

# Lifecycle Approach to Sustainable Water Use in the Apparel Industry

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**LEVI STRAUSS & CO.**

# In 2007 we conducted a life cycle assessment

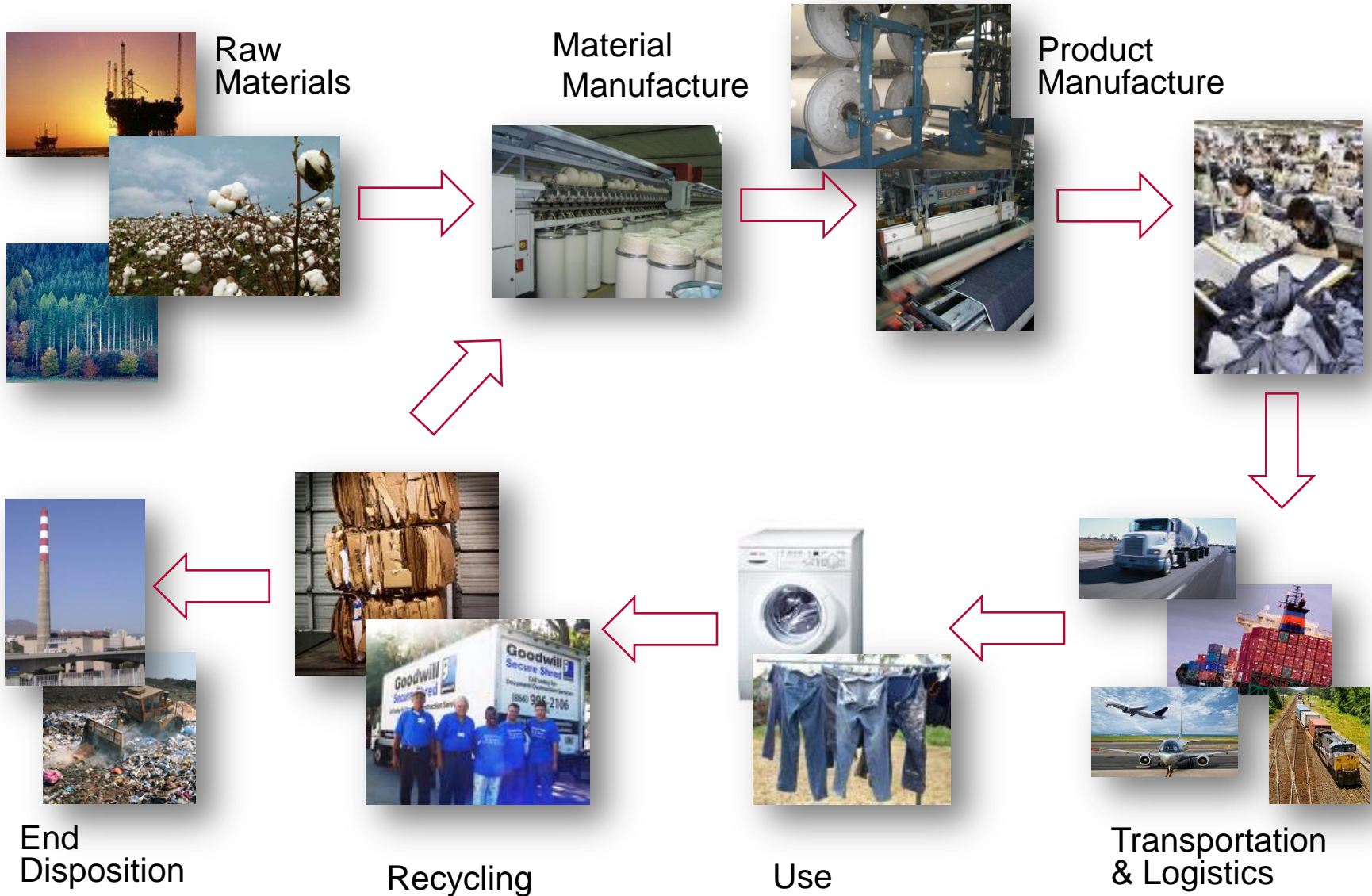
Levi's<sup>®</sup> 501<sup>®</sup> Jean

The product assessed was:

- ✓ A shrink to fit fabric
- ✓ Medium stone wash
- ✓ Designed for the US Market in 2006

