

# Just Climate, Energy & Tech Transition for the Tannery Sector of Bangladesh



# Climate



“We are the first generation to feel the effect of climate change and the last generation who can do something about it.”

--- **Barack Obama**

# Energy



“Energy cannot be created or destroyed; it can only be changed from one form to another.”

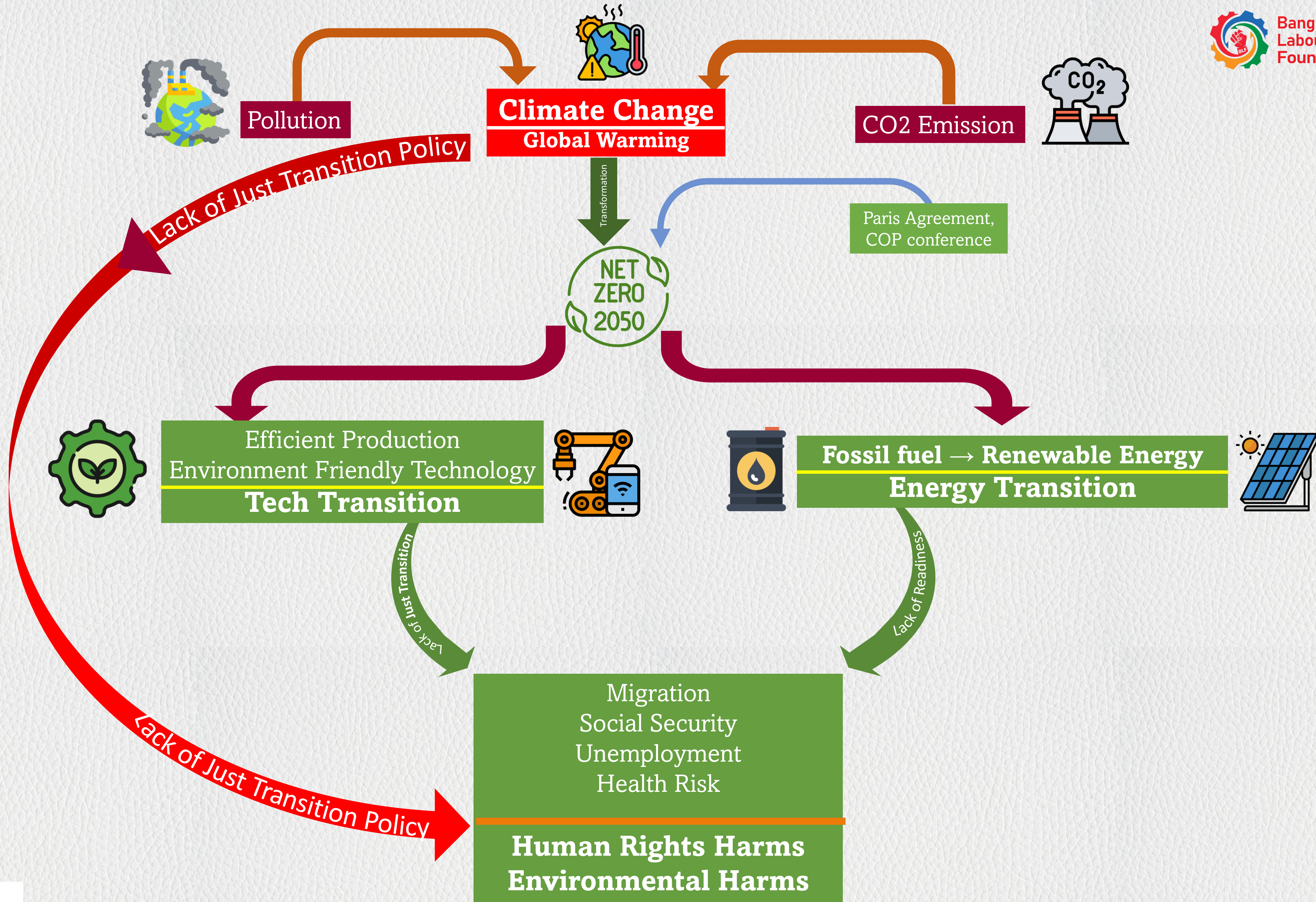
---**Albert Einstein**

# Technology



One machine can do the work of fifty ordinary men. No machine can do the work of one extraordinary man.

---**Elbert Hubbard**



# What is Climate Change?

Climate change refers to long-term shifts (typically over several decades or more) in the average weather patterns of a large region.



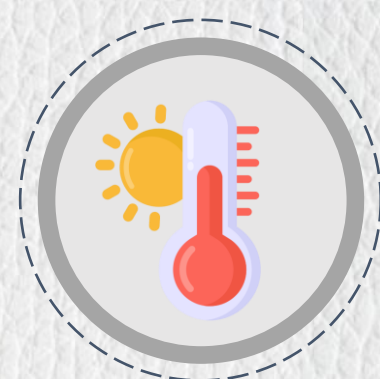
## Natural

Solar Variations, Volcanic Eruptions etc.

## Types of Reasons

## Human Activities

Burning fossil fuels (oil, gas, coal), deforestation, and industrial pollution etc.



Temperature Rise



Global Warming

## Consequences



Climate Change



Natural Disasters



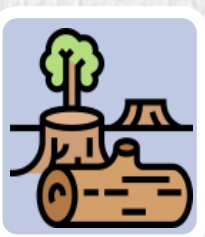
**Human Activities are The Primary Driver of Modern Climate Change**





## Fossil Fuels

(coal, oil, gas) for energy, transportation, and industry



## Deforestation

Reducing the planet's natural CO<sub>2</sub> absorption



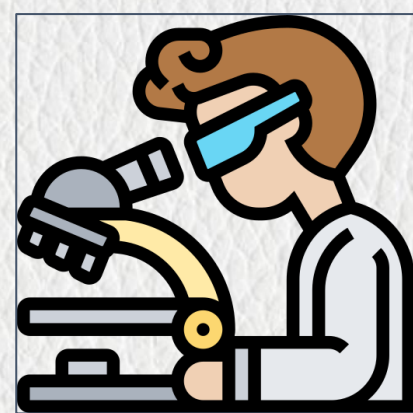
## Industrial Agriculture

Particularly livestock and synthetic fertilizers



## Waste and Pollution

Including plastics and landfill emissions



**Scientific Consensus: >99% of peer-reviewed studies agree humans cause climate change (Cook et al. 2021)**



## Fossil Fuel (75% of GHG Emissions)

- **CO<sub>2</sub> Levels:** 420 ppm (2024) vs. 280 ppm (pre-industrial) – **50% increase**
- **Source:**
  - Energy (electricity/heat): **43%**
  - Transport: **16%**
  - Industry: **19%**



## Deforestation (12-20% Emission)

- **10 million hectares/year lost** → Equivalent to 27 soccer fields/minute
- Amazon deforestation: **17% lost in 50 years**



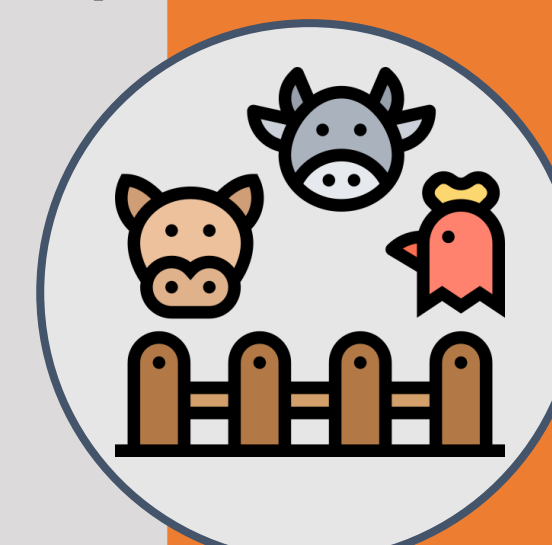
## Industrial Process

- Cement production: **8% global CO<sub>2</sub>**
- Plastic waste: **1.8 billion tonnes GHG/year** by 2050



## Agriculture & Livestock (24% of GHGs)

- Methane (CH<sub>4</sub>): **28-34x** more potent than CO<sub>2</sub>
- Cattle produce **150 billion** gallons methane/day
- Nitrous Oxide (N<sub>2</sub>O): **300x** worse than CO<sub>2</sub> → Fertilizer overuse



## Fossil Fuel Dependence & Emissions

- **CO<sub>2</sub> Emissions:** 0.5 tonnes per capita – **Low but rising**

### Energy Source:

- 62% from fossil fuels (natural gas, coal, oil)
- Renewables: Only 3% (solar, hydro)
- Dhaka landfills emit 350,000 tons CH<sub>4</sub>/year



**Each day in Dhaka = 1.7 smokes**

## Deforestation & Land Degradation

- Forest Loss: 2,600 hectares/year (1990-2020) – **17% total decline**
- Sundarbans Threat: 30% mangrove loss since 1960s



## Air Pollution (World's Worst in 2023)

### PM2.5 Levels:

- Dhaka: **5th most** polluted city globally
- Dhaka's air pollution = 80 µg/m<sup>3</sup> (2023) – **10x WHO safe limit** (5 µg/m<sup>3</sup>)
- **Brick kilns (30%) – 8,000+ kilns** burn coal/tires
- **Vehicles (25%)** – 60% of Dhaka's cars are >20 yrs old

