Clean by Design:
Reducing Water Impacts Through the Textile Supply Chain

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WOODROW WILSON CENTER
CHINA'S WATER WATCHDOGS

MARCH 20, 2012

NRDC
THE EARTH'S BEST DEFENSE

CLEAN by Design

Corporate Responsibility

- International retailers and brands are growing more concerned about "toxic" headlines
- Can we use this "threat to brand" to reduce the environmental impact of suppliers?

Clean By Design

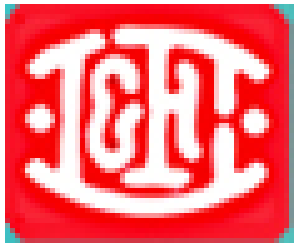
NRDC's Clean By Design is an innovative program that uses the purchasing power of multi- national corporations as a lever to reduce the environmental impacts of their suppliers abroad.

CLEAN by Design

Clean By Design Participants

CLEAN by Design

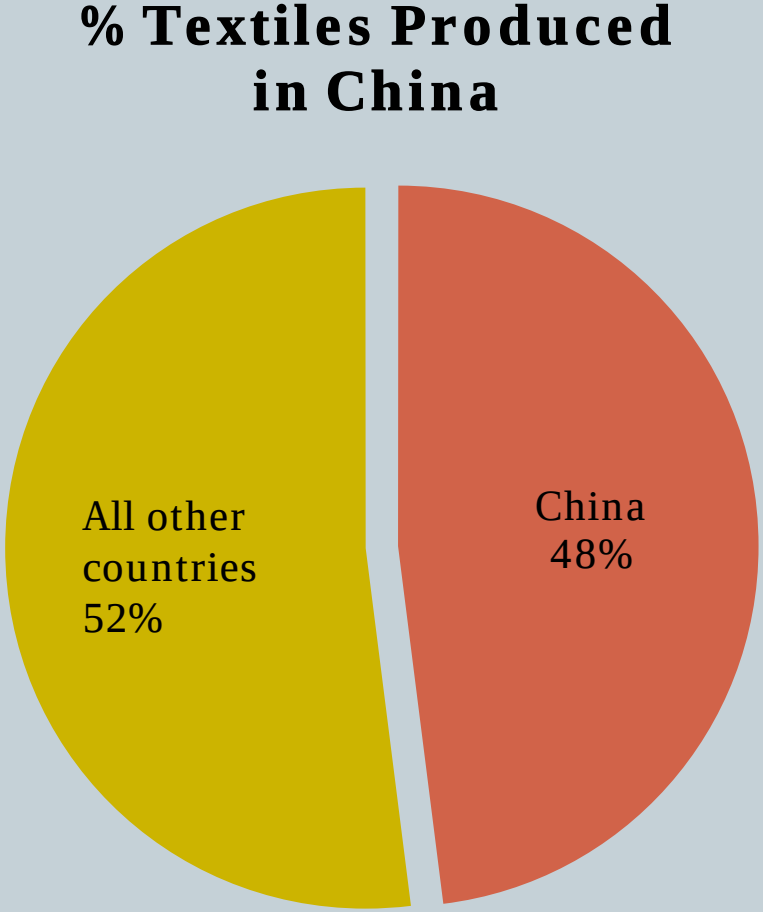
Walmart
Save money. Live better.



