

Upcycling worn leather belts at Ting, London

<http://www.tinglondon.com/#3162X0>



Jeans: best value for money clothes item

The statistics were published in a report for London's Science Museum to support its Trash Fashion: Designing Out Waste exhibition. The study examined the wardrobes of 3,000 women.



Jeans: The hardest workers (Source: London Science Musuem)

Item of clothing Times worn over its lifetime Cost per wear

Coat/jacket	575	10p
Jeans	428	9p
Jumper/sweater	228	11p
T-shirt/top	218	8p
Trousers	176	14p
Bra	162	11p
Underwear	100	7p
Leggings	68	15p

**Social focus & jeans:
who makes it,
where is it made,
where is it grown.**

**for Summer School
by Jan Piscaer,
July 3, 2012.**

Jeans do not grow ... yet!



<http://www.youtube.com/watch?v=3p3-vl9VFYU> Suzanna Lee @ TED

Bio-couture



MILLENNIUM DEVELOPMENT GOALS

- End poverty & hunger
- Universal education
 - Gender equality
 - Child health
 - Maternal health
- Combat HIV/AIDS
 - Environmental sustainability
- Global partnership

UN GLOBAL COMPACT

- 10 principles for the private sector:
- Human rights (2)
 - Labour (4)
 - Environment (3)
 - Anti-corruption (1)

NICE

1. Human rights
2. Labour standards
3. Occupational health and safety
4. Environment
5. Anti-corruption
6. Ethical relations
7. Monitoring and evaluation

Jeans are made of

- Denim fabric: e.g. cotton, hemp, polyester, variety of blends, indigo dye**
- Sewing thread: e.g. cotton/polyester, cotton**
- Labels: e.g. acetate, paper, cotton**
- Rivets & buttons: e.g. brass, copper**
- Packaging: e.g. paper, cardboard, plastic**

Where cotton is grown:

World production 2009/2010: 22,023,000 metric tons

40% of the world's fiber production

Produced in ~80 countries

×1000 metric tons / year:

6,967 China

5,051 India

2,654 USA

2,090 Pakistan

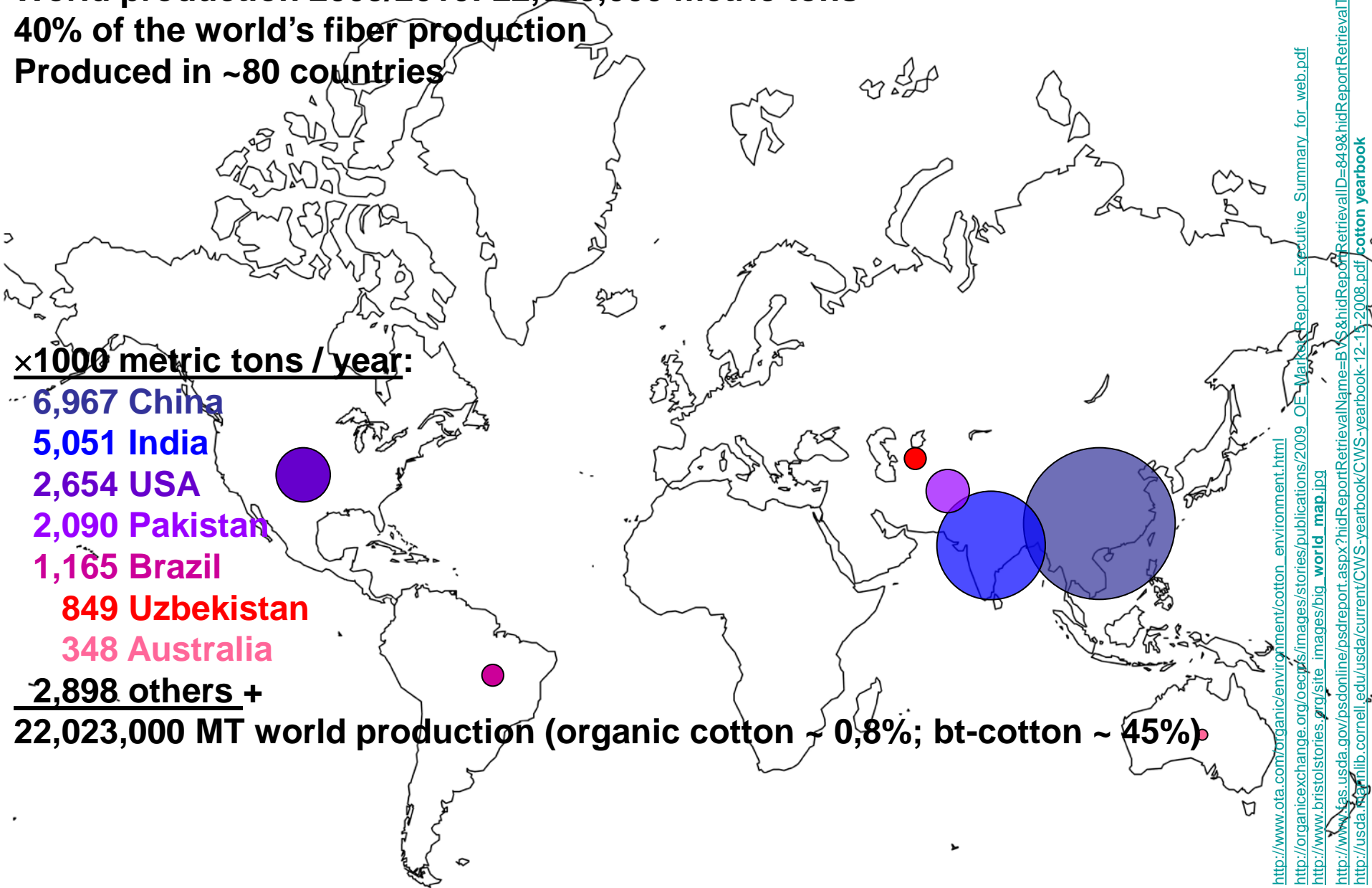
1,165 Brazil

849 Uzbekistan

348 Australia

2,898 others +

22,023,000 MT world production (organic cotton ~ 0,8%; bt-cotton ~ 45%)