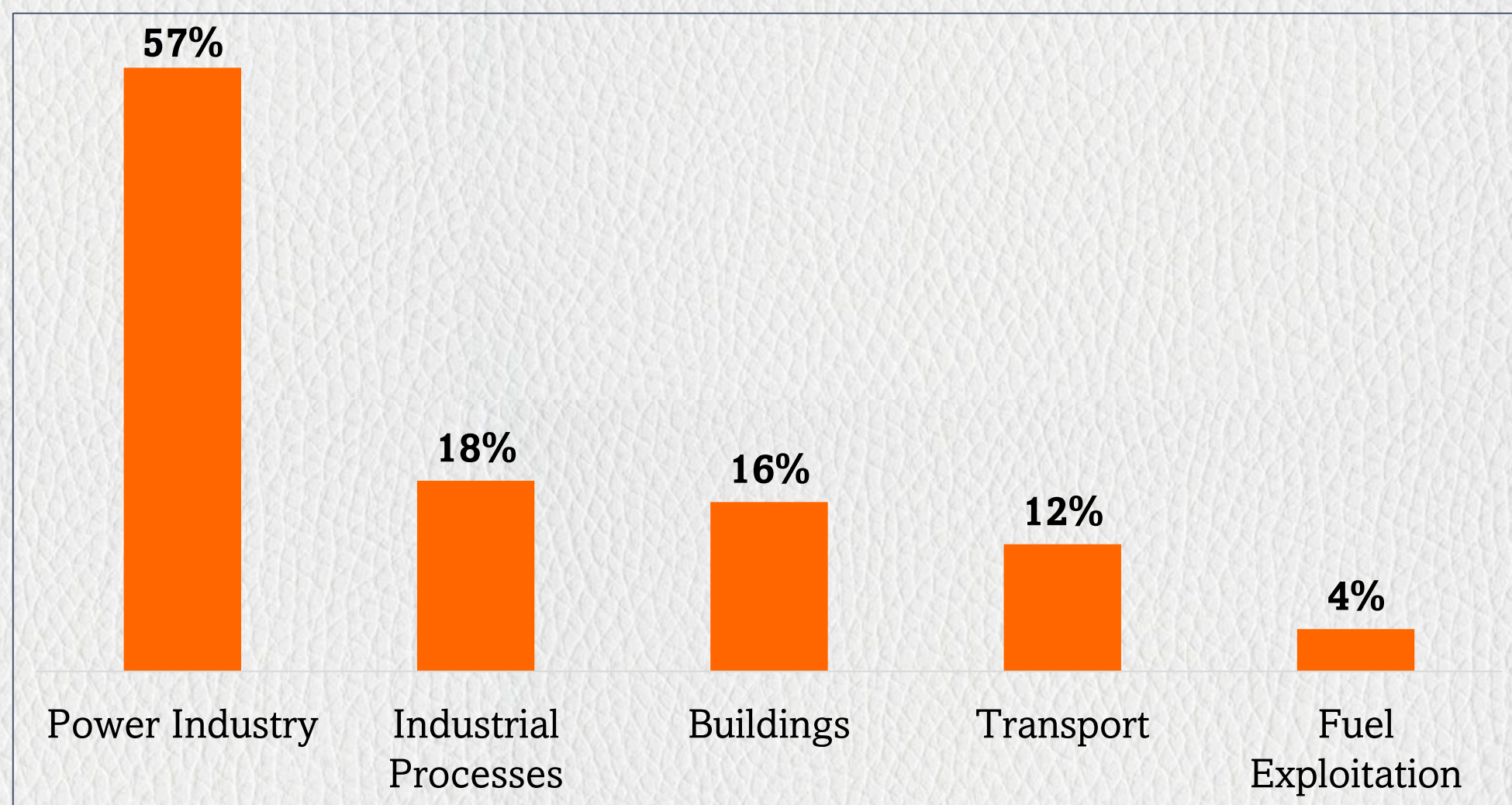


## Plastic & Waste Crisis

- Daily Waste: 25,000 tons (only 50% collected)
- Dhaka's Plastic Use: 3.3M tons/year – clogs 40% drains
- Rivers Carry: 73,000 tons plastic to Bay of Bengal/year
- E-Waste: 2.8M tons/year (lead/mercury into crops)



### Major Emitting Sector



(Source: Our Word In)

Sector	% of Emissions	Major Sources
Energy	62%	Power plants (coal/gas), Industries
Transport	15%	Old vehicles (60% > 15 yrs old)
Agriculture	12%	Rice paddies, livestock (methane)
Waste	6%	Landfills, wastewater
Other	5%	Deforestation, cement

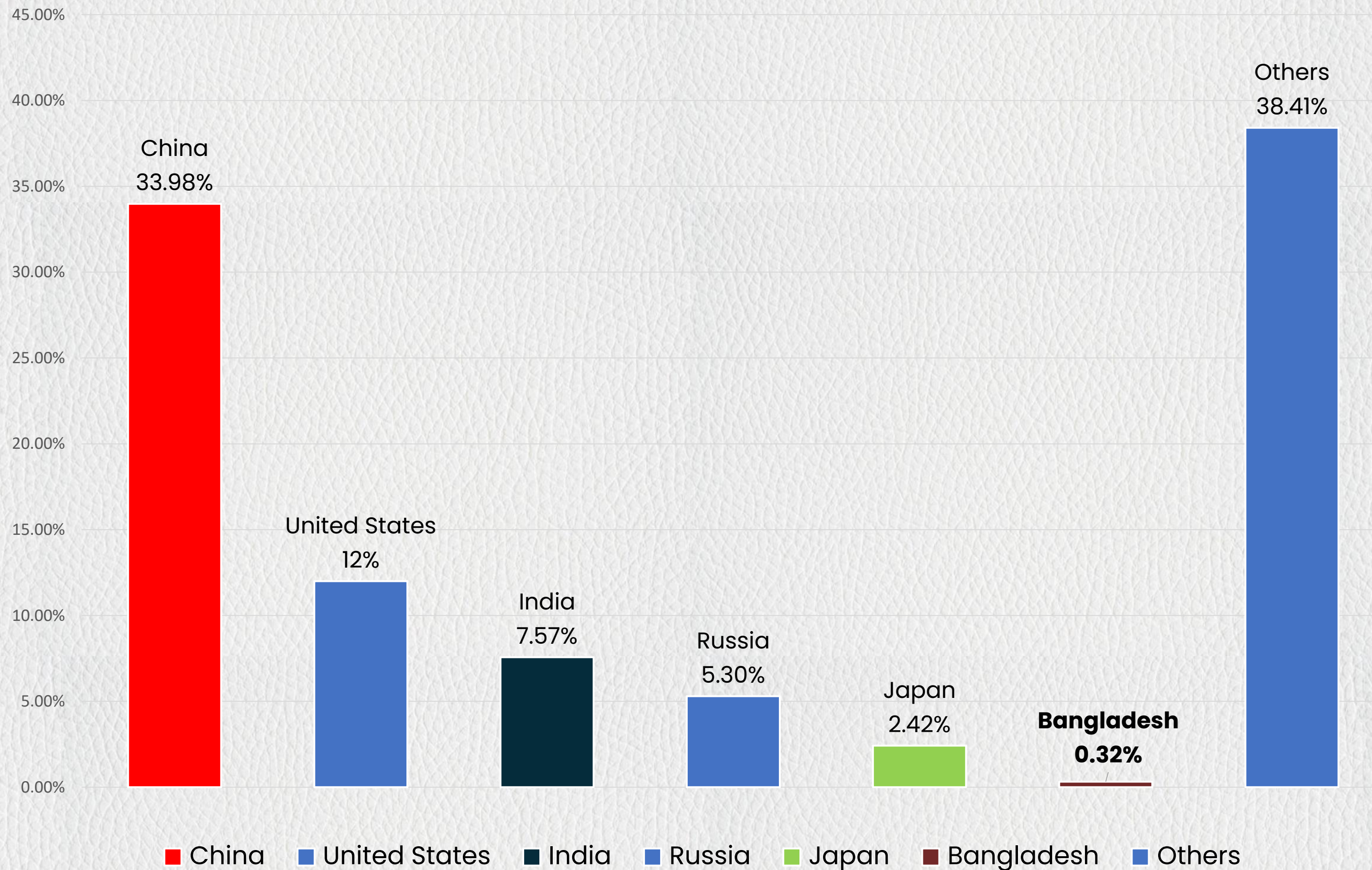
(Source: Bangladesh Bureau of Statistics, 2023)

Target Type	Reduction Goal by 2030	Compared to	Sectoral Focus
Unconditional Target	6.73% reduction	Business-as-usual (BAU) level	<ul style="list-style-type: none"> <li>• Energy</li> <li>• Industry (cement, steel, leather etc.)</li> <li>• Waste (solid waste, wastewater)</li> <li>• Agriculture</li> <li>• Forestry</li> </ul>
Conditional Target	15.12% reduction (including the above)	BAU, if international support (finance, tech, capacity building) is provided	

Bangladesh's GHG Reduction Target by 2030 (NDC 2021)

