water footprint network

fair & smart use of the world's fresh water

State of Analysis of Water Footprint Assessments in Polyester, Cotton & Viscose

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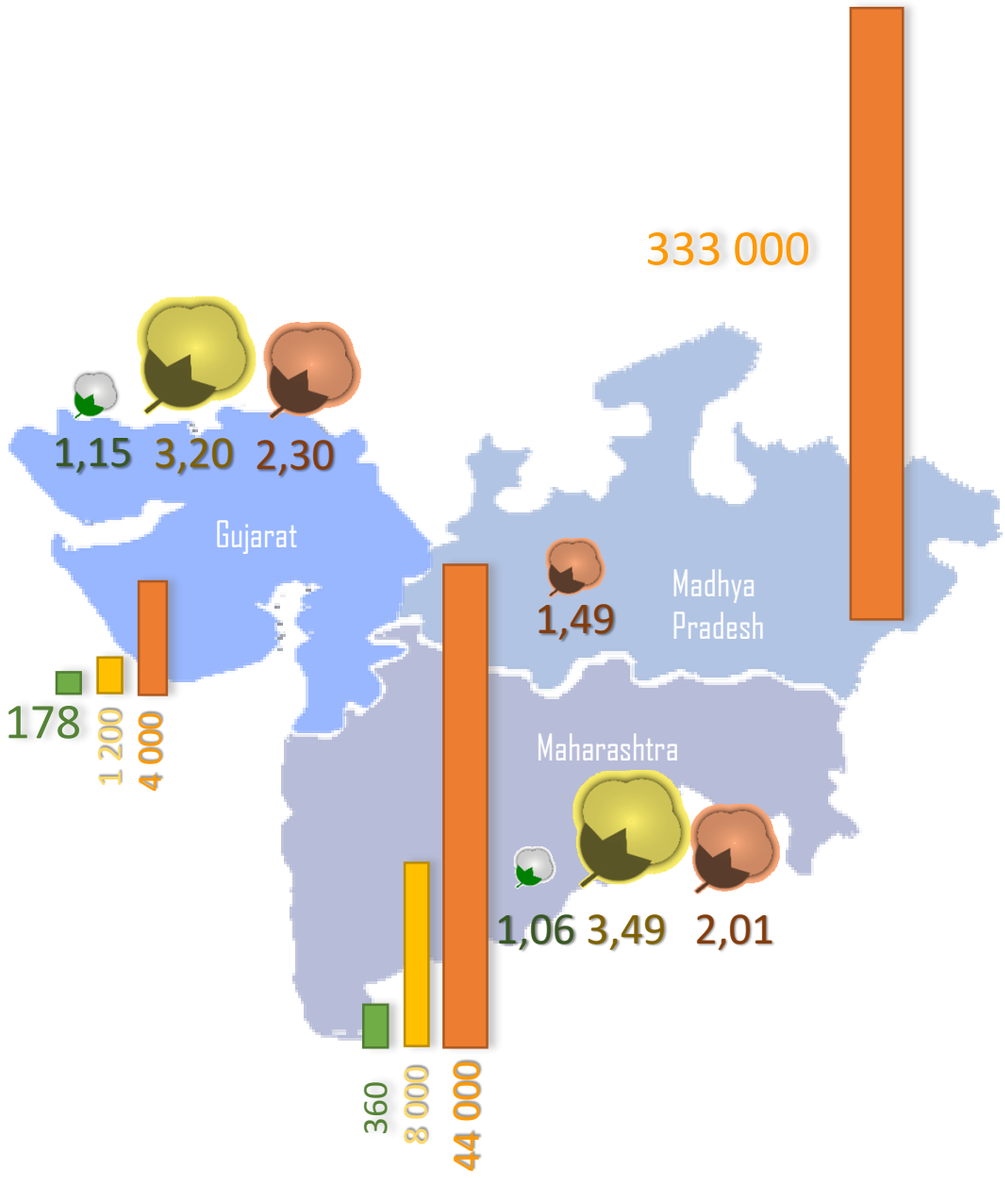
Case Study 1: Field Cotton

- Water footprint studies of cotton at across 702 farms in 3 regions of India
- Water Footprint of the different agricultural practices
- Grey water footprint of different pesticides and fertilizers

- **conventional cotton farming:** mostly synthetic agrochemicals for pest control and fertilisers and has the least restrictions in terms of the chemicals
- **better cotton farming (REEL):** farms are stricter in the use of synthetic chemical pesticides and fertilizers than conventional farms
- **organic cotton farming:** use more compost, urea, neem and organic seeds

Grey water footprint and cotton yield in relation to farm practices



Grey water footprint
(cubic meters of water per ton of cotton)

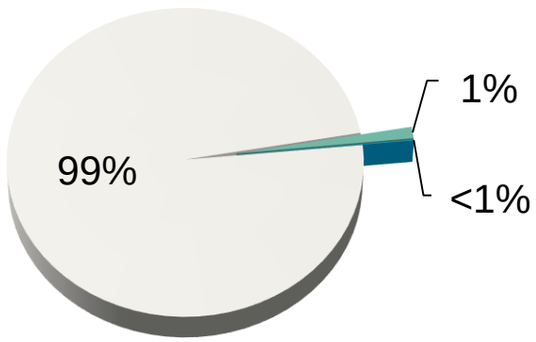
- Organic
- REEL
- Conventional farming

Yield
(tons of cotton per hectare)