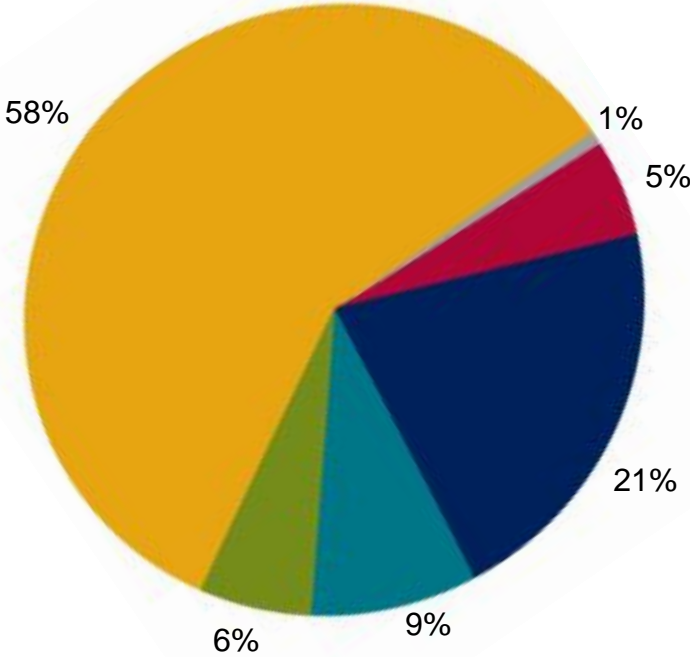


# We considered the full product life cycle

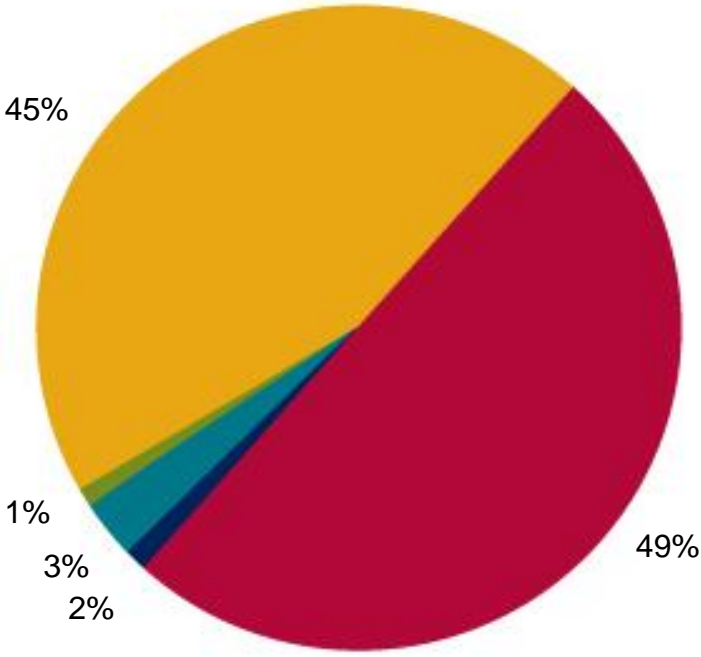


# LCA Results for Levi's® 501® Jeans

## Climate Change Impacts



## Water Use Impacts



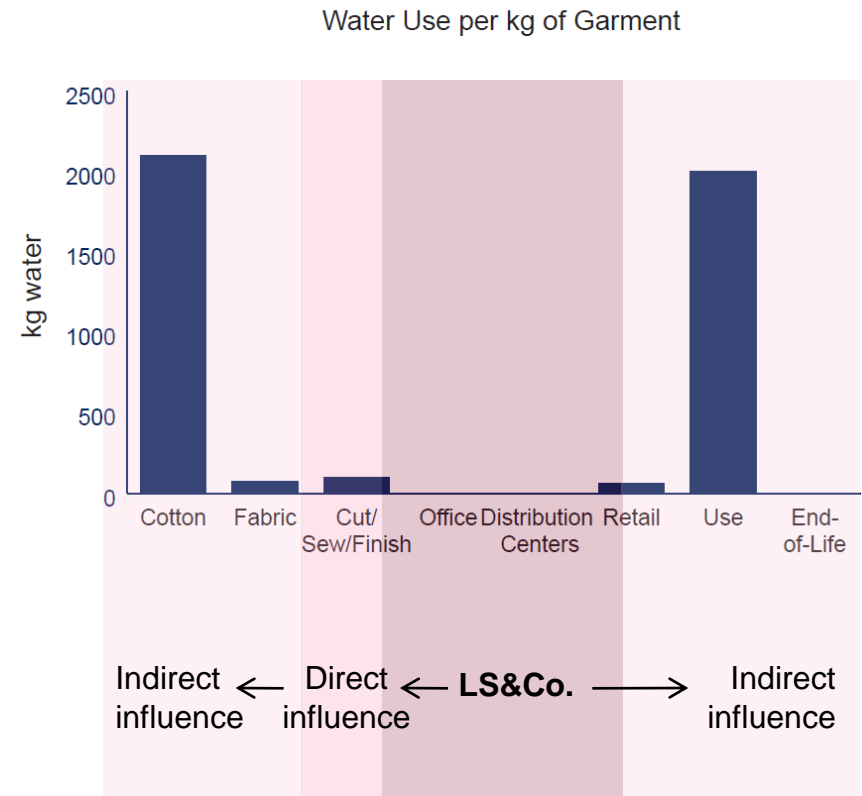
● Use 
 ● End Of Life 
 ● Cotton 
 ● Fabric 
 ● Cut/Sew/Finish 
 ● Logistics/Retail

Data from LS&CO.'s Life Cycle Assessment on Levi's® 501® jean for U.S. Market, 2006 production year