**Current Renewable Energy- 4.5%    Target- 30% by 2030**

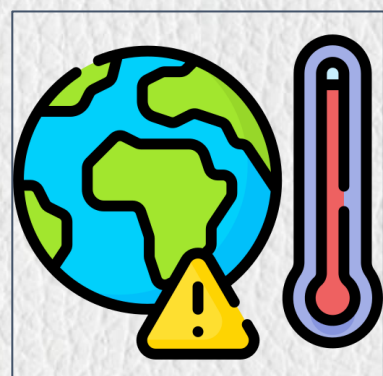




**In 2024, Total emission is 41.2B Ton, which is 0.8% more than 2023 (37B Ton)**

Source: IEA





**Global Temperature**  
**+1.1°C since 1900**

**Arctic**  
**+3.3 °C**

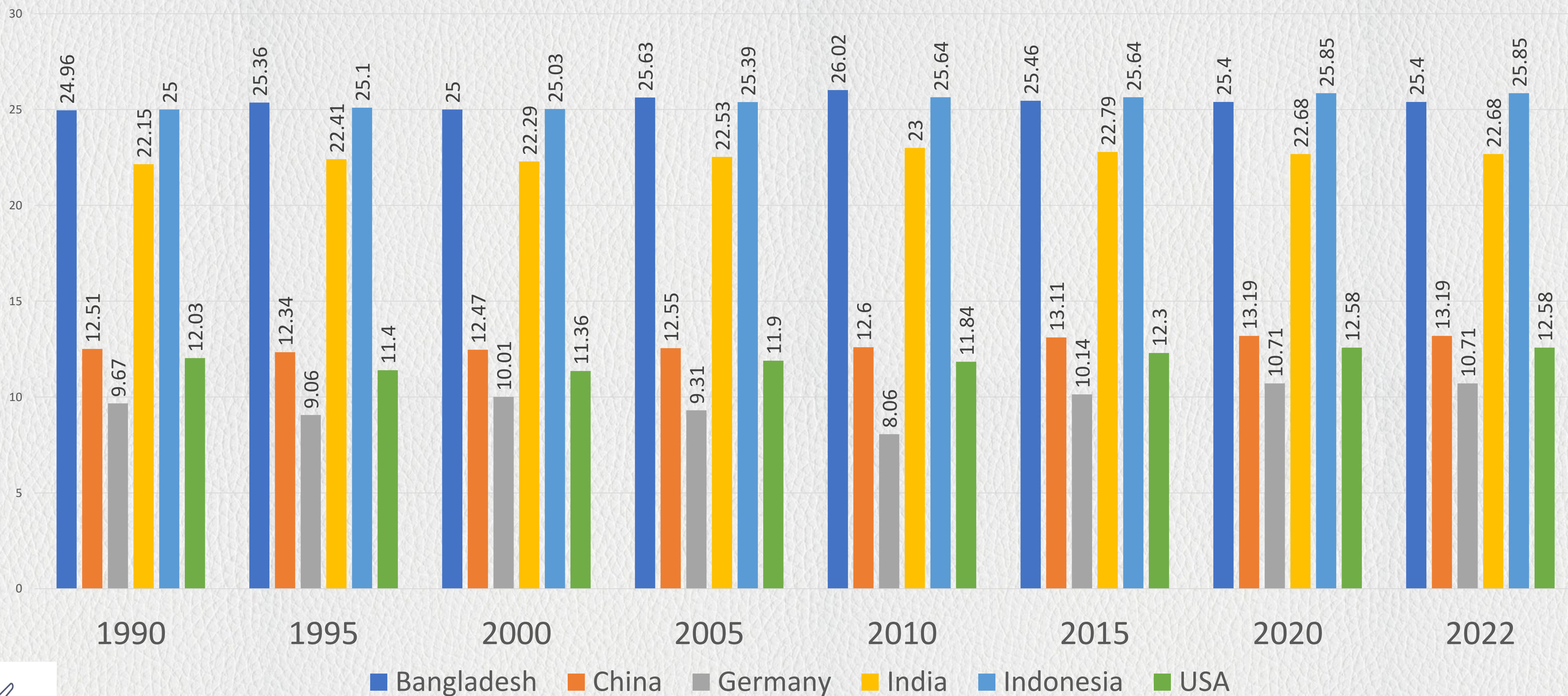
**WMO RA VI**  
**+2.5 °C**

**Europe**  
**+2.4 °C**

**BD**  
**+ 0.84°C**

*(Latest five years averages from ERAS)*

## Year-wise Average Temperature Increase (°C)



**2023: Hottest year**

**2014-2023 = Warmest decade in 125,000 years**

**Extreme Weather:**

**+400% increase** in climate disasters since 1980

**Arctic ice loss of 13% per decade**

**Sea level rise 3.7 mm/year → Total: 10 cm since 1900**



**Fixing climate change is like stopping a speeding train –the longer we wait, it becomes harder.**



## Average daily temperature increase of 1.0°C by 2030 and 1.4°C by 2050

### Extreme Weather

- **Sea level rising 7-8 mm/year** (3x global average) (BMD, 2024)
- **Cyclones: 2x more frequent since 1980** (BMD)
- **Floods: 60-70% of land flooded every 4-5 years** (World Bank)
- **Heatwaves: +0.5°C per decade** in cities (Dhaka, Khulna)
- **By 2050, 17% land could be underwater** (displacing **20 million people**) (IPCC)

### River Erosion & Displacement

- **10,000 hectares** lost yearly to rivers (BWDB, 2023)
- **500,000 people** displaced annually (IDMC, 2024)



### Agriculture & Food Security at Risk

- Rice yields could **drop 8%** by 2050 (FAO)
- Salinity intrusion **affects 30%** of arable land (SRDI, 2023)



## Net Zero by 2050

Net zero refers to the balance between the amount of greenhouse gases emitted into the atmosphere and the amount removed, resulting in no net increase in GHG concentrations

- It aligns with the goals of the Paris Agreement
- Aims to limit global warming to well below **2°C** above pre-industrial levels, with efforts to keep it below **1.5°C**.
- IPCC has estimated that to have a **50% chance** of limiting warming to 1.5°C, global CO<sub>2</sub> emissions must reach net zero by around 2050.
- By 2050, achieving net zero emissions requires significant action.



## Energy Transition

- By 2050, the share of renewable energy in the global energy mix must increase to **90%** to achieve **carbon neutrality**.
- This transition includes scaling up solar, wind, hydro, and other renewable sources to replace fossil fuels.



## Tech Transition & Efficient Manufacturing

- Implementing energy-efficient machinery cuts industrial emissions by **up to 20%**.
- Examples include AI-driven predictive maintenance and IoT sensors.



**Why?**

**Just Climate, Energy & Tech Transition**

for the  
**Tannery Sector of Bangladesh**



The tannery sector in Bangladesh, while economically significant (particularly as part of the leather export value chain), makes a disproportionately high contribution to climate change and environmental pollution, especially considering its localized concentration in Savar Tannery Industrial Estate (TIE).



Oldest and most labor-intensive industries.



It processes raw hides into finished leather for both domestic use and export.



Bangladesh is the top 10 leather and leather goods exporters.



Major export destinations include the EU, China, Japan, and the USA.

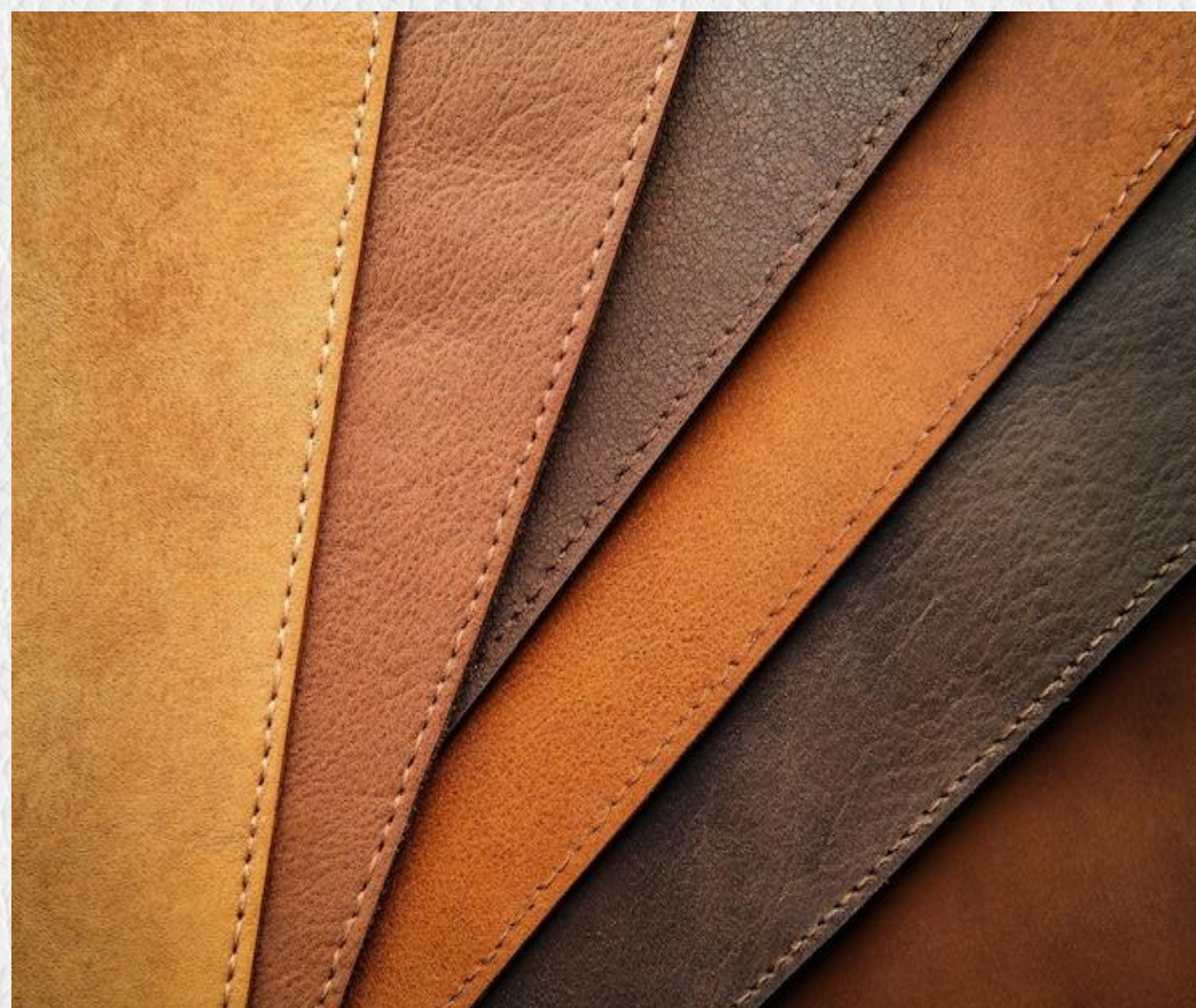


220 tanneries (mostly relocated from Hazaribagh to Savar Tannery Industrial Estate).