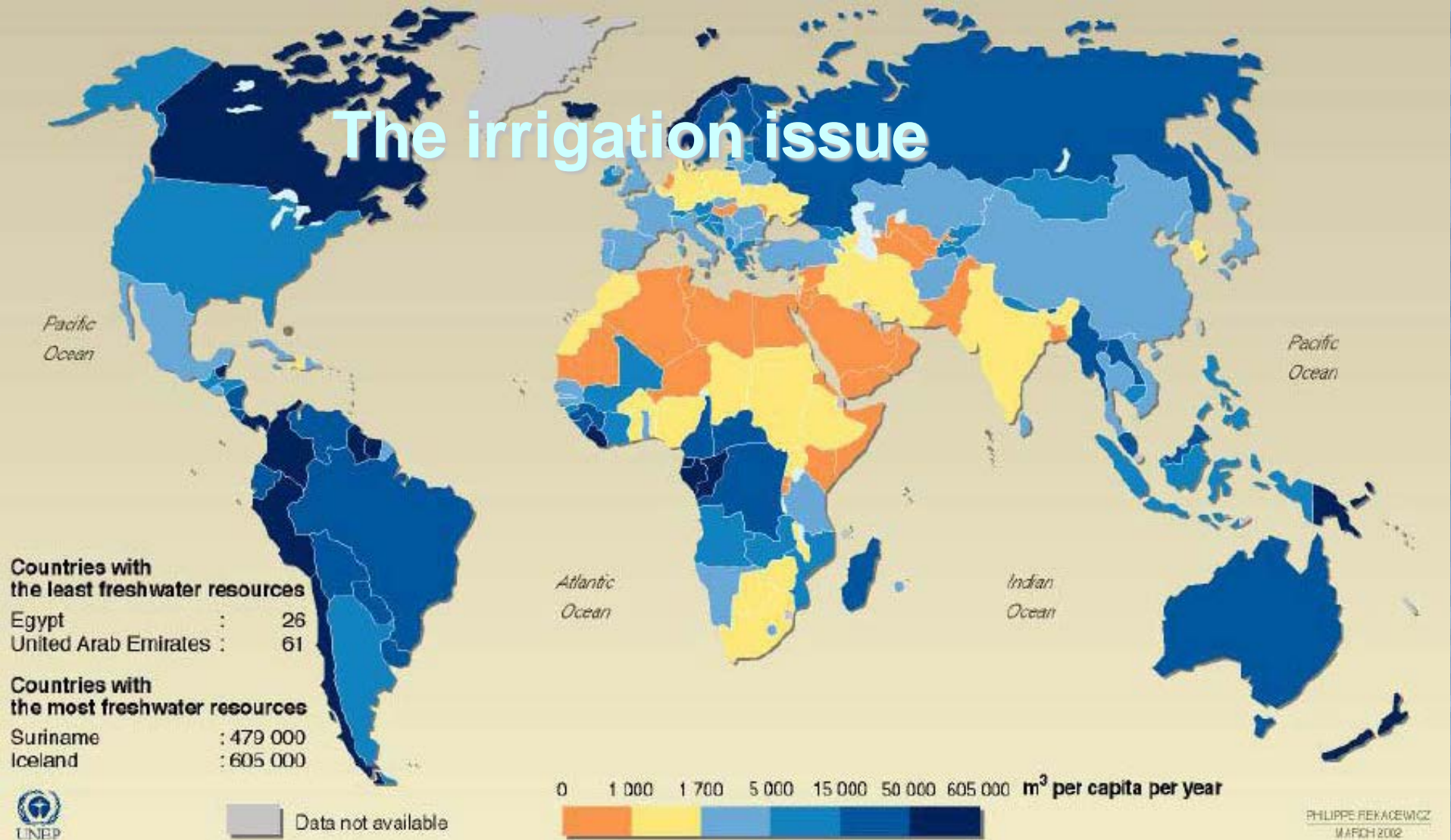


Large scale planting

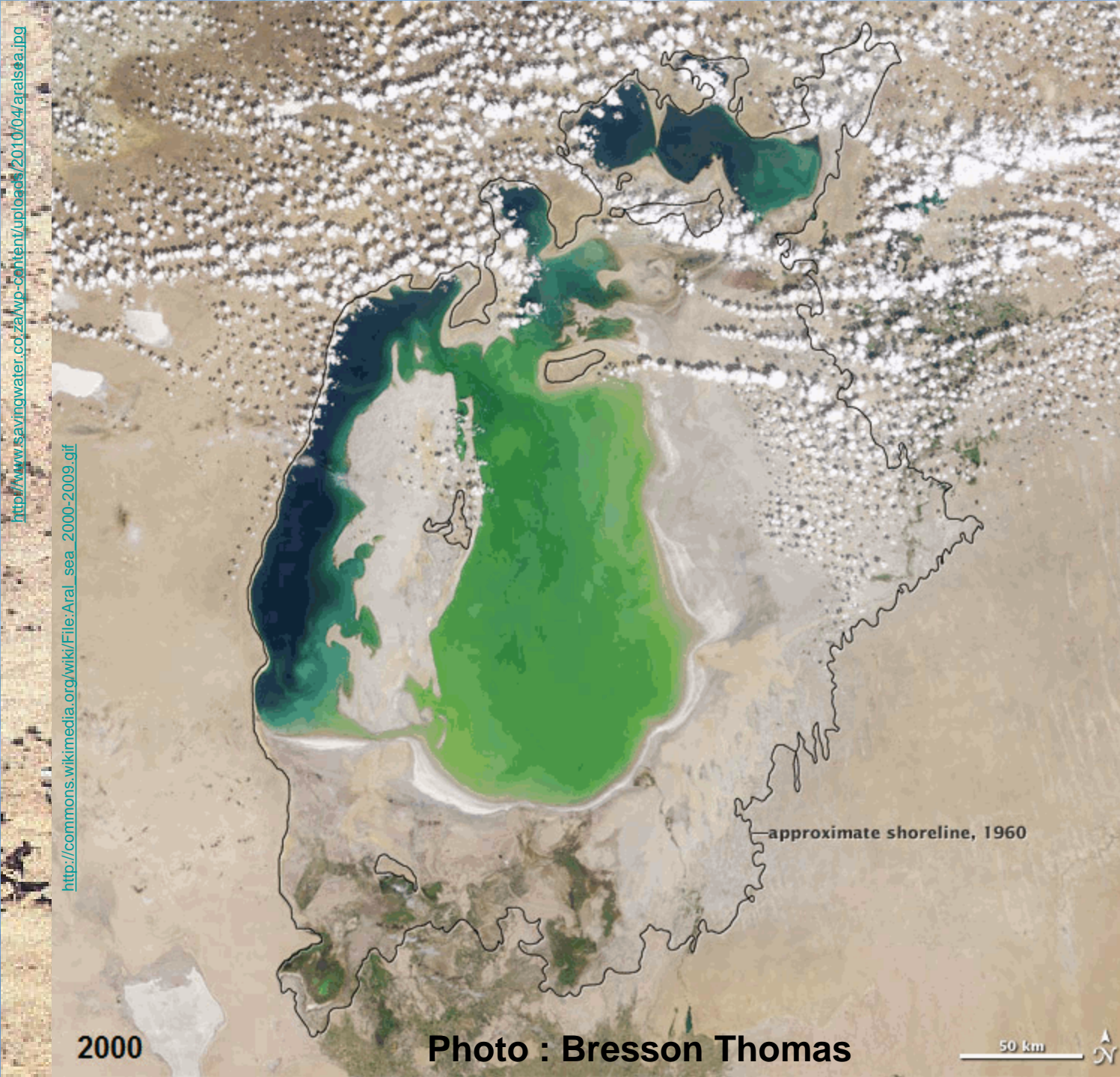
Soil fertilised by organic fertilizer like cow dung, or by chemical fertilizers from e.g. [Dow](#) or [Akzo Nobel](#)



The irrigation issue



https://intra.amfi.hva.nl/minors/0506/trend_forecasting/rm05/environmental_issues/HVA-20060219.pdf Water Management by Erik de Ruyter van Steveninck



White gold –
the true cost
of cotton



<http://www.savingwater.co.za/wp-content/uploads/2010/04/aralsea.jpg>

http://commons.wikimedia.org/wiki/File:Aral_sea_2000-2009.gif

2000

Photo : Bresson Thomas

50 km 

approximate shoreline, 1960

cotton blooms



<http://seguidailyphoto.blogspot.com/2008/08/cotton-blooms.html>



Insects



Cotton bollworm

<http://www.cottonnetwork.org/>



Cotton boll weevil

<http://www.ars.usda.gov/is/graphics/photos/k2742-6.htm>



spraying pesticides



- spraying pesticides against pests, herbs, insects, fungi, etc. from e.g. [Dow](#), [Bayer](#), [BASF](#)

alternatives



Insect trap



Chili-garlick solution

<http://www.ecotippingspoints.org/resources/publication-the-ecologist.html>

The Conventional Trap



<http://www.youtube.com/watch?v=vEmBLKyDMeg>



The Dying Fields - read

<http://www.pbs.org/wnet/wideangle/episodes/the-dying-fields/global-cotton-industry.br-cotton-farming/1949/>

GM > 45%

- *Bacillus thuringiensis* (Bt) plant-incorporated protectant in cotton (WideStrike®)
- “Dow Agrosciences’ WideStrike® cotton is expected to have environmental and public health benefits by reducing the use of conventional chemical insecticides that may be applied to cotton several times per season.
- WideStrike® cotton contains Cry1Ac and Cry1F proteins. These proteins are intended to control tobacco budworm, pink bollworm, cotton bollworm, cabbage looper, saltmarsh caterpillar, cotton leaf perforator, soybean looper, beet armyworm, fall armyworm, yellowstriped armyworm and European corn borer.”