# Influence to address water impacts

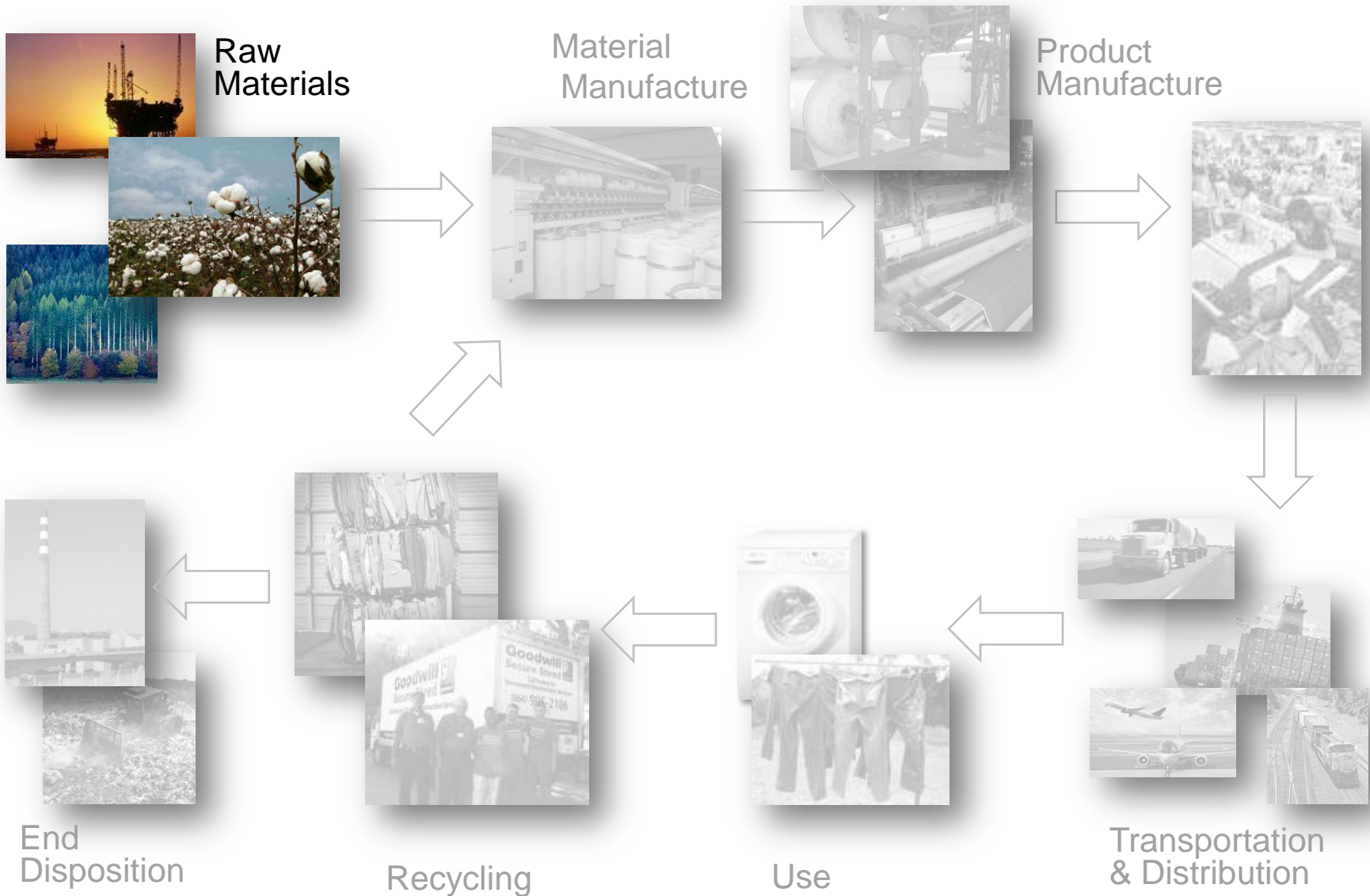
**The majority of water impacts occur outside the direct control of Levi Strauss & Co.**

- It is not enough to focus on what we control
- We must influence our customers and our extended supply chain to address the water impacts of our products



*Data from LS&Co.'s Facilities Environmental Impact Assessment (FEIA) and 2007 Life Cycle Assessment of Levi's® 501® Jean.*

# Addressing the water impacts of cotton production



# Cotton production

Field-level efforts to reduce quantity and improve quality of water

## The Better Cotton Initiative (BCI)

- The BCI was established to promote measurable improvements in the key environmental, social and economic aspects of cotton cultivation worldwide to make it more economically, environmentally, and socially sustainable



*Better Cotton farmer in Pakistan*

## Levi Strauss & Co. (LS&Co.) is committed to sourcing Better Cotton

- LS&Co. worked with select mill partners to source Better Cotton during this year's first Better Cotton harvest
- We will look to expand our work with suppliers to source more Better Cotton in the coming years
- Our long-term goal is to source 100% Better Cotton for our global cotton needs

# Cotton production

Field-level efforts to reduce quantity and improve quality of water

## Improve water quality

- Better Cotton Production Principal 1 to “minimize the harmful impact of crop protection practices” includes criteria to:
  - Adopt an Integrated Pest Management Program
  - Use appropriate pesticides and apply in proper conditions