Employs more than **850,000** workers, many in hazardous conditions.





**GDP contribution**  
+0.22%

**Export**  
1.04B (\$)

**Export**  
2.34%

**Export reduction**  
11%

Source: EPB (2023-2024)



**60%**  
**women workforce**

**850,000**  
**workers**

**CETP coverage**  
**150 tannery**

**25,000 Cubic Feet**  
**CETP Capacity**

Source: EPB





**GHG Emissions:** High (energy intensive, fossil-fuel dependent)



**Water Pollution:** Very High (toxic discharge, poor treatment)



**Soil Contamination:** High (open dumping of chrome waste/sludge)



**Air Pollution:** Moderate (odors, gas emissions from chemicals)



**Public Health Risk:** Severe (chronic exposure for workers/locals)



# Tannery's Contribution to Climate Change (BD)



## Greenhouse Gas (GHG) Emissions

- **Energy Source:** fossil-fuel, gas, diesel, oil).
- **Estimate:**
  - Produces **(0.75) kg of CO<sub>2</sub> per sq. ft of finished leather.**
  - Emits **10,000 Tons of CO<sub>2</sub> annually.**



## Water Pollution

**Toxic Effluent Discharge: 20,000–30,000 m<sup>3</sup>** of wastewater generated daily. Leading to an overflow of untreated wastewater into nearby rivers. **Chromium** (from tanning) **Sulfides, Ammonia, BOD, COD** contains in polluted water.





## Impact on Water Bodies

**Dhaleshwari River** is now classified as biologically vulnerable.

- Massive fish mortality, biodiversity collapse, and unfit water for irrigation or household use.



## Solid & Hazardous Waste

- Chrome Shavings and Sludge.
- Savar's solid waste generation (BSCIC, June 2018) dramatically increases from **25 Ton/day** during Off-peak (with **2-6 kg/Ton Cr** contamination) to 100 Ton/day during Super-peak.
- Most waste is improperly dumped in open land, contaminating soil and groundwater.





## Air Pollution and Odor

- **Toxic chemical:** The odor threshold value for H<sub>2</sub>S is **0.5 ppm**, or **0.7 µg/m<sup>3</sup>** (DoE).
- **Disease:** Contributes to respiratory problems and air quality degradation for surrounding communities. Affected rates were about: children 10–15%, adolescents 15%, adults 20-25%, and old age 8-12% (DoE).



## Public Health & Livelihood Impact

- **Health impacts:** Skin disease, respiratory illness, heavy metal exposure among workers and residents. In Savar, 84.2% of workers reported job-related health problems, with common issues including musculoskeletal disease (65.5%), gastrointestinal problems (38.9%), skin disease (37.9%), respiratory disease (26.6%), and eye disease (17.7%).



## Estimated Contribution of the Tannery Sector to GHG Emissions

### Quantitative Estimates

Each square foot of processed leather emits approximately **(1.7–2.3) kg of CO<sub>2</sub>-equivalent**, depending on process type, chemicals used, and fuel source.

In Savar tanneries, may emit **50,000–80,000 MT** of CO<sub>2</sub>-equivalent annually, based on fuel usage and operational scale.

Emission Source	Type of GHG	Details
<b>Fossil Fuel Combustion</b>	CO <sub>2</sub>	From boilers (natural gas/diesel), generators, hot water systems
<b>Electricity Consumption</b>	CO <sub>2</sub> (indirect)	From grid-based power (mostly fossil fuel-based)
<b>Chemical Reactions in Processing</b>	Green marketing	Use of lime, acids, and solvents during liming, tanning, pickling
<b>Wastewater (Organic Decomposition)</b>	CH <sub>4</sub> , N <sub>2</sub> O	From untreated or partially treated effluent containing organic load
<b>Solid Waste (Sludge, Hair, Fleshing)</b>	CH <sub>4</sub>	Emitted from decomposition in open dumps or informal landfills



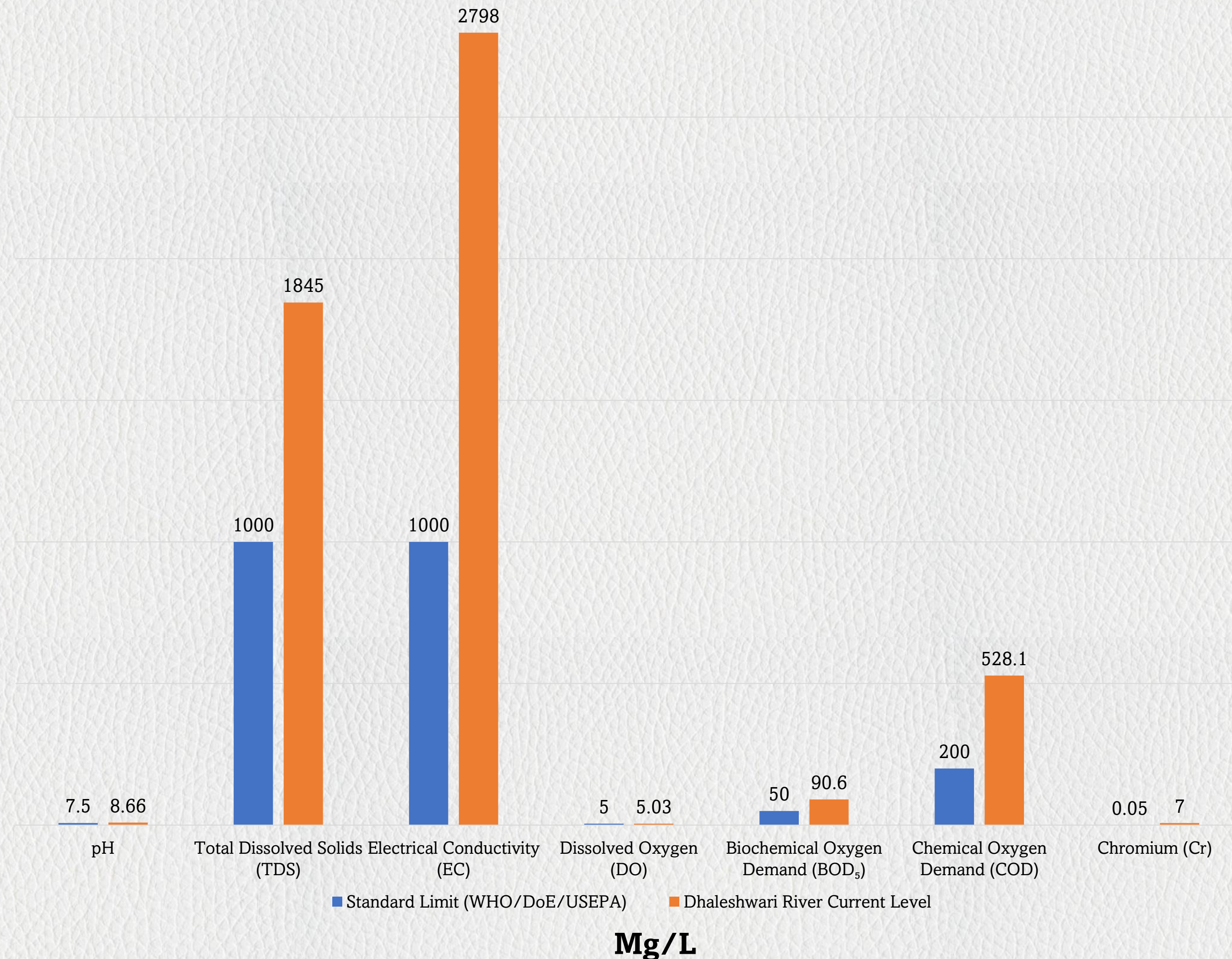
Summary

- **Fish mortality** is widespread.
- **Irrigation water is no longer safe.**
- **Heavy metals (especially Chromium)** exceeded safe levels by 20–40 times.
- **Severe impact** on soil, crops, and human health (skin diseases, respiratory problems).
- **Chromium (Cr)** contamination is alarmingly above safe limit.
- **Suspended solids, ammonia, fecal bacteria** are way beyond safe limits.