- Organic
- REEL
- Conventional farming

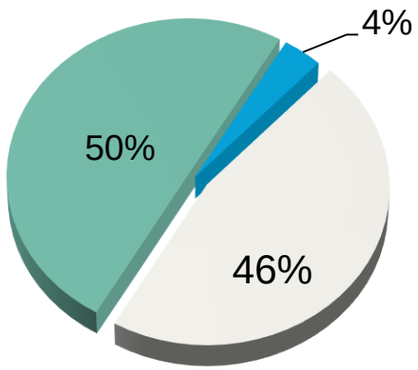
Farm Level Study 2013

Madhya Pradesh WF (m³/t)



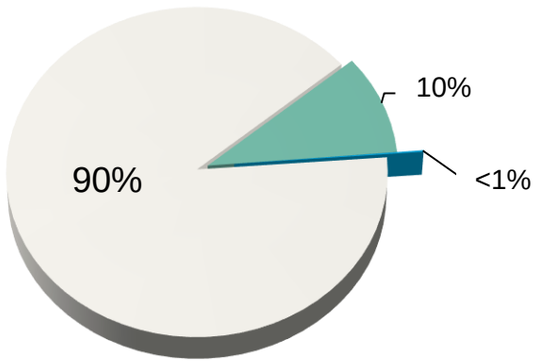
Total 338,039 m³/t

Gujarat WF (m³/t)



Total 4,184 m³/t

Maharashtra WF (m³/t)

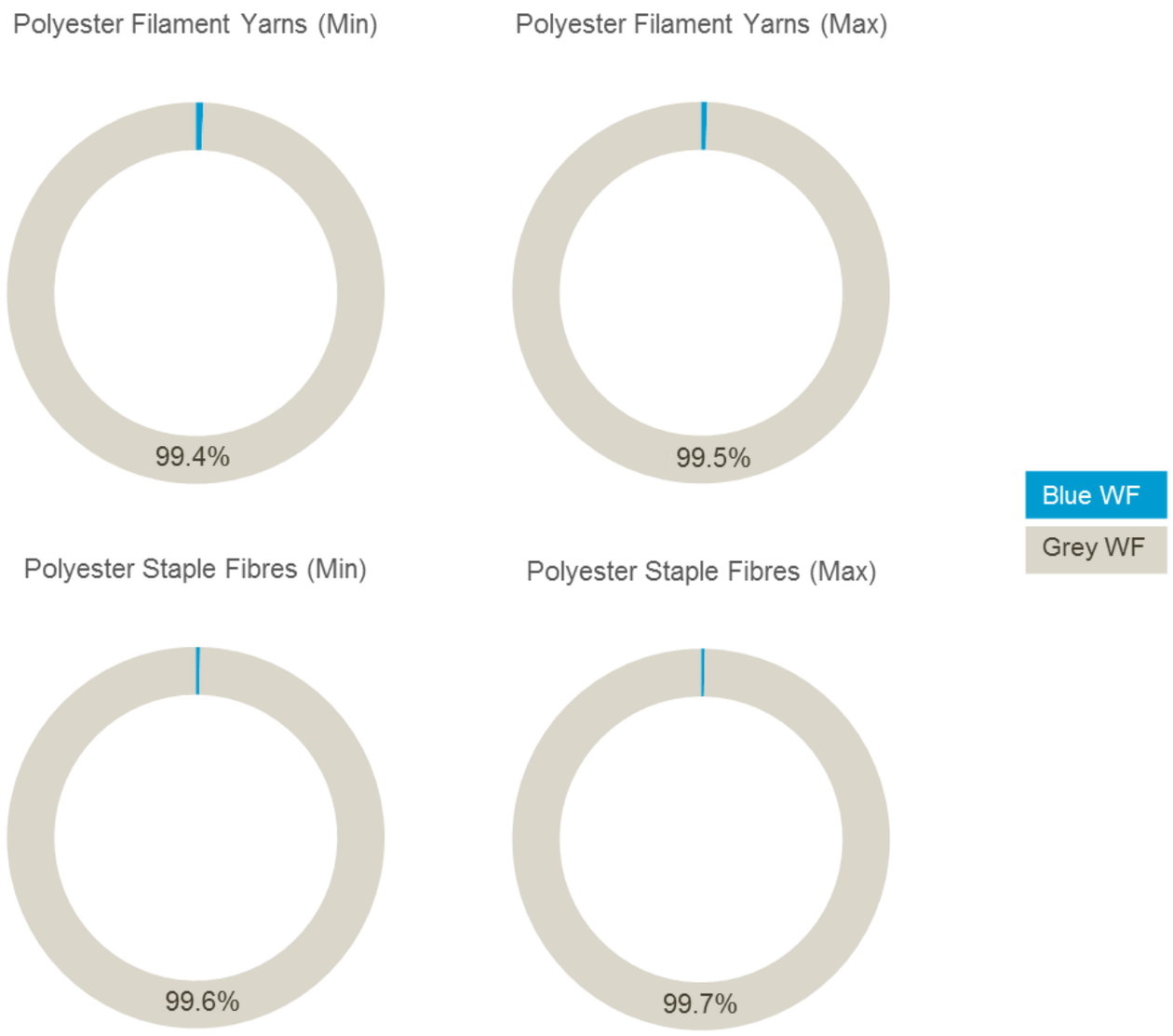


Total 26,974 m³/t

Grey Water Footprint represents the largest share of the total water footprint and these values relate to farming practices