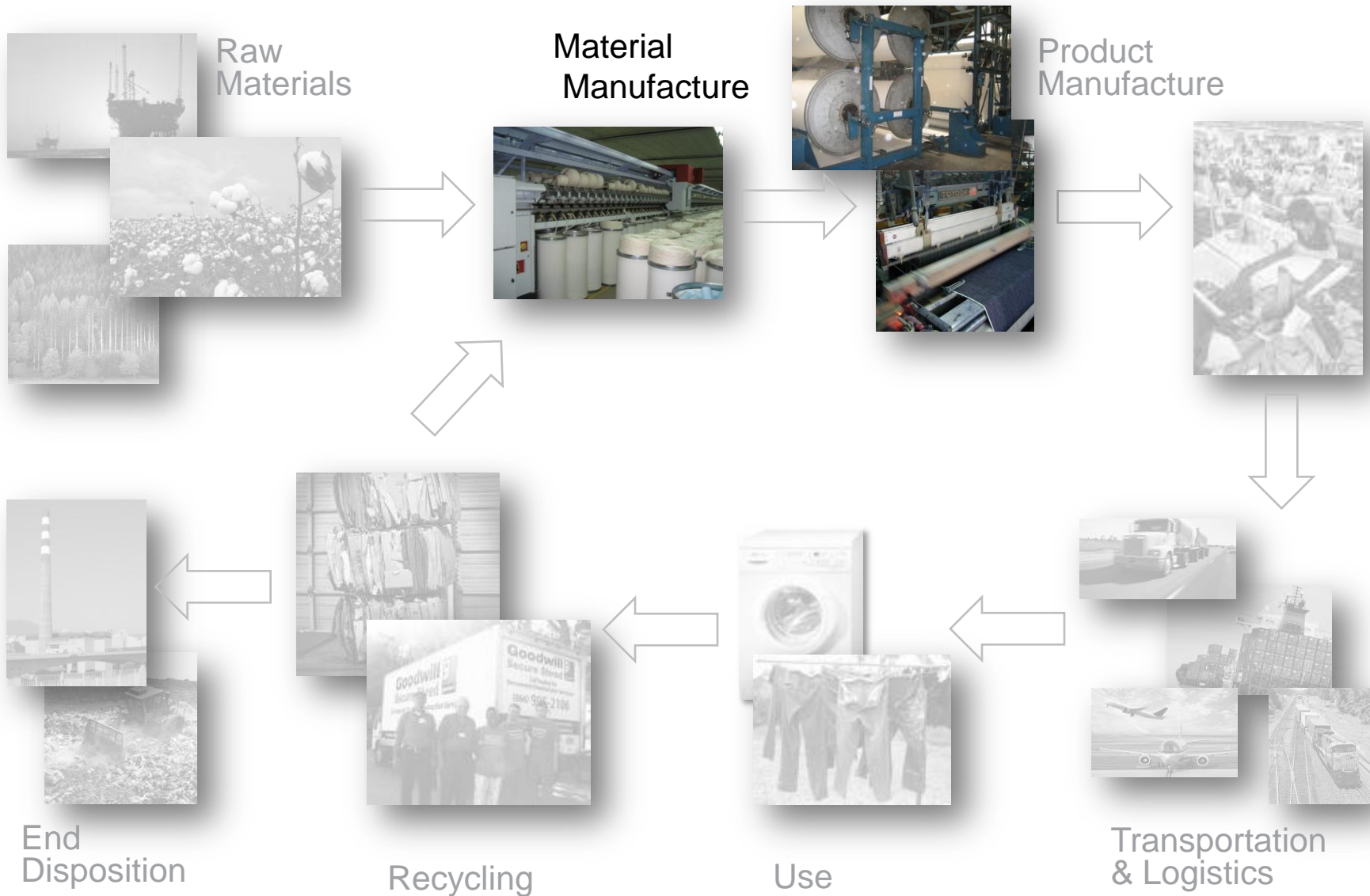
## Reduce water quantity

- Better Cotton Production Principal 2 to “use water efficiently and care for the availability of water” includes criteria to:
  - Adopt water management practices that optimize water use
  - Ensure that extracted water does not have adverse effects on groundwater or other water bodies

Early results of the Better Cotton system show an average 32% reduction in pesticide and water use, and increases in net profit for farmers by up to 69%