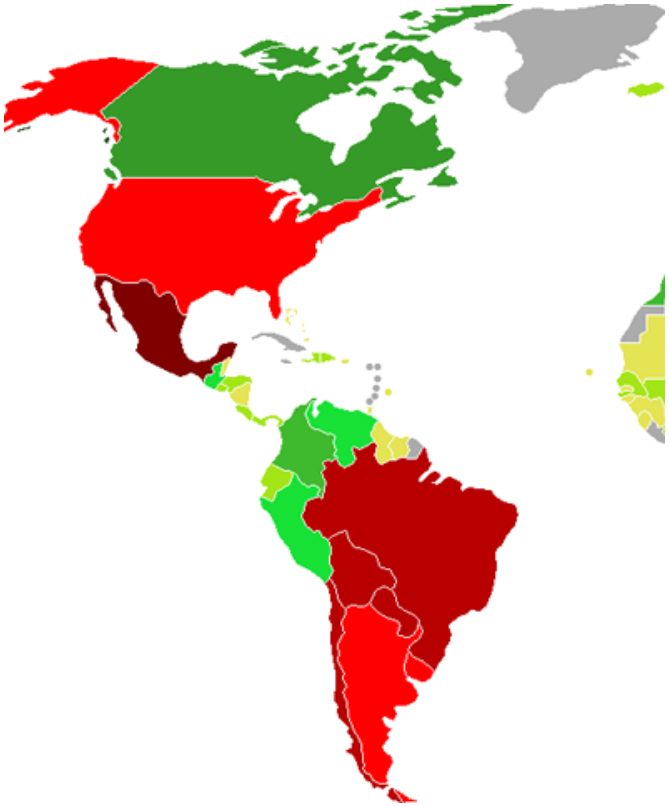
TARGET

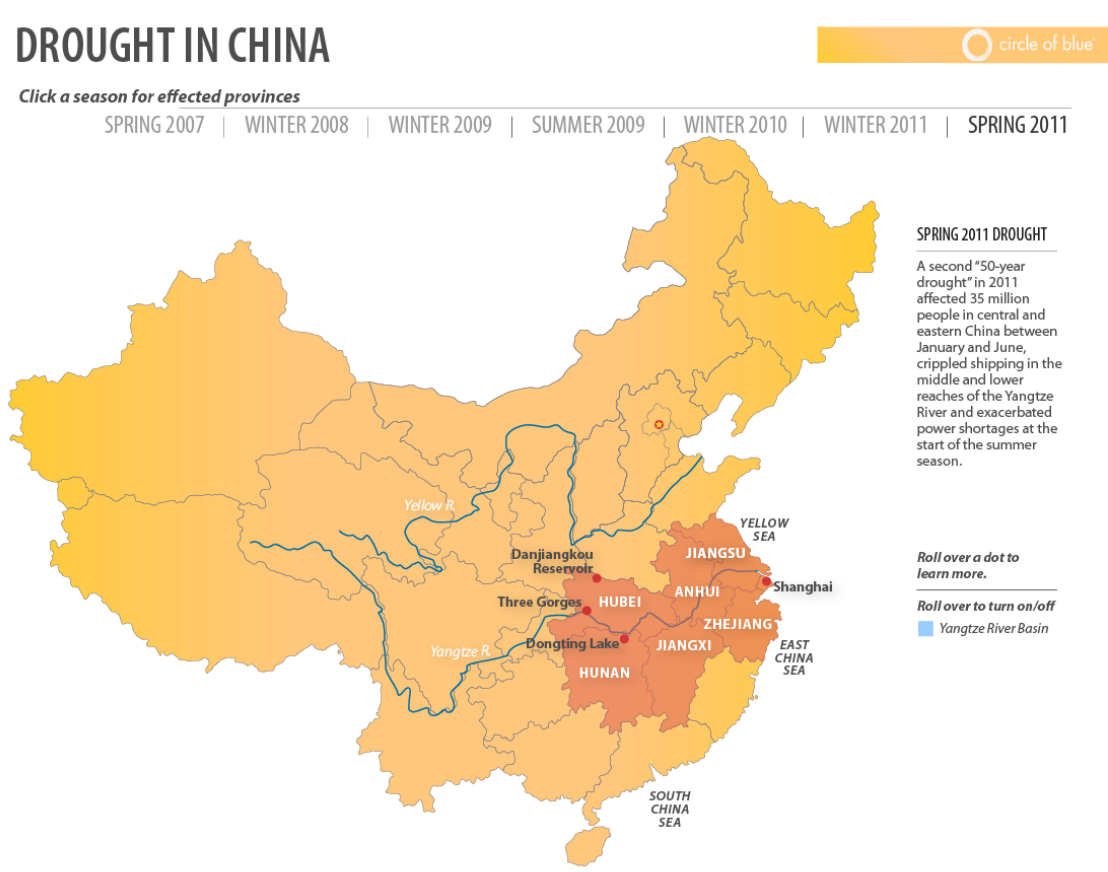
Why China?

- World's major manufacturing location
  - Electronics, clothes
- Large scale pollution with limited government capacity to address it
- Large scale water crisis



China's Water Crisis





Why the textile industry?