Case study 2: Polyester Fibres

From crude oil exploration up to fibre production



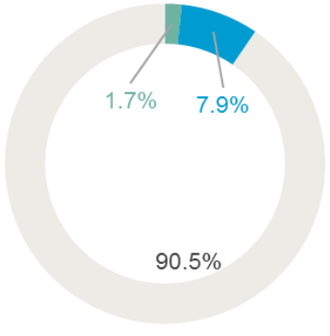
GREY WATER FOOTPRINT
50,690 – 71,033 m^3/tonne

GREY WATER FOOTPRINT
51,066 – 71,409 m^3/tonne

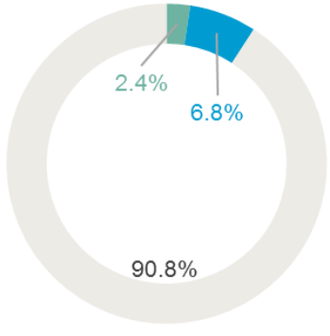
Case study 3: viscose fibres

From wood plantation up to fibre production

Viscose staple fibres (Brazil)

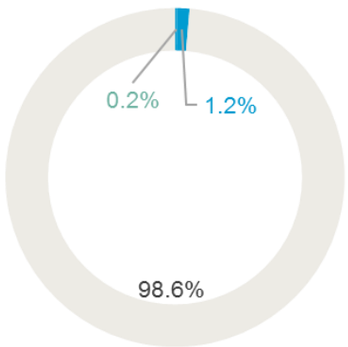


Viscose staple fibres (South Africa)

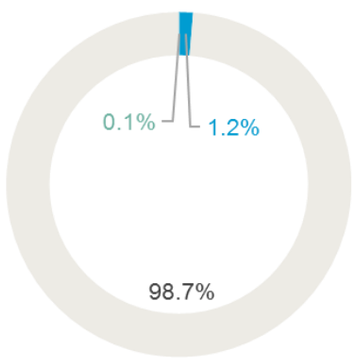


GREY WATER FOOTPRINT
678 - 996 m3/tonne

Viscose filament yarn (South Africa; continuous washing)

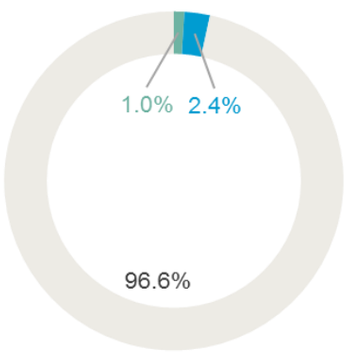


Viscose filament yarn (Brazil; continuous washing)

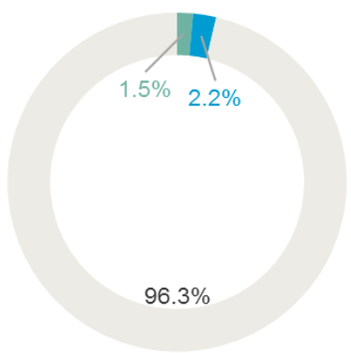


GREY WATER FOOTPRINT
30,596 – 30,914 m3/tonne

Viscose filament yarn (Brazil; batch washing)



Viscose filament yarn (South Africa; batch washing)



GREY WATER FOOTPRINT
3,305 – 3,624 m3/tonne

Case study 4: Water Footprints of Washing, Dyeing & Finishing Mills

- Studies done of 53 washing-dyeing-finishing mills located in Bangladesh and China
- Water consumption at washing-dyeing-finishing mills is proportionally smaller than at the raw materials stage of textile
- water footprint (annual and product) differs significantly among the mills according to processes involved, type of products, type and number of chemicals used and effluent treatment levels.
- The grey water footprint, derived from water pollution, is a major source of water footprint in the mills.
- BOD is the most critical measure of water quality parameter for most of the mills, indicating pollution from dyeing
- Reduction of amounts of chemicals and adequate effluent treatment are necessary to stop long term damage to water sources

Conclusions

- The grey water footprint is the most important component of the water footprint in textile production
- A high proportion of production sites (from field to finishing) are located in areas with high levels of water pollution and water scarcity problems
- The specific processes and practices greatly influence the grey water footprint of similar products
- The grey water footprint is a fair metric for the whole supply chain
- Specific production aspects and the local conditions need to be addressed to make real impact

Thank you

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