

COLOR DYE POLLUTION IN THE ENVIRONMENT

TENZIN CHOZIN

COLOR DYE POLLUTION IN THE ENVIRONMENT

- WHAT ARE TEXTILE DYES?
- WATER POLLUTION CAUSED BY TEXTILE DYES
- TOP THREE POLLUTED CITIES
- WHAT CAN BE DONE
- KEY TAKEAWAYS

WHAT ARE TEXTILES DYES?

Textile dyes are substances used to color fabrics. The dyes soak into the fabric and change it chemically, resulting in color that stay permanently through repeated use

Today, more than 10,000 substances are classified as textile dyes. Most of our clothing and home furnishings are colored with synthetics

Synthetic dyes are man made from chemicals such as petroleum and mineral compounds. However their toxic nature has become a cause of concern to environmentalists. Other harmful chemicals present in the water may be formaldehyde based dye fixing agents, chlorinated stain removers, hydrocarbon based softeners and non biodegradable dyeing chemicals



WATER POLLUTION CAUSED BY TEXTILE DYES

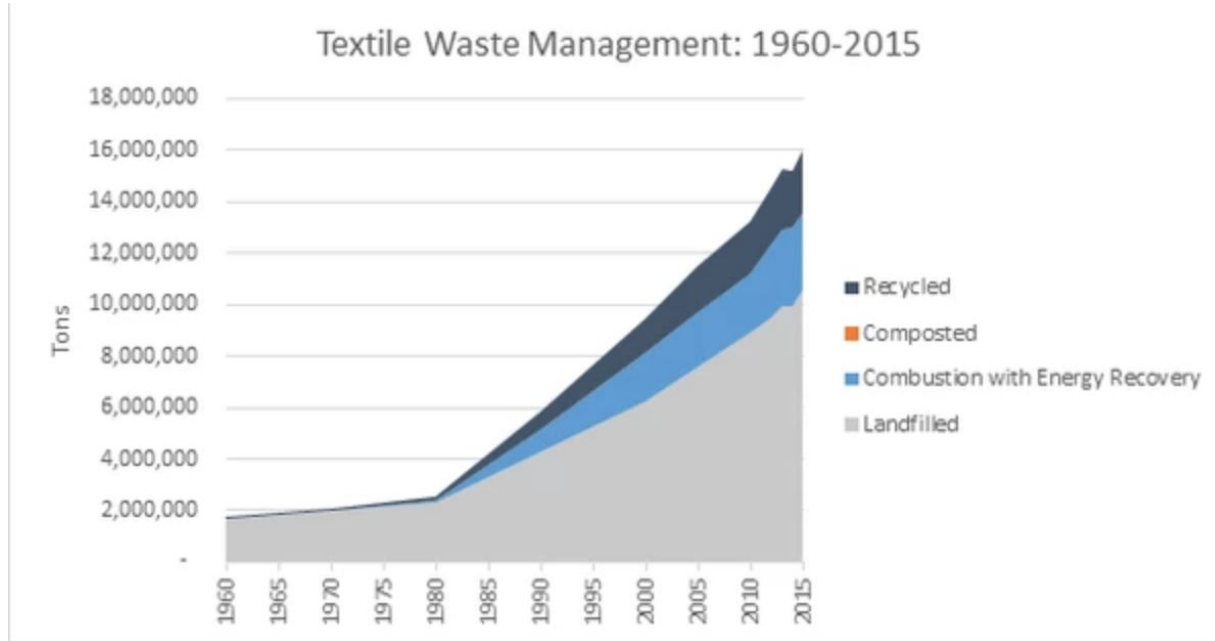
The textile dyeing and finishing industry has created a huge pollution problem as it's one of the most chemically intensive industries on earth, and the #1 polluter of clean water

The industry is using more than 8,000 chemicals that are poisonous and damaging to human health

Mills discharge millions of gallons of this liquid as hazardous toxic waste. Such as acids, chromium compounds and heavy metals like copper and lead. Other harmful chemicals present in the water are flammable and have high temperature and pH, which are extremely damaging







- 84% of unwanted clothes went into a landfill or incinerator (this included garment samples, dead stock and fabric samples).
- 1 garbage truck of textiles is being sent to the landfill or incinerated every second.
- Landfills received 10.5 million tons of textiles in 2015, representing 7.6% of US landfills. An additional 2.45 million tons were recycled and 3.05 million were incinerated.

BANGLADESH

Bangladesh is the world's second-leading clothing exporter, after China, and a favorite of companies like Walmart, and J. C. Penney. Pays the lowest wages in the world while spending a minimum on work conditions and safety

It's one of the world's most environmentally fragile places, densely populated yet braided by river systems. The garment and textile industries have contributed heavily to what experts describe as a water pollution disaster, especially in the large industrial areas of Dhaka, the capital.