# Addressing the water impacts of fabric manufacture



# Fabric production

## Mill-level efforts to reduce quantity and improve quality of water

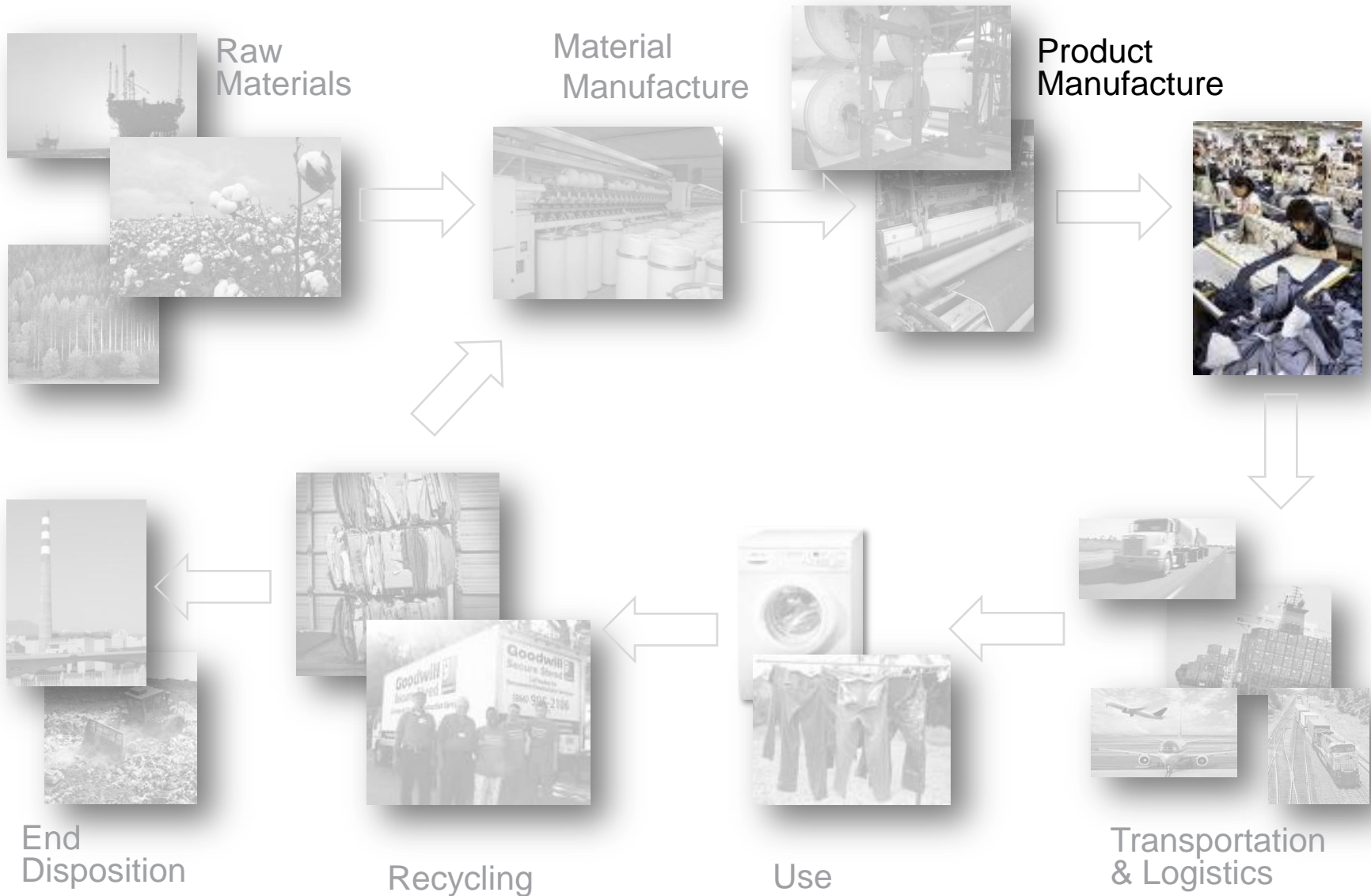
### Improve water quality

- Ongoing collaboration with BSR and other brands to set industry-wide effluent guidelines
  - Worked with the Sustainable Water Group (SWG) to develop Water Quality Guidelines (WQG) for textile mills
  - LS&Co. is currently auditing our top 25 strategic mills for WQG compliance and will expand to additional mills as the program matures

### Reduce water quantity

- Collaboration with the Natural Resources Defense Council (NRDC) to develop Best Practices Guide for water conservation aimed at fabric mills
  - NRDC's Ten Best Practices for Textile Mills to Save Money and Reduce Pollution was released in February 2010
  - LS&Co. is sharing the Best Practices Guide with all of our mill partners; to date, four of our mills in China have implemented them

# Addressing the water impacts of cut/sew/finish facilities



# Garment manufacture

## Cut/sew/finish facility-focused efforts

### Improve water quality

- LS&Co. requires all our laundry suppliers to meet our Global Effluent Requirements(GER)
- All suppliers must ensure chemical substances of concern are not present on our products as specified by our Restricted Substance List (RSL)

### Reduce water quantity

- In 2010 we collaborated with NRDC on a water conservation pilot program at one of our laundry facilities in China
  - A resulting best practices guideline will be published in mid-2011 and sent to all LS&Co. laundry suppliers
  - All laundries are already required to install flow meters and report volume of water
- Launched the Water<Less collection in 2010 that reduces the water consumption during the finishing process by an average of 28% and up to 96% for some new products in the line

# Garment manufacture

## Cut/sew/finish-level efforts to improve water quality

### Global Effluent Requirements

- LS&Co. was the first brand to establish Global Effluent Guidelines for our owned- and-operated laundries in 1992
- The Guidelines were expanded to all our contractors and licensees in 1994
- Covers 14 parameters and establishes three bands: Compliance (below lower limit), Continuous Improvement (between lower and upper limit) and Immediate Action (above upper limit)

Global Effluent Guidelines Tolerance Limits

Parameter	Continuous Improvement Band	
	Lower Limit	Upper Limit
pH	6 to 9	N/A
Temperature	37°C	N/A
BOD	30 mg/l	45 mg/l
TSS	30 mg/l	45 mg/l
COD	Test & Monitor	N/A
Color	Not offensive	N/A
Foam	Not persistent	N/A
Hg	0.01 mg/l	0.015 mg/l
Cd	0.01 mg/l	0.015 mg/l
Pb	0.10 mg/l	0.15 mg/l
As	0.01 mg/l	0.015 mg/l
Cu	0.25 mg/l	0.375 mg/l
Ni	0.20 mg/l	0.30 mg/l
Cr	0.10 mg/l	0.15 mg/l
Zn	1.0 mg/l	1.50 mg/l
Cn	0.20 mg/l	0.30 mg/l
Co (non-denim)	0.02 mg/l	0.03 mg/l