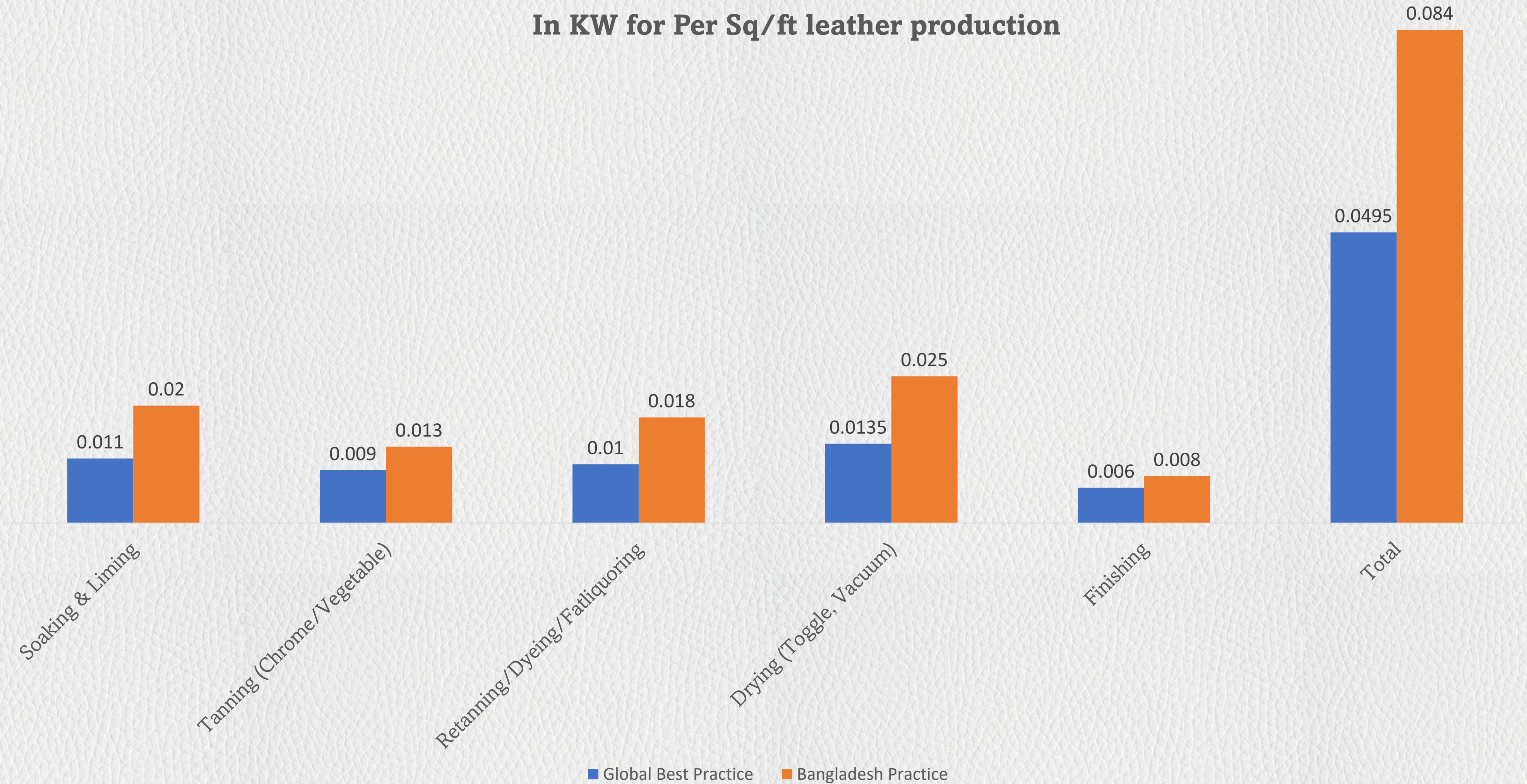
**Organic Pollution:** BOD and COD levels are much higher than standard levels, indicating severe **decomposition of organic materials** which causes oxygen depletion.

**Aquatic Life Threatened** causing death of fish and aquatic organisms.

**Human Risk:** Water with such parameters is **unsuitable for drinking, irrigation, or recreation** without serious treatment.



## In KW for Per Sq/ft leather production



**Bangladeshi tanneries use ~70% more energy per square foot than global best practice standards.**

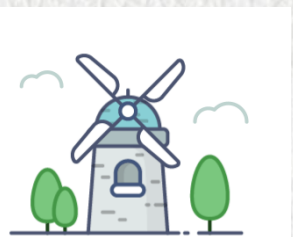


## Current Scenario – Bangladesh Tanneries

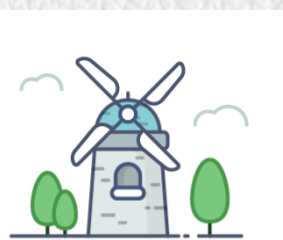
- **Water Use:** 30–50 liters/kg rawhide (2–3x global average)
- **Energy Use:** 1.5–2.5 kWh per sq ft of leather
- **Technology:** Largely outdated; minimal automation
- **Water Source:** 100% groundwater, causing aquifer depletion
- **ETP Coverage:** <50% fully functional
- **Certifications:** Very few LWG or ISO 14001-compliant

### Why this matters?

- **Risk:** Export loss due to EU Due Diligence laws (CSDDD)
- **Cost:** Higher utility bills from inefficiency
- **Environmental:** High pollution, low sustainability
- **Social:** Missed opportunity for green job creation



Category	Bangladesh Tannery Sector	Global Best Practices / Standards
Water Usage per kg of hide	30–50 liters	10–25 liters (with recycling) – EU BAT standards
Water Source	100% Groundwater (deep tube wells)	Surface water + Rainwater harvesting
Water Recycling & Reuse	Rare or minimal reuse; most effluent untreated	50–80% reuse after treatment in ETP/STP
Effluent Treatment Plants (ETP)	Many tanneries lack independent or functional ETPs	Mandated full-scale ETP/STP, meeting discharge norms
Energy Use per sq ft leather	1.5–2.5 kWh	0.5–1.2 kWh (with energy-efficient tech)
Energy Source	Mainly Natural Gas, Diesel, Grid Electricity	Renewables + Efficient Boilers/Heat Recovery
Technology & Equipment	Outdated machinery, high energy waste	Modern drum systems, automatic process controls
Carbon Footprint Awareness	Very low	Tracked under LWG, ISO 14001, or ESG frameworks
Water Pollution Load	High BOD, COD, Chromium loads in untreated effluents	Reduced through Cleaner Production & Closed-loop tech
Certifications (e.g., LWG)	Very few certified tanneries	Global brands demand Leather Working Group (LWG) Gold



# Tannery Water Usage Comparison

Parameter	Global Standard	Bangladesh (Current Practice)
Water Usage per ton of rawhide	25,000–30,000 liters	30,000–40,000 liters
Best practice (advanced tech)	12.7–17.6 liters per kg of rawhide ( $\approx$ 12,700–17,600 L/ton)	Not widely implemented
Artisanal tannery usage	10–18 liters per kg ( $\approx$ 10,000–18,000 L/ton)	Not systematically recorded
Water-saving innovations	Hair-save liming, low-salt curing, DriTan technology	Limited adoption, mostly traditional soaking and liming
Water recycling/reuse rate	Up to 40% (e.g., Scottish Leather Group)	Minimal reuse; CETP at Savar still underperforming
Compliance with Leather Working Group	High among certified tanneries using water-saving tech	Only a few Bangladeshi tanneries are LWG certified
Environmental concern	Strong regulatory enforcement; low discharge allowed	Frequent violations of effluent standards; weak enforcement
Effluent Treatment Plants (ETP/CETP)	Mandatory and well-maintained	CETP at Savar incomplete/inefficient; many ETPs non-functional or bypassed



Indicator	Global Benchmark	Achievable Target for Bangladesh
<b>Water Use/kg hide</b>	10–25 liters (EU BAT)	≤ 25 liters with reuse
<b>Energy Use/sq ft leather</b>	0.5–1.2 kWh	≤ 1.5 kWh with efficient tech
<b>ETP Compliance</b>	100% functional ETP per unit	100% coverage & discharge within limits
<b>Chromium Recovery</b>	90–95% recovery in closed-loop systems	Introduce Cr-recovery & reuse
<b>Certification</b>	LWG/ISO 14001 mandatory for export markets	Certify 50%+ tanneries within 2 years













- The **tannery sector** ranks as one of the **most environmentally polluting** industries in Bangladesh, especially in terms of **water contamination** and **toxic waste**.
- **Worker exposure to hazardous chemicals** is **highest in tanneries**, with very limited protective gear or formal OHS systems.
- While the **RMG sector** has better monitoring due to buyer pressure, **tanneries lag behind in both compliance and social protection**.
- **Textile wet processing** is also a major polluter, but receives more policy and buyer support for transition.
- **Brick kilns and steel** pose massive air pollution risks but face less global pressure for compliance (so far).

### Why This Comparison Matters






- Tannery sector **urgently needs a just transition**, more than most sectors.
- It is **under serious scrutiny** from global buyers, environmental watchdogs, and local communities.
- Without intervention, the sector risks **isolation from global markets, community backlash, and workforce dislocation**.