SAVAR, BANGLADESH

- In Savar, an industrial suburb of Dhaka, Bangladesh, and the site of the deadly Rana Plaza building collapse, many factories do not treat their wastewater, as the purple canal makes clear.
- The building to the left partly hidden by trees is an elementary school, where the stench of the water sometimes makes the students ill.



TEXTILES ENVIRONMENTAL IMPACTS IN BANGLADESH



1:45

ASIA: CHINA

70 percent of China's rivers and lakes are contaminated by the 2.5 billion gallons of wastewater produced by that continent's textile industry.

Top five heavy metals found in denim producing towns(cadmium, chromium, mercury, lead and copper)

Environmental campaigners in China also found manganese in the rivers which is associated with brain damage



ASIA: INDIA



- The textile industry is one of the major industries in India, but there is a downside. The use of chemicals and dyes during the manufacture of textiles generates an enormous quantity of waste as sludge, fibres and chemically polluted waters.
- “If everyone is to blame, why target the slums?”
- Across major cities, environmentalists and citizens are engaged in prolonged, seemingly intractable battles to clean up local rivers
- Floods and extreme rain events make it difficult to clean up local rivers

WATCH RIVERBLUE

This documentary examines the destruction of our rivers, its effect on humanity, and the solutions that inspire hope for a sustainable future.

The destruction of rivers in Asia caused by the largely unregulated textile industry.



WHAT CAN BE DONE?

- The industry's challenge is to adopt more water-friendly technologies to dye cotton and polyester, the two most mass marketed textiles. **So what can companies do to change the harsh environmental effects of this toxic dyeing process?**
- Organic manufactures are looking for alternatives to dye their clothing rather than with chemical treatments, which introduces natural dyes from vegetables, fruits, other plants.
- Treatments that are a win-win situation for the environment and workers.

ECO FRIENDLY SUBSTITUTES

- Cotton, silk, wool, linen, and some synthetic fabrics can be naturally dyed from many different plants, vegetables, and fruit

Natural Dyes

- **Orange:** carrots, gold lichen, onion skins
- **Brown:** dandelion roots, oak bark, walnut hulls, tea, coffee, acorns
- **Pink:** berries, cherries, red and pink roses, avocado skins and seeds (really!)
- **Blue:** indigo, woad, red cabbage, elderberries, red mulberries, blueberries, purple grapes, dogwood bark
- **Red-brown:** pomegranates, beets, bamboo, hibiscus (reddish color flowers), bloodroot
- **Grey-black:** Blackberries, walnut hulls, iris root
- **Red-purple:** red sumac berries, basil leaves, daylilies, pokeweed berries, huckleberries
- **Green:** artichokes, sorrel roots, spinach, peppermint leaves, snapdragons, lilacs, grass, nettles, plantain, peach leaves
- **Yellow:** bay leaves, marigolds, sunflower petals, St John's Wort, dandelion flowers, paprika, turmeric, celery leaves, lilac twigs, Queen Anne's Lace roots, mahonia roots, barberry roots, yellowroot roots, yellow dock roots



KEY TAKEAWAYS

- Roughly 17 to 20% of industrial water pollution is owed to fabric dyes and treatments.
- An estimated 8,000 synthetic chemicals are used to bleach, treat, and brighten our clothes
- At best, contact with dyed synthetics triggers allergic reactions, skin irritation, and rashes. At worst, it increases the risk of cancer.
- In China, estimates say 90 percent of the local groundwater is polluted and, according to the World Bank, 72 toxic chemicals in the water supply are from textile dyeing.
- For every pound of textiles produced in Asia, a pound of chemicals is broken-down and later illegally bled into the Citarum River.



BIBLIOGRAPHY

<https://fashion-history.lovetoknow.com/fashion-clothing-industry/chemical-synthetic-dyes>

https://www.scirp.org/Html/4-8301582_17027.htm#txtF3

<https://www.youtube.com/watch?v=NXTIfczSnE&t=111s>

<https://study.com/academy/lesson/textile-dyes-history-toxicity-pollution.html>

<https://www.nytimes.com/2013/07/15/world/asia/bangladesh-pollution-told-in-colors-and-smells.html>

<https://www.sewdynamic.com/pages/polyester-industry>

<https://www.carmenbusquets.com/journal/post/fashion-dye-pollution>

<http://textileartscenter.com/blog/a-guide-to-sourcing-natural-dyes-in-nyc/>

<https://www.nytimes.com/2013/07/15/world/asia/bangladesh-pollution-told-in-colors-and-smells.html>

<https://www.esmonitor.com/World/Making-a-difference/Change-Agent/2014/0626/Waterless-dyeing-could-clean-up-the-clothing-industry>

<https://www.diynatural.com/natural-fabric-dyes/>

<https://www.grandviewresearch.com/industry-analysis/eco-fiber-marke>

I

<https://blog.globalwebindex.com/chart-of-the-week/green-consumerism/>

<https://www.theguardian.com/sustainable-business/dyeing-textile-sector-water-risks-adidas>