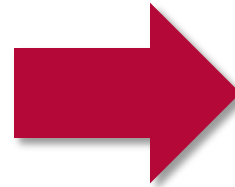
# Garment manufacture

Cut/sew/finish-focused efforts to reduce water quantity

Pre-GER compliance



Post-GER compliance

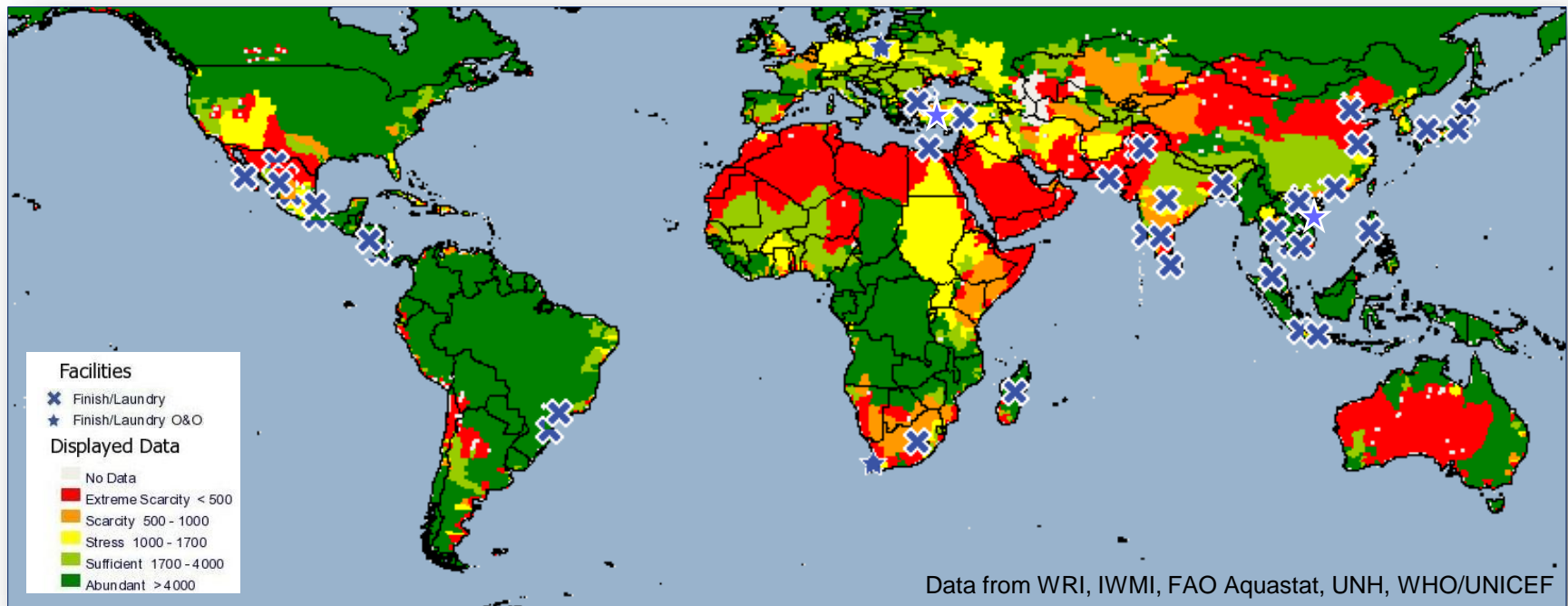


# Garment manufacture

## Cut/sew/finish-focused efforts to reduce water quantity

### Water management and conservation

- As part of the CEO Water Mandate, we are mapping the location of our garment manufacturers against the UN water scarcity map for 2025 and will focus additional water conservation efforts on those located in the most water-scarce regions
- Already, 30 percent of our laundry contractors are recycling and reusing water. We plan to increase the participation of contractors in water conservation programs in the future.



# Garment manufacture

Cut/sew/finish-focused efforts to reduce water quantity





# Garment manufacture

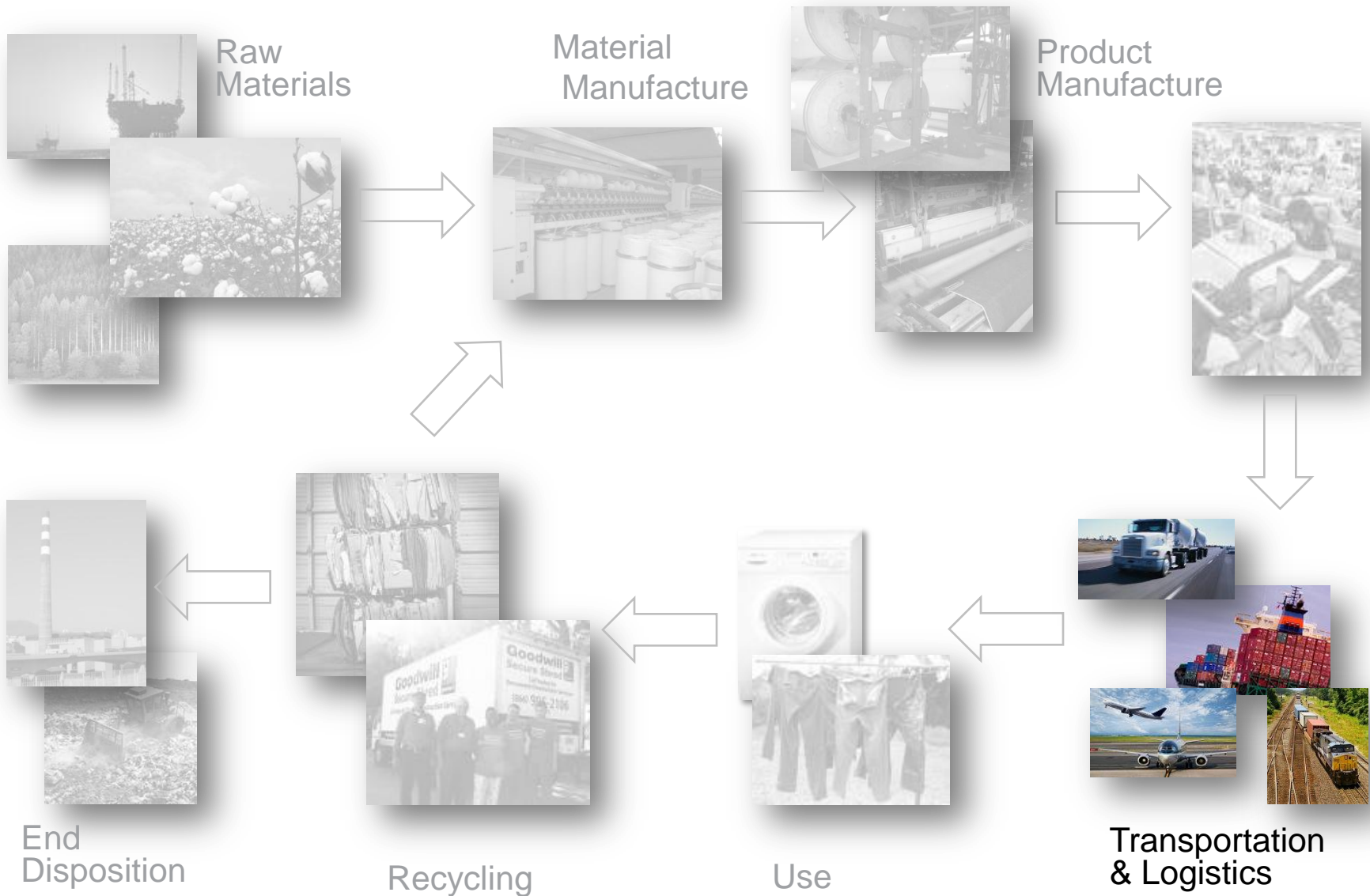
## Cut/sew/finish-focused efforts to reduce water quantity