WideStrike

Monsanto

Bt-cotton

Genetically modified cotton seeds "could lead to total destruction of soil organisms, leaving dead soil unable to produce food"



<http://rapidfirenews.blogspot.com/2009/07/genetically-modified-cotton-seeds-causing.html>



- A plant of the genus *Gossypium* produces a ball of fine white fibre that is harvested then ginned to remove the seeds. The raw cotton is baled for transport to the spinning mills that convert it to thread for weaving into cloth for all sorts of applications. The seeds are usually crushed for oil and the pulp often added to livestock feed.



DEFOLIANTS

Ginstar®

RESOURCE

9/27/2001

Large mobile picking machines capable of stripping four rows, spaced about a metre apart, travel at around 8 to 10 kmh. They work in shifts for up to 16 hours per day, only stopping to unload the uncompressed cotton or for fuel.



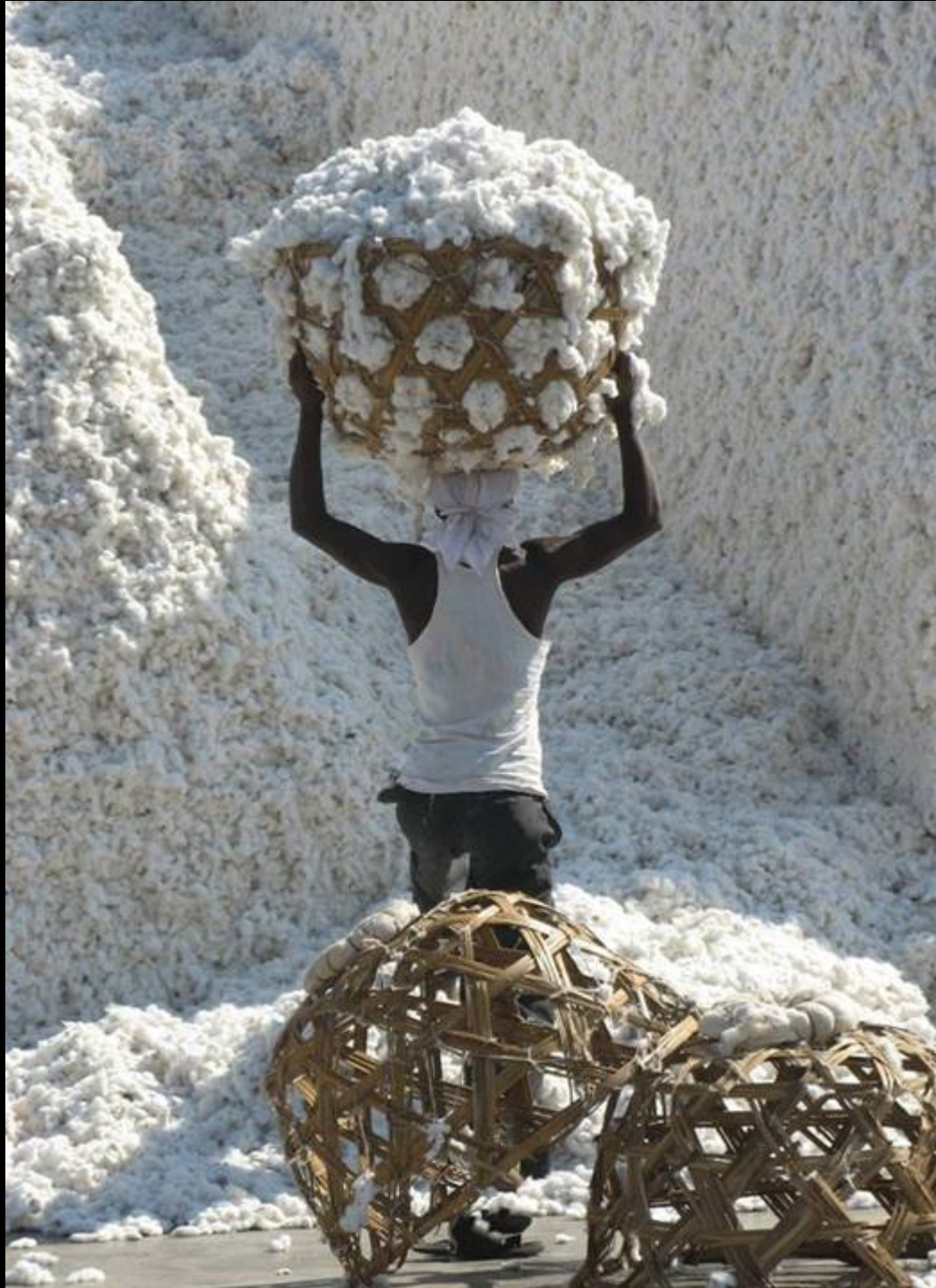


Picked cotton is loaded into transporters, specially designed trailers for moving product from the picker to module compaction units. With picking continuing after dark, fields are stripped in alternative rows to aid night vision. Compaction units are also fitted with flashing lights so they can be quickly found.



Special haulage units are employed to pick-up and transport modules to the gin for processing. The rigs have a "crawler under-carriage" that load and unload the modules where and when required.





<http://www.gretablue.co.uk/man-carrying-basket.gif>

Raw organic cotton

Social Impacts of
Global Cotton Production

bluesign®

G.O.T.S.