# Climate Change Contributing Sectors in BD

	Criteria	Tannery Sector	Ready-Made Garments (RMG)	Textile/Washing	Steel/Re-Rolling Mills	Brick Kilns
	<b>GHG Emissions</b>	● High (gas/diesel-based boilers, drying, tanning)	● Moderate (electric/gas use, logistics)	● High (steam-intensive dyeing/finishing)	● Moderate (furnaces, mostly fossil fuel powered)	● Very High (coal/wood fired kilns)
	<b>Water Consumption</b>	● Very High (30–50L per kg of rawhide)	● Moderate (10–20L per garment incl. washing)	● Very High (up to 150L per kg fabric)	● Low (mostly dry process)	● None
	<b>Water Pollution Load (BOD/COD/Cr etc.)</b>	● Extremely High (toxic chrome, sulfides)	● Medium (chemicals from dyeing and washing)	● High (colorants, acids, microplastics)	● Minimal	● Minimal
	<b>Air Pollution</b>	● Moderate (chemical fumes, odors)	● Low	● Moderate (steam, VOCs from solvents)	● Moderate (dust, furnace emissions)	● Severe (PM2.5, SOx, NOx, black carbon)
	<b>Solid &amp; Hazardous Waste</b>	● High (chrome sludge, hair, fleshing, trimmings)	● Medium (fabric off-cuts, packaging)	● Medium (sludge, dye waste)	● Low	● High (fly ash, black soot)
	<b>Worker Exposure to Hazards</b>	● Very High (chemical, biological, heat)	● Moderate (ergonomic, dust, chemical for dyeing)	● Moderate (chemical, steam, high temp)	● High (metal fumes, heat)	● High (smoke, silica dust)
	<b>OHS &amp; PPE Compliance</b>	● Low in most tanneries	● Improving but inconsistent	● Variable across units	● Moderate	● Very Low
	<b>Environmental Compliance (DoE)</b>	● Poor (ETPs often non-functional or bypassed)	● Partial (improving with pressure from buyers)	● Weak (very few have functional CETPs)	● Medium	● Very Poor
	<b>Global Compliance Pressure</b>	● High (LWG, EU CSDDD, ISO 14001)	● High (Higg Index, Accord, Alliance, ESG reporting)	● Growing (ZDHC, GOTS, OEKO-TEX)	● Low	● Low
	<b>Just Transition Relevance</b>	● Urgent need (high risk to jobs, pollution hotspots)	● Needed (automation, energy shift ongoing)	● Relevant (modernization demands)	● Moderate relevance	● High (target for elimination/substitution)

# Impact of the Tannery Sector (BD)

Stakeholder	Impact
 <p><b>Local Communities &amp; Neighborhoods</b></p>	<ol style="list-style-type: none"> <li>1. Contaminated rivers (e.g., Dhaleshwari) affect household water and agriculture.</li> <li>2. Toxic air and odors lead to respiratory problems</li> <li>3. Land degradation limits farming/gardening options</li> <li>4. Decreased property values due to industrial pollution and noise</li> </ol>
 <p><b>Tannery Workers</b></p>	<ol style="list-style-type: none"> <li>1. Direct exposure to hazardous chemicals (chromium, sulfides, acids)</li> <li>2. Poor OHS practices increase injury, disease, and absenteeism</li> <li>3. Job insecurity from automation or environmental shutdowns</li> <li>4. No access to health insurance or compensation for pollution-related illness</li> </ol>
 <p><b>Employers / Tannery Owners</b></p>	<ol style="list-style-type: none"> <li>1. Frequent regulatory pressure and risk of closure/fines</li> <li>2. Loss of premium buyers and export orders due to LWG/ISO non-compliance</li> <li>3. Increased production costs due to inefficiency and pollution penalties</li> <li>4. Negative brand image among local and international stakeholders</li> </ol>
 <p><b>Surrounding Communities</b></p>	<ol style="list-style-type: none"> <li>1. Collapse of fish stocks from river pollution destroys fishing livelihoods .</li> <li>2. Polluted irrigation water reduces crop yield and health risks</li> <li>3. Decrease in local economic activity due to unlivable conditions and disease burden</li> </ol>
 <p><b>Country (Bangladesh)</b></p>	<ol style="list-style-type: none"> <li>1. Undermines national climate goals and NDC targets</li> <li>2. Loss of export competitiveness in global leather markets</li> <li>3. Pressure from global buyers and regulators (e.g., EU CSDDD, US DFC)</li> <li>4. Increased health care burden on public systems</li> </ol>





01

Studies have shown high chromium levels in worker urine.

02

No protective gear, health checkups, or occupational safety for most low-wage tannery workers



01

The Dhaleshwari River, once a lifeline, is now biologically dead in parts due to untreated effluents

02

Children develop skin rashes and asthma living near tanneries

03

Farmers in Savar and Keraniganj report crop failure and groundwater contamination



01

In 2023, Bangladesh leather exports were rejected by multiple European buyers due to environmental non-compliance.

02

The Bangladesh Climate Vulnerability Index rises with continued local pollution contributing to national GHG totals.

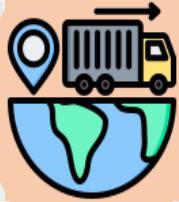


## If Unaddressed, the Consequences

- **High emission intensity:** While overall GHG volume is moderate, emissions per unit of leather are among the highest in industrial manufacturing.
- **No energy recovery:** Heat and gas from processes are wasted.
- **Untreated effluents** emit **methane and nitrous oxide**, potent greenhouse gases.
- **Cleaner production practices** (e.g., solar drying, gasification, process optimization) could reduce emissions by **30–50%**.



**Mass layoffs** due to factory closures under new green trade laws.



**Loss of billions** in exports to environmentally conscious markets.



**Irreversible damage** to ecosystems, rivers, and public health



## Why This Matters Now



Bangladesh is globally vulnerable to climate change and cannot afford high-emitting, highly-polluting industries.



The sector faces pressure from global buyers to meet environmental due diligence (EU CSDDD, LWG).



A Just Transition is essential to transform the industry without sacrificing workers' rights or environment



## Protecting Workers Amid Environmental Reforms

- Environmental upgrades (ETPs, cleaner tech) may lead to **job losses or role shifts**.
- Many workers are **semi-skilled** and **unaware of upcoming changes**, risking displacement.
- Without a just transition, **vulnerable workers (especially women and youth)** could be excluded from future job opportunities.

## Responding to Pollution and Compliance Demands

- Tannery pollution has led to **strict international scrutiny**.
- Buyers increasingly demand **LWG, ZDHC, ISO 14001** compliance.
- Sudden environmental regulations **without worker preparedness** could disrupt production and harm livelihoods.

## Energy and Water Transition Pressure

- The shift to **renewable energy, efficient water use, and cleaner production** is urgent.
- These require **technical retraining** of workers to operate and maintain new systems.



## Social Justice & Equity

- The workforce—often from poor, marginalized communities—is already at a disadvantage.
- A just transition ensures **fairness, inclusion, and support**, especially for:
  - Contract/casual labor
  - Women workers in low-wage jobs
  - Those exposed to hazardous conditions

## Creating Green & Decent Jobs

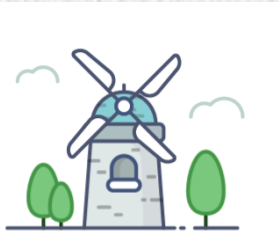
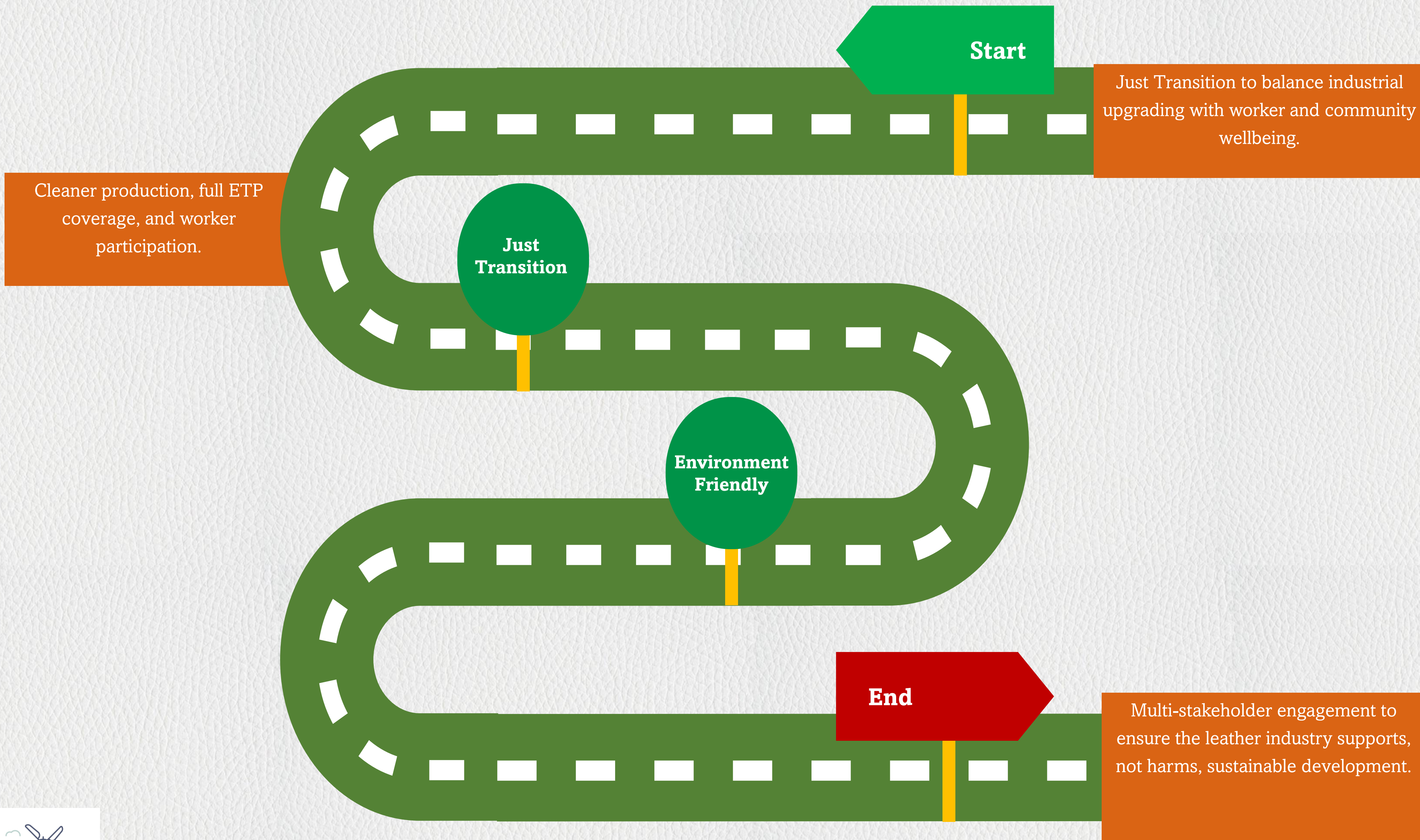
- Environmental modernization creates new opportunities (e.g., **ETP operators, waste managers, energy technicians**).
- A just transition ensures **these jobs are decent, safe, and accessible to current workers** through skilling and inclusion.