### Water<Less

- Water<Less is a process innovation during the finishing step of production to use less water, energy and abrasives
- An average (or traditional) pair of Levi's® jeans uses 42 liters of water in the finishing process
  - Water Free finishes: 96% average decrease in water use per finish
  - Less water finishes: 23% average decrease in water use per finish
  - Weighted average reduction: 28% average decrease in water use per finish



# Addressing the water impacts of retail and logistics



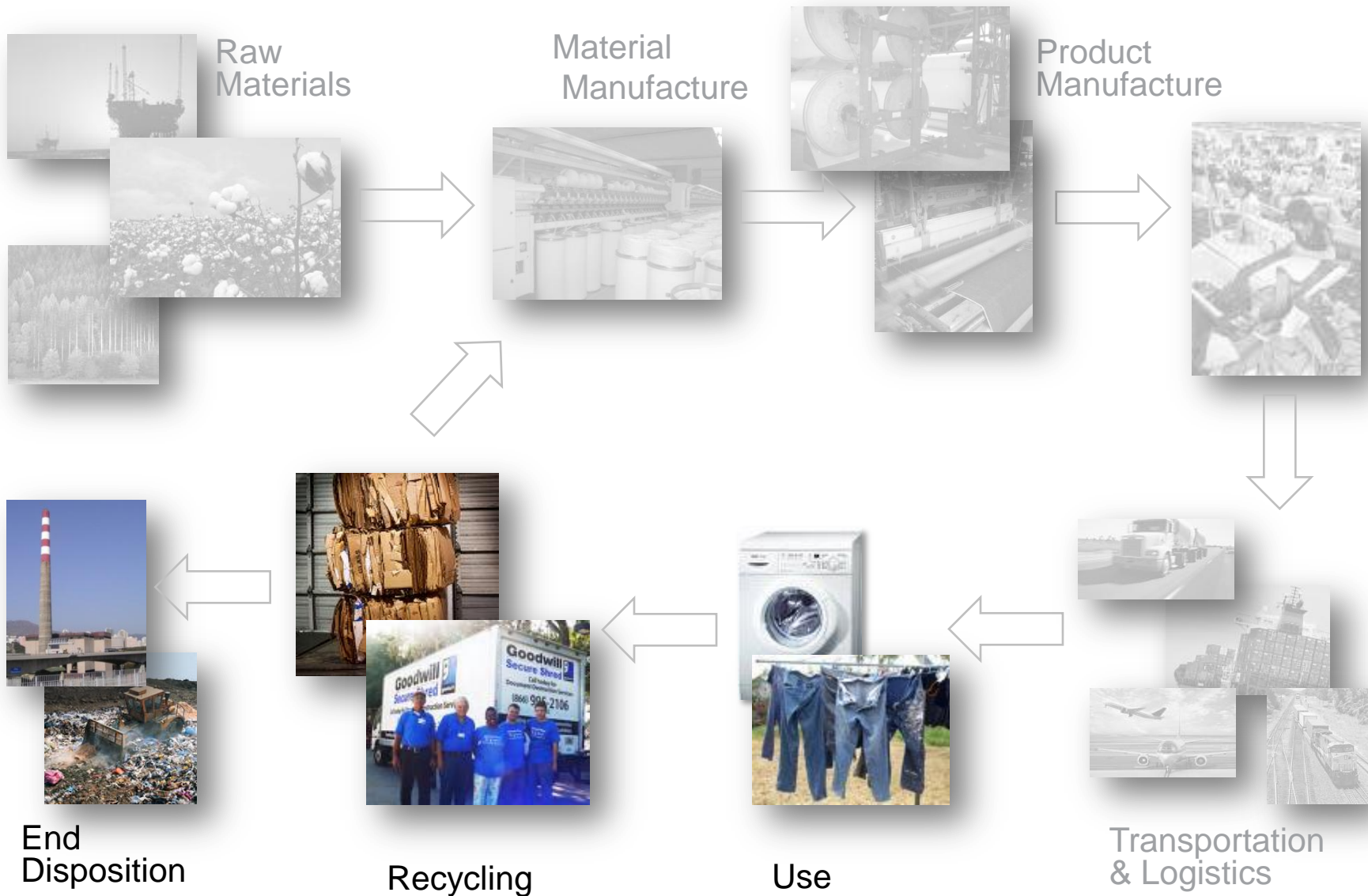
# Retail and logistics

## Corporate-focused efforts to reduce water consumption

### Reduce water quantity

- We have adopted water conservation efforts at our owned-and-operated facilities and corporate offices
  - All new facilities will have low-flow equipment
  - Our San Francisco headquarters went through retrofit program for water conservation in 2010
  - Drought resistance landscape and drip irrigation has been installed for our facilities in arid regions
  - We measure water use at all our owned-and-operated manufacturing and distribution facilities