Organic Exchange



Weighing cotton bales after ginning

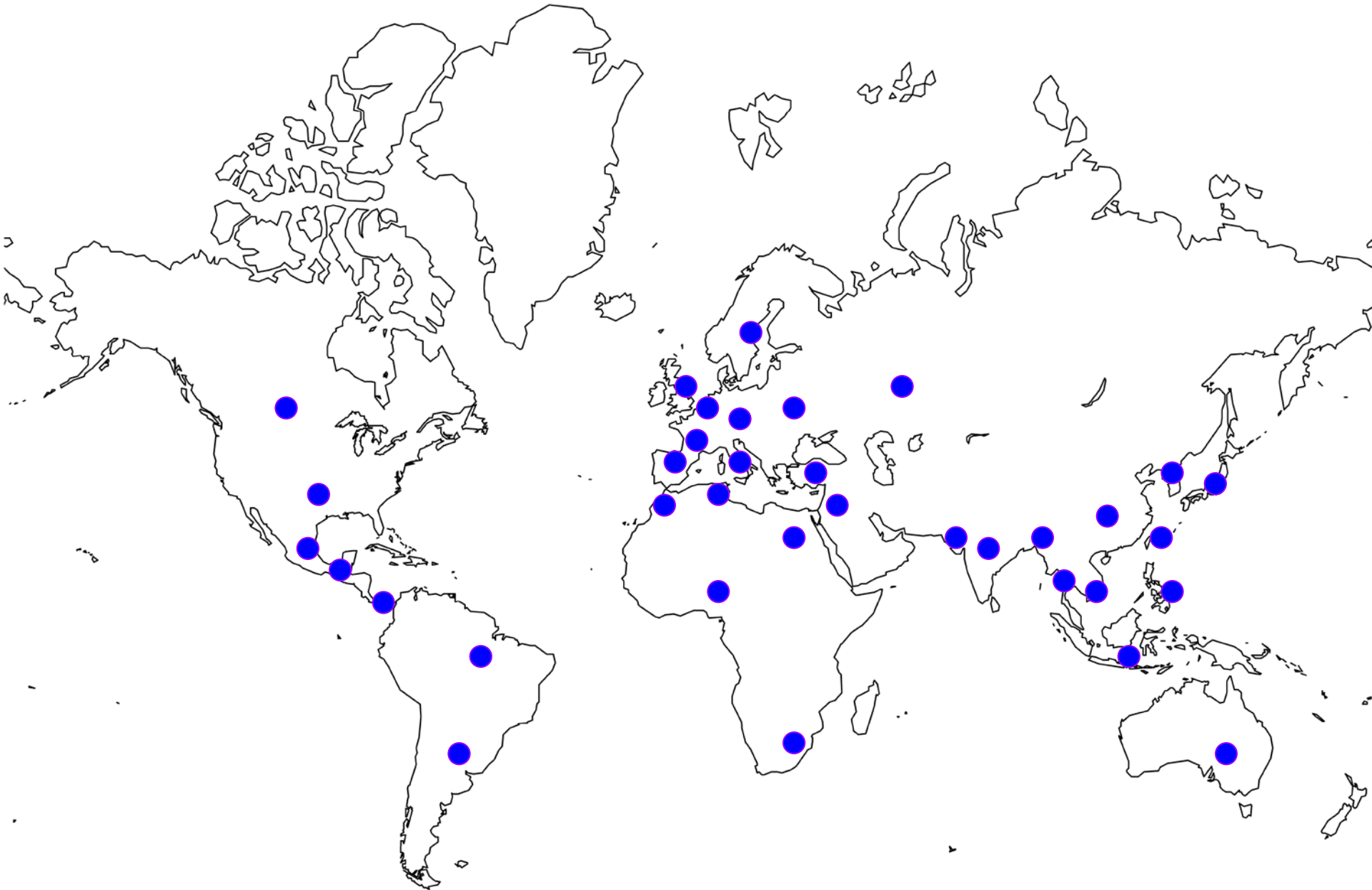




Textile industry - Denim

- **2,985,000,000 metres of denim**
 - 2,239,000,000 m for pairs of jeans
- **A pair of jeans weight: ~0.8 kg**
- **Cotton needed for jeans: 1,436,800 tonnes**