## Industrial Growth without Human Cost

- Without inclusive planning, reforms may **increase inequality**, harm social cohesion, and provoke labor unrest.
- A just transition integrates **social dialogue, worker voice, and collective bargaining** into the reform process.



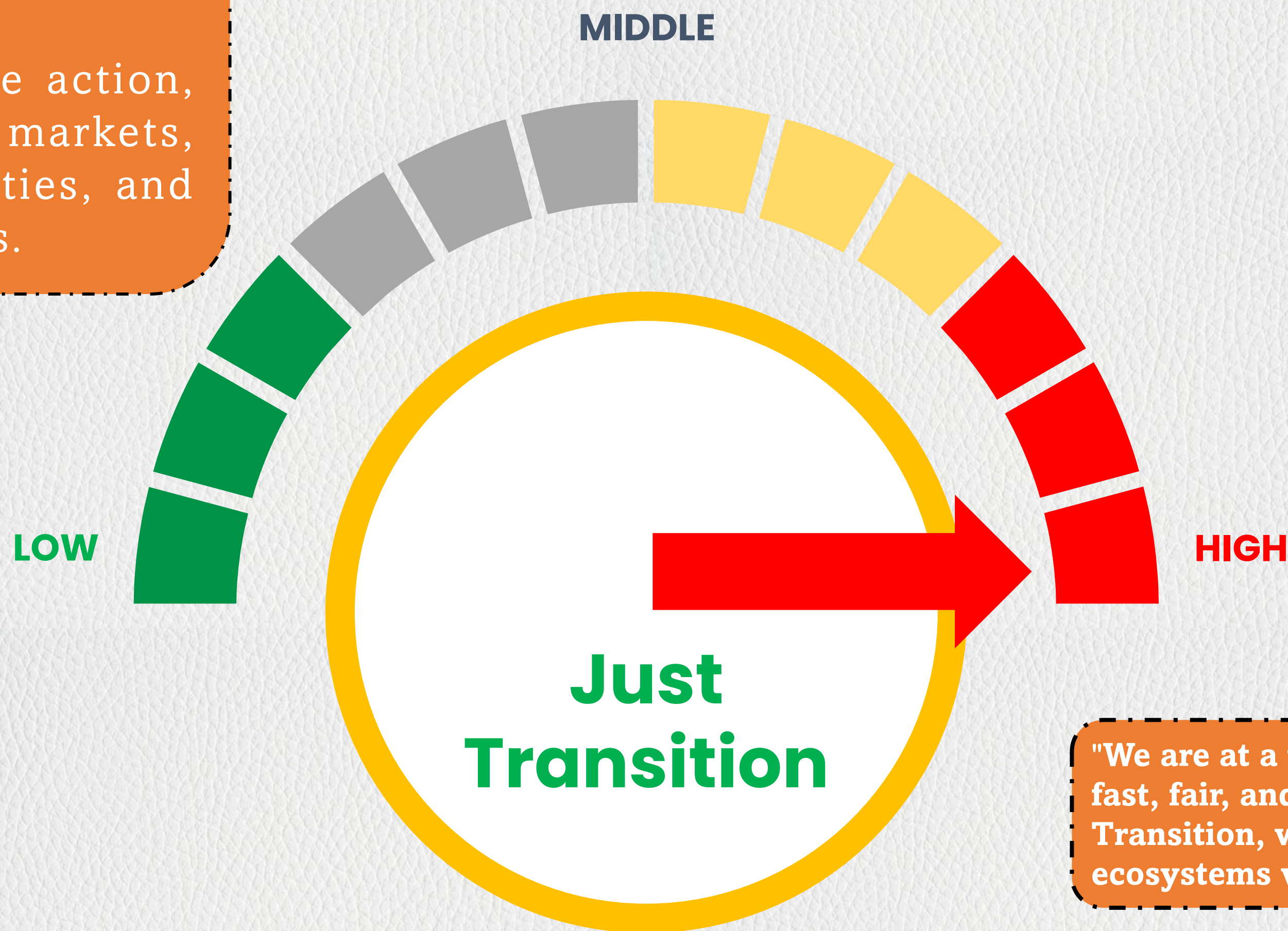
# Way Forward



## Urgency of Just Transition

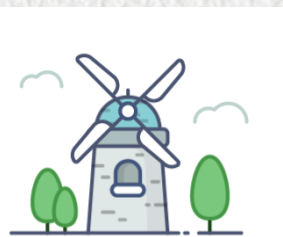
Tannery sector faces intense pressure from global buyers, regulators, and communities.

Without immediate action, it risks losing markets, harming communities, and displacing workers.



"We are at a tipping point — without a fast, fair, and inclusive Just Transition, workers, industries, and ecosystems will all face collapse."

### Just Transition urgency





According to the International Labour Organization (ILO), a '**just transition**' means: greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind.

## “Not Just a Transition A Just Transition”



### Participatory

All workers and communities of the world will have active participation in this.



### Decent Work

Decent work will be ensured for everyone. At the same time, job security will be created and alternative jobs will be created.



### Training

There will be provisions for education and skill development training and opportunities to acquire new skills for everyone.



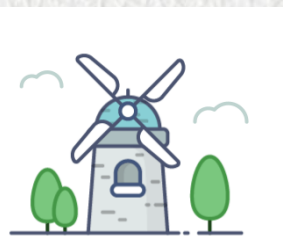
### Democratic Rights

Workers will have full rights to form unions, work independently, and participate in policymaking.

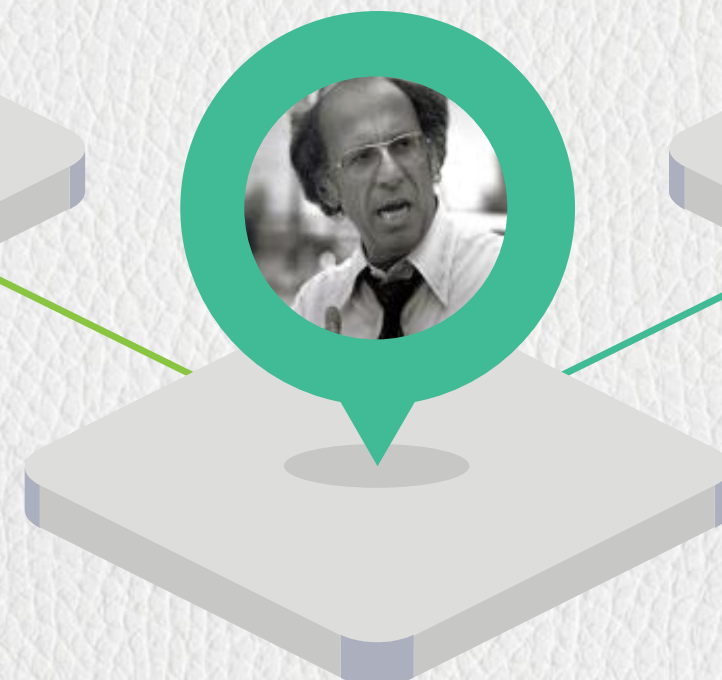
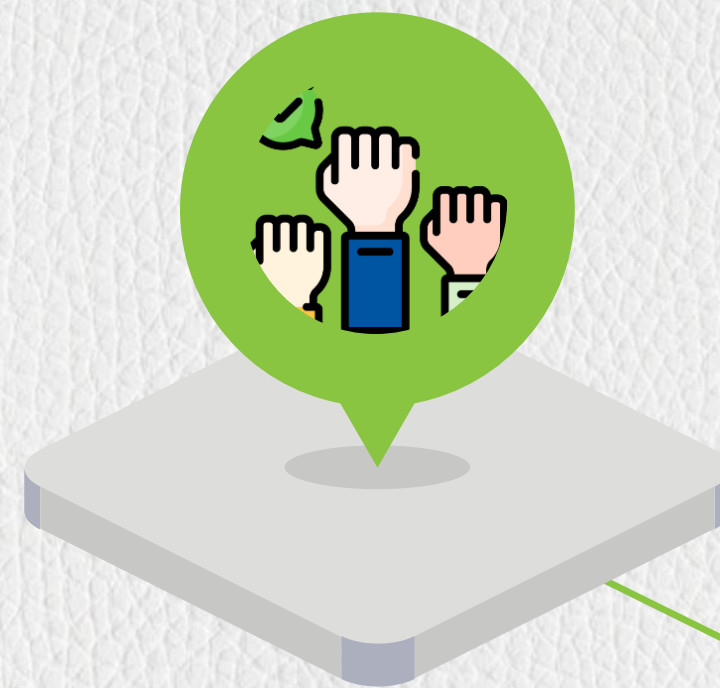


### Social Security

To reduce the impact of job losses, there will be a social safety net, and all workers and communities will be covered by it.