Heavy Environmental Impacts

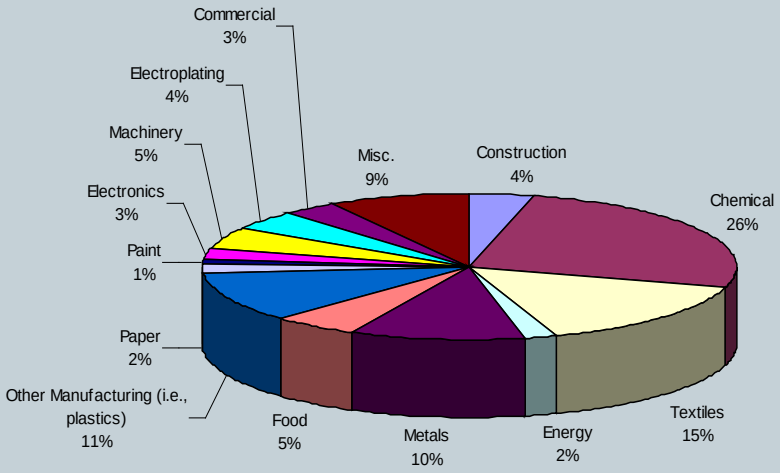
A Huge Water Consumer

- Textile industry second highest user of freshwater in China
- Use is much higher than international standards for the industry

	Water used (ton/ton of fabric)	
Product Type	**China (2007)**	**USA (1990's)**
Woven fabric	250	115
Knitted fabric	150	85

A Huge Water Polluter

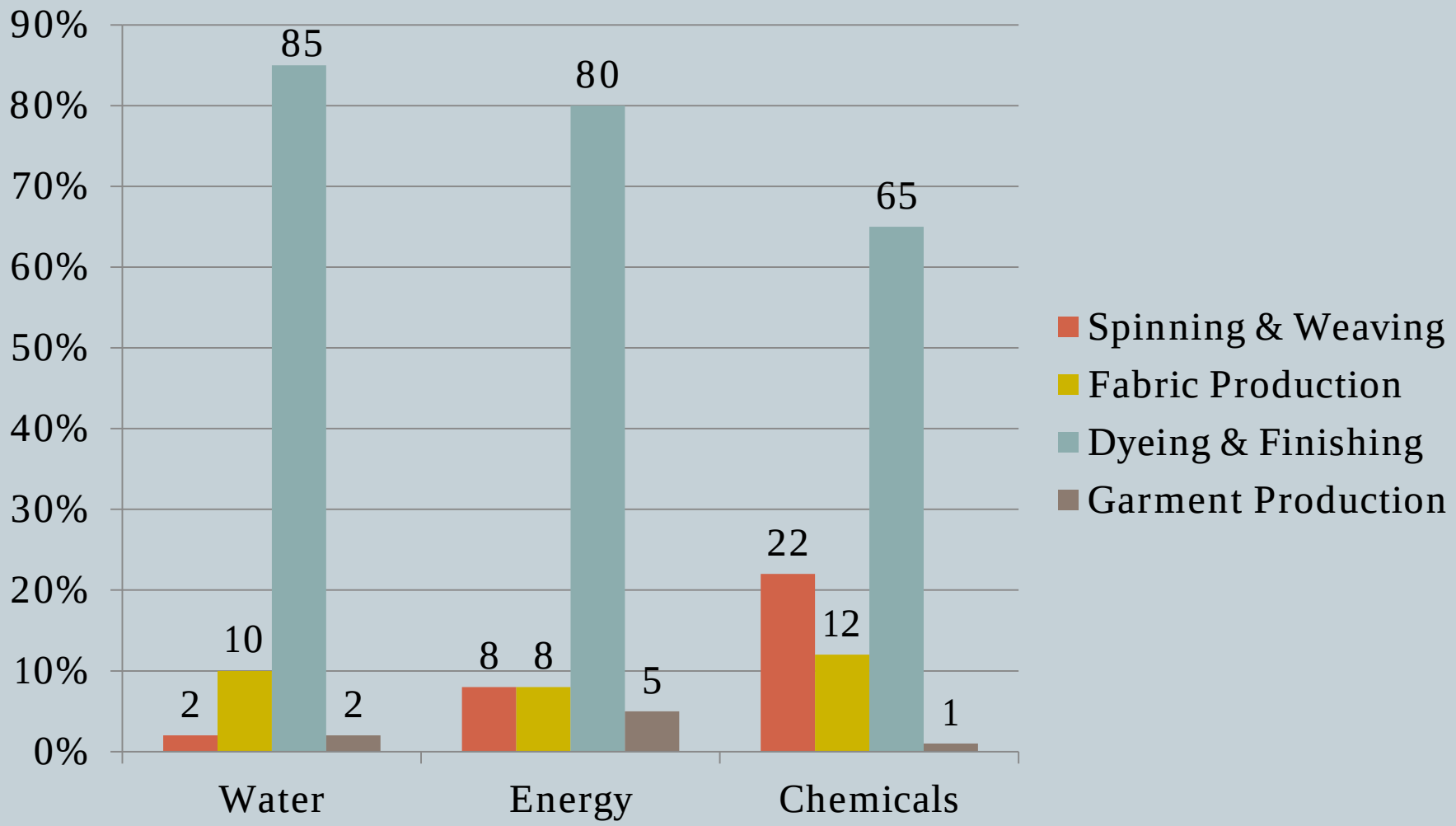
Textile industry: second largest polluter in Jiangsu Province