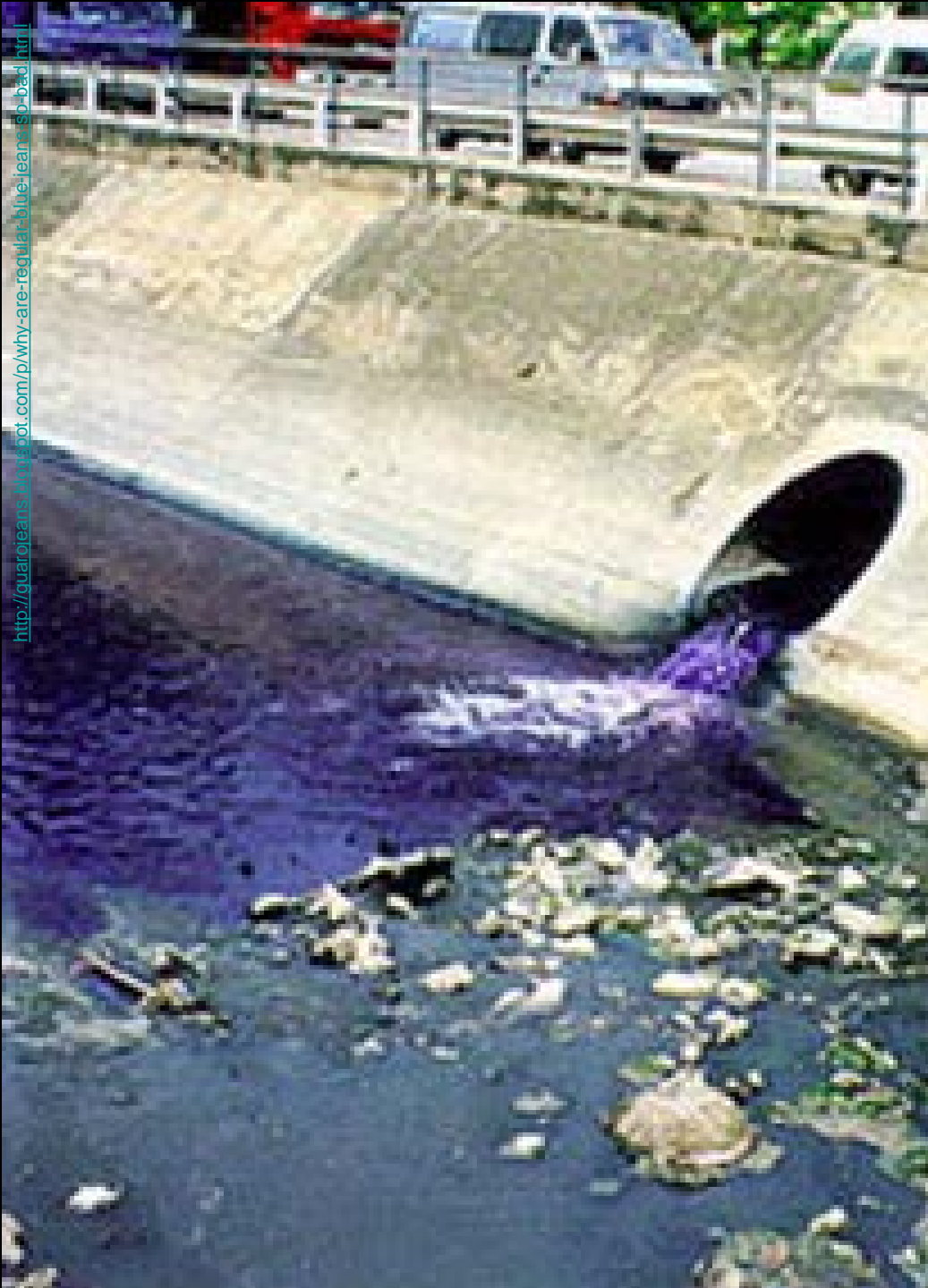
Where denim is made





<http://rjohnhowe.wordpress.com/2008/07/01/jeff-krauss-and-john-howe-on-blue-in-rugs-and-other-textiles-part-1-the-lecture/>

an indigo worker in Southwest China (Notice that all of this worker's clothing is dyed with indigo and that the cap, jacket and pants are from polished indigo)



Dyeing, is one of the most toxic steps in the making of a pair of jeans. Jeans have a specific tone of blue color, created by indigo dye. Historically, indigo was extracted from plants but today nearly all indigo produced is synthetic, which is often made from coal or oil. In 2002, 17 000 tons of synthetic indigo were produced worldwide. Some factories have machines that precisely measure the concentration of dye in solution, enabling a manufacturer to recycle spent liquid by adding just the right amount of fresh dye. But in developing countries, where water and dyes are cheap and environmental regulations lax, factories without modern equipment often dump the old dye into nearby waterways. Water samples taken downstream from textile have been shown to contain lead, mercury, cadmium, and selenium. Local farmers complain of chemically burned seedlings and sterile soil.

a denim shuttle loom



PROCESS STEPS FOR MEN'S COTTON SLACKS



Cotton Farm
No. of Farms: 45,000
Acreage: 10,000,000
Cotton Mill
Production: 1.5 billion lbs.
Size: 500,000 sq. ft.

Farm
Avg. No. of Farms: 1
No. of Employees: 10
Cotton Mill
Capacity: 10,000 lbs.
to 1,500,000 lbs.
Cotton Field Size: 11

Cotton Ginn
Operational: 17,500
Cotton Gin
Capital Cost: \$15
Production Rate: 10-40 bales/hr.
Annual Production: 11,000,000 lbs.
Using Ginning: 342,000 bales
Capacity: 700,000 sp.