# Addressing the water impacts of use and disposal

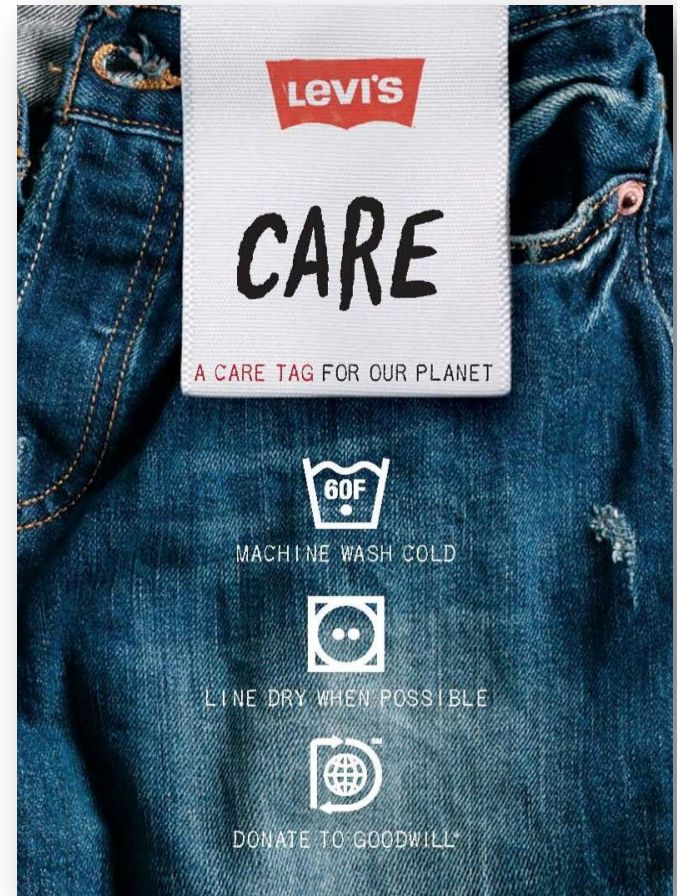


# Use and end-of-life

## Consumer-focused efforts to reduce water consumption

### Reduce water quantity

- In early 2010 we began sewing new garment care tags in our clothing that encourage consumers to wash less, wash in cold water, line dry when possible, and donate clothing to charity when no longer needed
- We established a partnership with Goodwill® in the United States to encourage consumers to increase the life cycle of a pair of jeans by donating them instead of contributing to the 23.8 billion pounds of clothing that end up in landfills each year



# THE LIFE CYCLE OF LEVI'S® JEANS

AS A COMPANY, WE WORK HARD TO BUILD SUSTAINABILITY INTO EVERYTHING WE DO. THAT'S WHY WE ARE WORKING TO REDUCE WATER, CHEMICALS, AND ENERGY USAGE AT EVERY STAGE OF THE LIFE OF OUR JEANS.

## 1. COTTON PRODUCTION



Growing cotton takes a lot of water. We joined the Better Cotton Initiative to reduce water and chemicals while supporting farmers and healthy soil.

## 2. FABRIC PRODUCTION



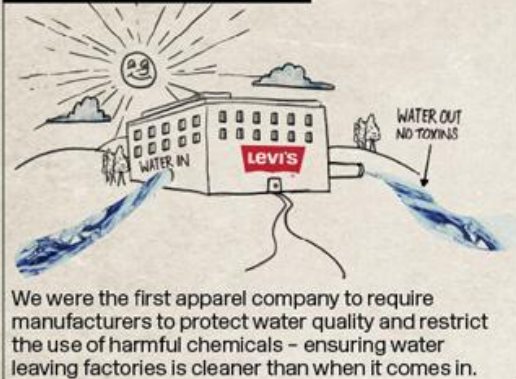
As a supporter of NRDC's Responsible Sourcing Initiative, we're working with textile mills to reduce water, chemicals, and energy usage.

LESS WATER IN YOUR LEVI'S  
 → THE WATER<LESS COLLECTION REDUCES THE WATER CONSUMPTION BY AN AVERAGE OF 28% AND UP TO 96% FOR SOME NEW PRODUCTS IN THE LINE.

→ WATER<LESS JEANS WILL HELP LEVI'S® SAVE 16 MILLION LITERS OF WATER IN SPRING 2011.

→ IF EVERYONE WHO PURCHASES A PAIR OF WATER<LESS JEANS, WASHES THEM ONCE EVERY 2 WEEKS (INSTEAD OF ONCE A WEEK) WE'LL COLLECTIVELY SAVE 858,400,000 LITERS OF WATER A YEAR.

## 3. GARMENT MANUFACTURING



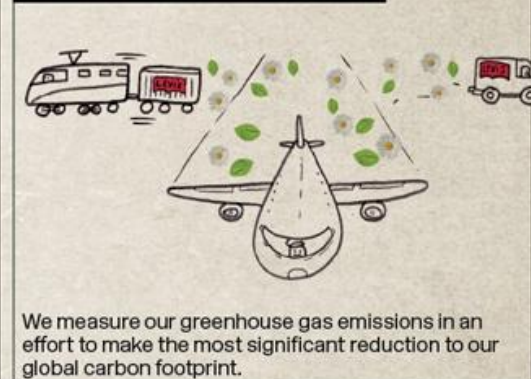
We were the first apparel company to require manufacturers to protect water quality and restrict the use of harmful chemicals - ensuring water leaving factories is cleaner than when it comes in.

## 4. WATER<LESS JEANS



An average pair of our jeans uses 42 liters of water to get a worn-in look. Our Water<Less jeans have the same great style but a lot less water - as little as 1.5 liters for some jeans.

## 5. TRANSPORTATION & DISTRIBUTION



We measure our greenhouse gas emissions in an effort to make the most significant reduction to our global carbon footprint.

## 6. CONSUMER USE



Most of the environmental impacts of our jeans occur after you take them home. Reduce the impact of your jeans by up to 50% by washing in cold water and line-drying. Save more than 500 liters of water a year by washing them every other week instead of once a week.

## 7. RECYCLING



"A Care Tag for Our Planet" is a reminder to extend the life of your jeans by donating them to Goodwill® when you're finished with them.

## 8. END OF LIFE & REBIRTH



Old jeans can be used as building materials. We used 25,500 pairs of jeans to create recycled denim insulation for our SF headquarters.

VISIT [LEVI.COM](http://LEVI.COM) TO SEE HOW WE'RE FINDING WAYS TO CARE FOR OUR PLANET

