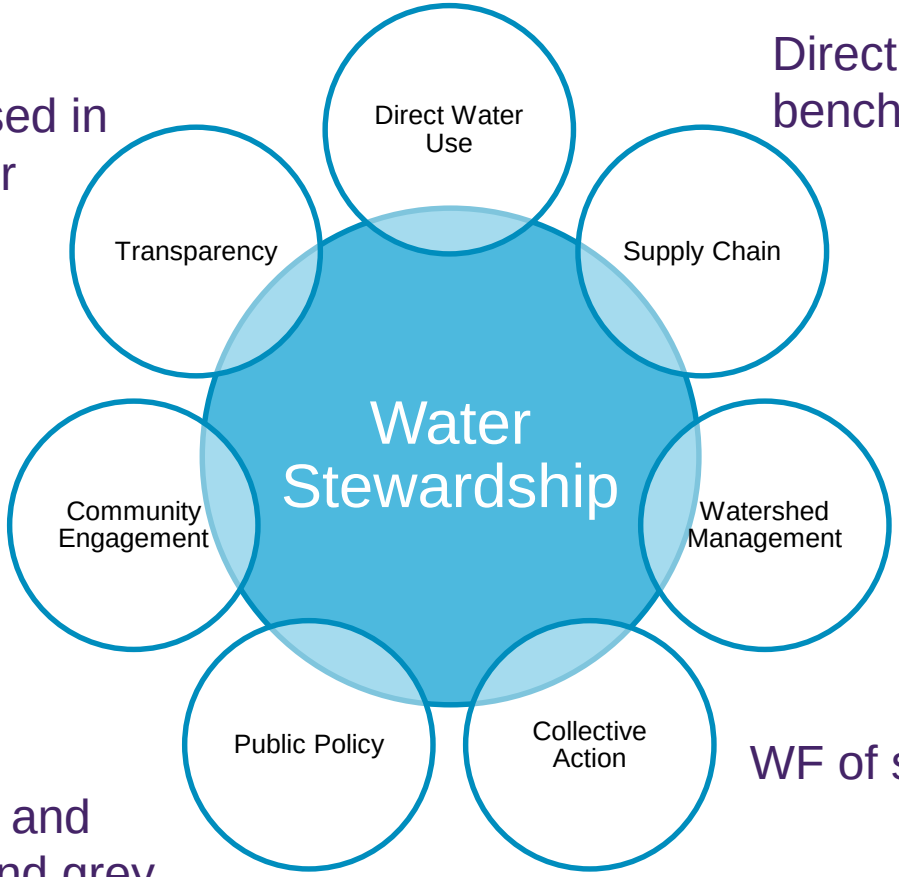
Water Stewardship & Water Footprint Assessment

WFA results used in corporate water disclosure

Direct and indirect WFA, benchmarks



WFA as a common language between different stakeholders

WF sustainability assessment

WF of sectors/ water users

Integration of quantity and quality through blue and grey WF, economic analysis of WF

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The Water Footprint Network

WHO ARE WE

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Water Footprint Network

Vision:

A world in which we share clean fresh water fairly amongst all people to sustain thriving communities and nature's diversity.

Mission:

To provide science-based, practical solutions and strategic insights that empower companies, governments, individuals and small-scale producers to transform the way we use and share fresh water within earth’s limits.

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Water Footprint Network

Maintain the Global Water Footprint Assessment Standard	Promote knowledge exchange between practitioners, sharing case studies	Conduct projects demonstrating implementation of Water Footprint Assessment	Deliver training and capacity building

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Fair & smart water use of the world's fresh water

water footprint network

Provide data, online tools and publications

www.waterfootprint.org

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fair & smart use of the world's fresh water

Thank you very much.

Dr. Ashok Chapagain
Science Director
Water Footprint Network
@A_Chapagain