Harvest Cotton
PROCESSED 4.5 HOURS
7.5 HOURS
1.5 HOURS

Cotton Mill
Cleaned Cotton

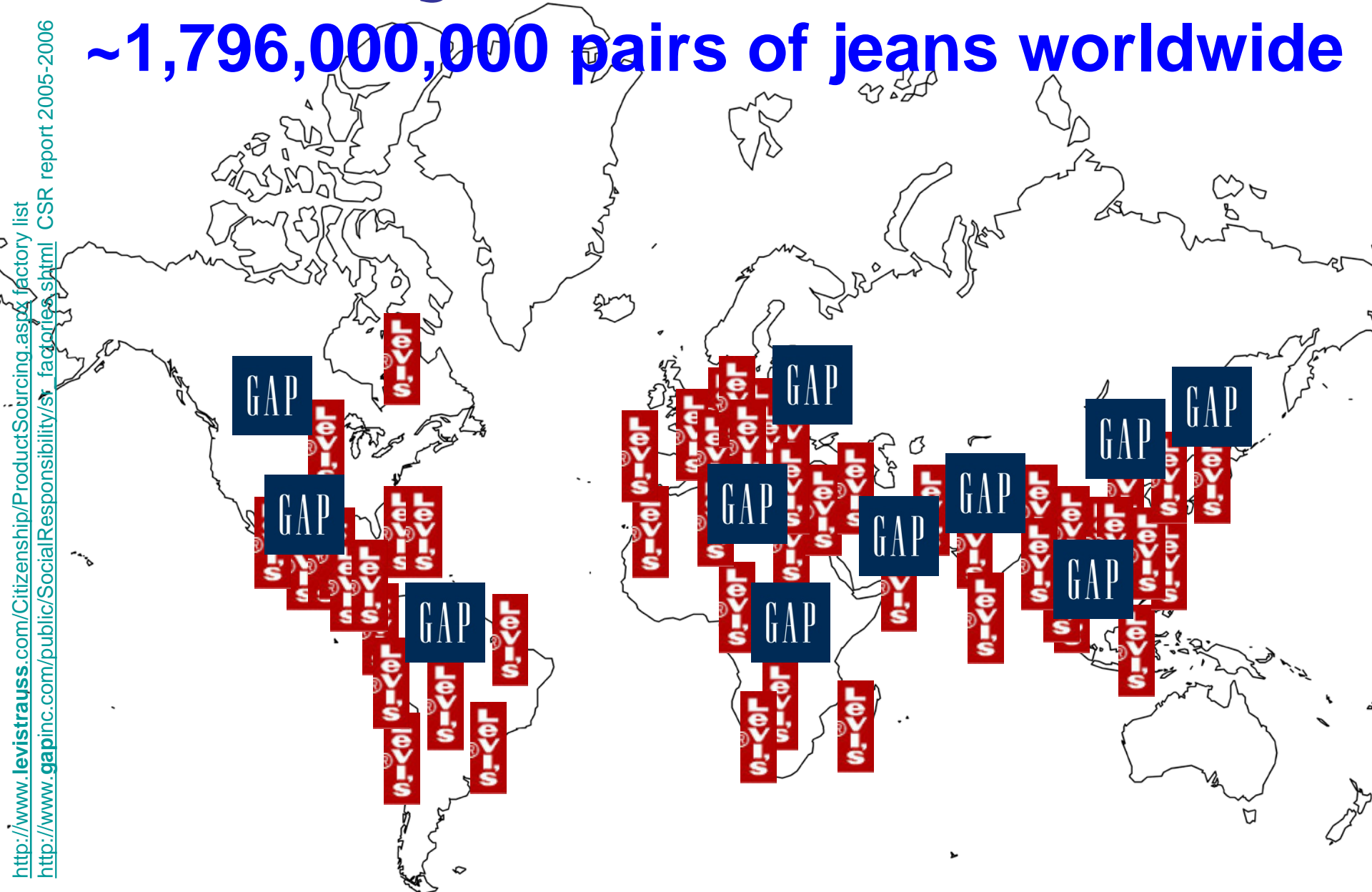
Remove Seed, Trash, and Lint
TRANSPORTABLE COTTON BALE
BAND AND WRAP



*This diagram is a representation of a single apparel product. All associated data are only for informational purposes. Copyright © 1999, Textile-Exchange Technology Corp. and the members of the Textile-Exchange. All rights reserved.

Where jeans are made:

~1,796,000,000 pairs of jeans worldwide



Who makes jeans?

<http://planetgreen.discovery.com/buying-guides/mens-jeans/denim-therapy-550.jpg>



'We lichten bedrijven helemaal door'

Arbeidsomstandigheden moeten in orde zijn, zegt H&M. In India en Sri Lanka houden zes man 40 fabrieken in de gaten.
Door Ana van Es

Gap, Next and M&S in new sweatshop scandal



Foto Reuters

Indiase uitg...

Werkne... krijgen...

Van onze verslag Ana van Es

COIMBATORE dwarenhu... een deel van... ceren in een... dia die mei... buit. In de... deelstaat T... ding gem... beide bed...

Dat blijkt... Volkskrant... ontwikkel... heeft be... vlakbij... voor C... polost... De...