DARK BLUE DYE FROM DYEING FACTORY IN LOCAL RIVER

The Human Cost of Textile Pollution

Why Dyeing and Finishing?



Best Practices

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OUR BEST PRACTICES ARE FOCUSED ON BEING BASIC, WIDELY APPLICABLE, LOW-COST, OFTEN IGNORED, AND WITH SHORT PAYBACK PERIODS…

	COST		COST
1. Leak detection, maintenance, housekeeping 	SMALL	6. Pre-screen coal 	MODERATE
2. Reuse cooling water 	SMALL	7. Fix/maintain steam traps 	SMALL
3. Reuse condensate 	MODERATE	8. Recover heat from smokestacks 	MODERATE
4. Reuse process water 	SMALL TO MODERATE	9. Insulate pipes/ valves/flanges 	SMALL
5. Recover heat from hot water rinses 	MODERATE – HIGHEST	10. Optimize compressed air system 	SMALL

*The payback periods for our best practices are all less than a year

Best Practices for Water

Practice		Savings (m^3 /ton fabric)	% Savings (rounded)
Leak detection, preventive maintenance, improved housekeeping		*4 – 7.6*	*2-5%*
Reuse of cooling water	From singeing	*3.2 – 7.4*	*2-5%*
	From air compressor	*3.89*	*2%*
	From pre-shrink	*1.44*	*1%*
Reuse of condensate		*3.8 – 6.0*	*2-3%*
Reuse of process water	From bleaching	*6.47*	*4%*
	From mercerizing[1]	*4.54*	*3%*

Water Savings with Clean By Design

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	NRDC 10 Best Practices	Water Saved (tons per day)	Coal Saved (tons per day)	Upfront Cost (US $)	Monthly Savings (US $)	Payback Period
	Leak detection, preventive maintenance					
1	Reuse cooling water (from singeing and air compressor)	238	0.54	$1,911	$3,373	17 days
2	Reuse condensate (from dryers)	140	7.14	$36,613	$21,326	53 days
3	Reuse process water (from mercerizing, & rinsing)	360	1.72	$33,443	$45,289*	23 days
	Recycle heat from hot rinse water					
	Prescreen coal					
	Maintain steam traps					
	Insulate pipes, valves, and flanges					
	Recover heat from smokestack					
	Optimize compressed air system					
	Totals from Best Practices	738	9.41	$71,967	$69,988	32 days
	Percentage reduction	23%	11%			

*includes savings of $37,000/month alkali purchases

Red Bud Facility

How Multi-Nationals Can Influence Suppliers

Map

- Know factories throughout the supply chain

Monitor

- Ensure compliance with environmental requirements as a condition of purchasing

Motivate

- Promote/require best practices by rewarding factories with preferred supplier status

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For More Information

- Susan Egan Keane, NRDC: skeane@nrdc.org
- http://www.nrdc.org/international/cleanbydesign/
- Circle of Blue

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