Originated in the 1980s through the trade unions of North America.



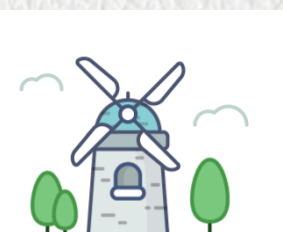
In the 1990s, Tony Mazzocchi introduced “Superfund” for the workers.

In 1997, the Kyoto Protocol set targets for reducing greenhouse gas emissions, and in the same year, the Just Transition Alliance was established.



In 2015, the Paris Agreement (COP21) adopted decisions on reducing greenhouse gas emissions.

In 2025, at COP29 (Baku), global leaders emphasized the urgency of just transition—prioritizing emission cuts without leaving workers or communities behind.



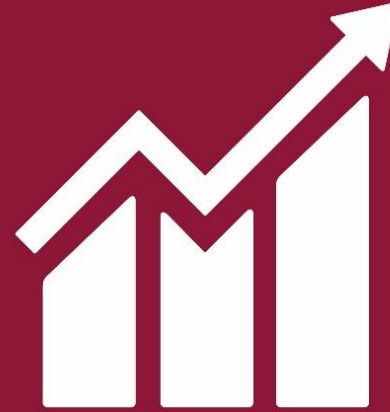
**5** GENDER  
EQUALITY



**7** AFFORDABLE AND  
CLEAN ENERGY



**8** DECENT WORK AND  
ECONOMIC GROWTH



**9** INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



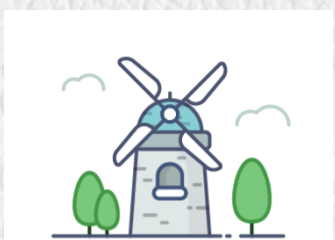
**10** REDUCED  
INEQUALITIES



**12** RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION

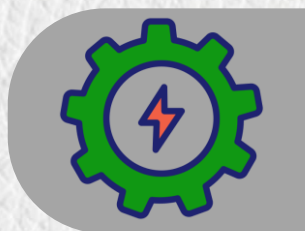


**13** CLIMATE  
ACTION





Improved worker safety and occupational health



Environmentally friendly production processes



Worker's reskilling and upskilling



Reduces pollution, lowering health risks for local communities



Sustainable and competitive industry



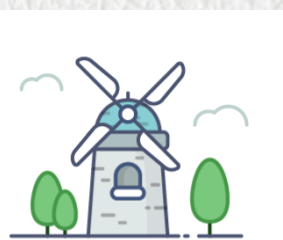
Women's participation and empowerment



Protects local livelihoods and the environment



Environmental and social justice



## Benefits of Just Transition in the Tannery Sector

Aspect	With Just Transition	Without Just Transition
<b>Workers</b>	Retrained, protected, included	Job loss, exclusion, health risks
<b>Industry</b>	Sustainable growth, better buyer compliance	Disruption, brand rejection, export decline
<b>Environment</b>	Cleaner processes with community support	Resistance from workers and social backlash
<b>Economy</b>	Green job creation and long-term competitiveness	Short-term fixes, long-term instability

### Climate Resilience

Reduced emissions, energy savings, cleaner water bodies

### Worker Empowerment

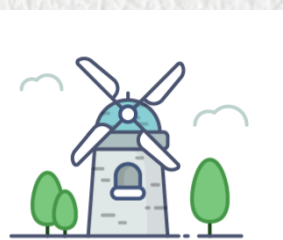
Safer work, green jobs, reskilled workforce

### Industrial Competitiveness

Compliance with LWG, ISO, ESG—better market access

### Community Wellbeing

Lower pollution, improved public health, trust restored



Category	Cost (Short-Term)	Benefit (Long-Term)
<b>Infrastructure &amp; Equipment</b>	<ul style="list-style-type: none"> <li>○ Investment in ETPs or CETPs</li> <li>○ Energy-efficient machines (e.g., drums, boilers)</li> <li>○ Chrome recovery systems</li> </ul>	<ul style="list-style-type: none"> <li>• Lower energy &amp; water bills</li> <li>• Reduced chemical use</li> <li>• Longer machine life span</li> </ul>
<b>Worker Training &amp; Reskilling</b>	<ul style="list-style-type: none"> <li>○ - Time &amp; money for staff upskilling</li> <li>○ Temporary productivity dip during training</li> </ul>	<ul style="list-style-type: none"> <li>• Skilled workforce for modern processes</li> <li>• Fewer accidents &amp; sick leaves</li> <li>• Higher productivity</li> </ul>
<b>Certification Costs</b>	<ul style="list-style-type: none"> <li>○ LWG, ISO 14001 audits</li> <li>○ Cost of documentation, consultants, assessments</li> </ul>	<ul style="list-style-type: none"> <li>• Access to premium buyers</li> <li>• Higher unit price per leather sq ft</li> <li>• Better export image</li> </ul>
<b>Production Adjustments</b>	<ul style="list-style-type: none"> <li>○ Temporary disruption during system changeover</li> <li>○ Costs for trials and process tweaks</li> </ul>	<ul style="list-style-type: none"> <li>• Consistent product quality</li> <li>• Less rework/rejection</li> <li>• Reduced chemical input cost</li> </ul>
<b>Social Dialogue &amp; Labour Engagement</b>	<ul style="list-style-type: none"> <li>○ Time spent in negotiation</li> <li>○ Slight increase in worker benefits if needed</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced turnover</li> <li>• Increased morale &amp; trust</li> <li>• Fewer strikes/conflicts</li> </ul>
<b>Waste &amp; Effluent Management</b>	<ul style="list-style-type: none"> <li>○ Cost of effluent testing, sludge disposal, maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance with environmental law</li> <li>• Avoided DoE penalties</li> <li>• Healthier worksite</li> </ul>
<b>Monitoring &amp; Reporting</b>	<ul style="list-style-type: none"> <li>○ Setup of environmental-social tracking systems</li> </ul>	<ul style="list-style-type: none"> <li>• Data-driven improvements</li> <li>• Buyer trust and long-term contracts</li> </ul>



## Strategic Benefits Beyond Numbers

Strategic Area	Benefit to Employer
Market Access	Eligibility for EU/US green supply chains
Brand Reputation	Positive image as a sustainable supplier
Legal Risk Mitigation	Avoid fines, shutdowns, and bad press
Workforce Stability	Reduced absenteeism, protests, and turnover
Innovation & Resilience	Future-proofing against stricter climate/environment norms



## Spain's Transition Agreements

- Closed coal mines aligned with EU climate goals.
- **Tripartite deal:** government, unions, employers.
- Support for workers: reskilling, early retirement, job placement.
  - Regional plans for **green jobs** and economic renewal.
    - **€250 million** public funding for transition.
      - Community involvement in planning.
  - A leading example of socially **fair climate action**.



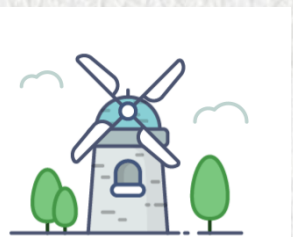
## Germany's Coal Phase-Out

- Plan to exit coal by 2038 (possibly 2035).
- **€40 billion** package for affected regions includes infrastructure, innovation hubs, and green jobs.
- **Worker protections:** retraining, pension bridging, and job transitions. Strong regional and stakeholder engagement.
- Focus on balancing climate goals with social justice.



## Canada's Task Force

- Established in 2018 to guide **coal phase-out policy**.
- Consulted widely with workers, communities, and Indigenous groups.
- Recommended **support for workers:** income support, retraining, pension.
  - Emphasis on community-driven transition planning.
- Federal funding committed for skills training and economic diversification.
  - Set the foundation for a **national Just Transition framework**.



Objective	Action Steps
<b>Reduce Water Usage</b>	Install water meters in all processing units Introduce water-efficient drums and process automation
<b>Improve Water Recycling &amp; Reuse</b>	Mandate independent ETPs for each unit Promote ZLD (Zero Liquid Discharge) where feasible
<b>Minimize Energy Consumption</b>	Upgrade to energy-efficient motors, boilers, and pumps Promote solar thermal for water preheating
<b>Cleaner Production Certification</b>	Train tanneries for LWG/ISO 14001 readiness Provide technical support for documentation and audits
<b>Environmental Monitoring Compliance</b>	Enforce real-time effluent monitoring Publish public compliance dashboards
<b>Worker Awareness &amp; Safety</b>	Conduct trainings on water, energy, and chemical safety Introduce green jobs & OHS training modules



# THANK YOU!



**Bangladesh  
Labour  
Foundation**



**Just  
Transition  
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