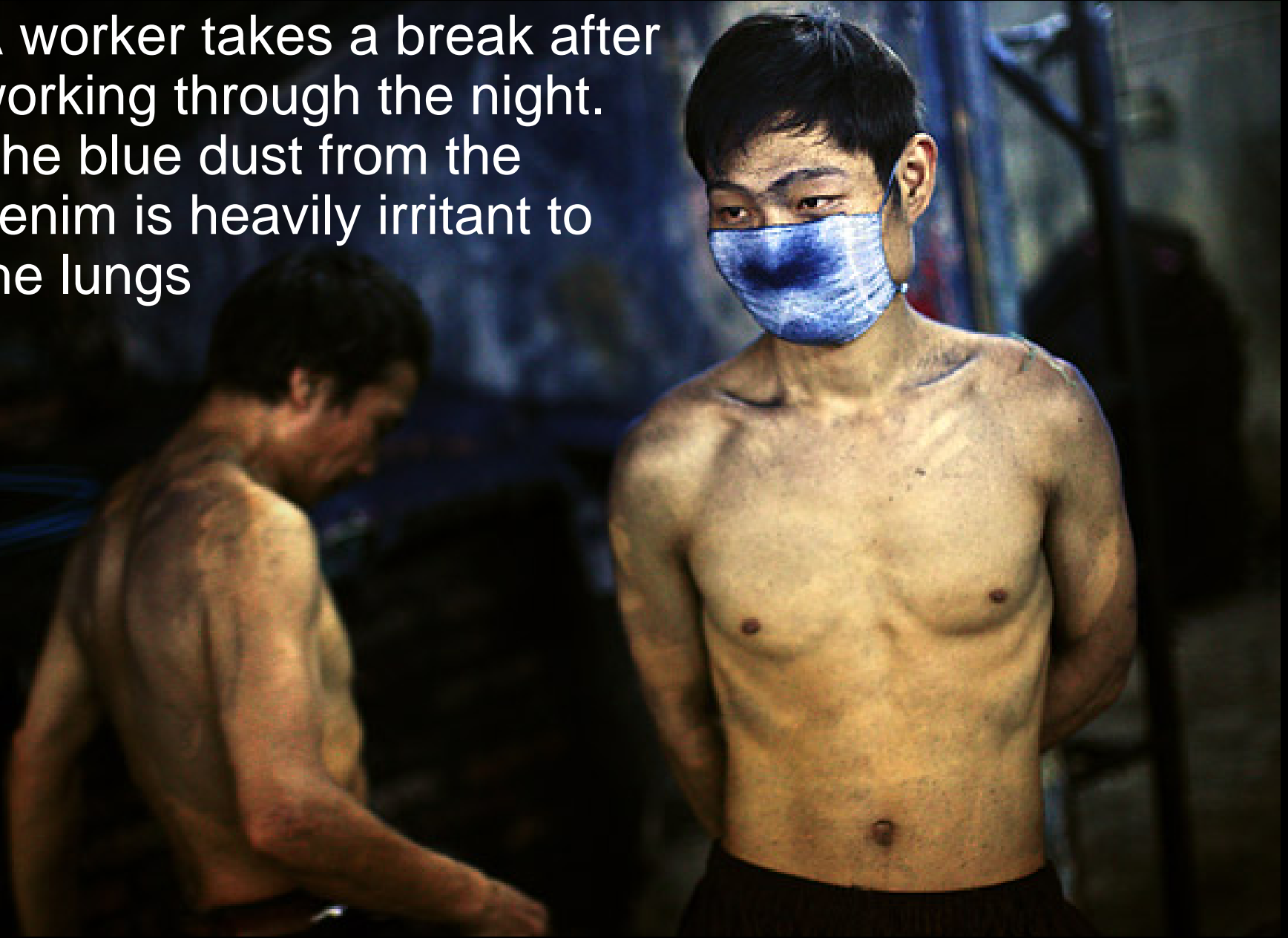
De... arbeidste... rectie allemaal... oud-zitten na werktijd de facto op... sloten in hostels op het ommuurde... fabrieksterrein. Ten minste een kwart... van hun loon wordt ingehouden om... te sparen voor de bruidsschat. Ze krij... gen dit geld pas uitgekeerd als ze drie... jaar voor het bedrijf hebben gewerkt... KPR geeft geen arbeidscontract en... verhindert contact met vakbonden. H&M bevestigt dat er in 2009 en in... H&M kleding in deze fabriek... 2009 werd de sa... gezet

...rekenen. ...rijken we hoe de situatie... voor staat. Over sommige zaken

...werken, red.). Dit jaar werden we be... naderd door Quantum Knits, een... dochteronderneming, volgens de di...

The Guardian, August 8, 2010
Volkskrant September 3, 4 & 10, 2010

- A worker takes a break after working through the night. The blue dust from the denim is heavily irritant to the lungs



- Carrying jeans to the next operation





- The jeans industry provides work for nearly a million people in Sri Lanka. The country exports 3 billion dollars worth of denim products to the United States each year.





- In order to fulfill the huge demand for their products, workers at the garment factories at Zhongshan are often required to work every day of the month.

- China Blue – watch the movie!



Spraying bleach



Distressing jeans, Turkey, 2010.



- A worker uses a sanding machine to distress jeans. The factory also scrubs, sprays, tears and stone-washes their products.





- Mixing bleach



- Pouring bleaching chemical into the spinner



- Open spinner to check the level of fading

ILO

OSHA

AFW

BSCI

Ethical Trade

SA 8000

Clean Clothes

Fair Wear

WRAP



- After loading 100kg jeans into the washer



Water filtering facilities



Sources:

- http://www.bristolstories.org/site_images/big_world_map.jpg
- http://peanut.tamu.edu/Homepage/Todd/cotton_photos.htm **cottonfields USA**
- **Water Management** by Erik de Ruyter van Steveninck
- <http://pested.ifas.ufl.edu/archives/CMSP-2004/10cmsp04%20files/10cmsp04-L04.htm> **Bt-cotton**
- http://www.icac.org/seep/documents/reports/literature_review_july_2008.pdf **Social Impacts of Global Cotton Production**
- http://www.techexchange.com/thelibrary/Dama/Map_Slacks.html
- <http://www.yeeyan.com/articles/view/sima/2891> jeans factory article
- <http://www.flickr.com/photos/asiax89/sets/72157601630848468/> black&white pictures
- www.ucl.ac.uk/global-denim-project



- TAKE A BREAK