



**A WaterWise Nation**  
Act Today. Sustain Tomorrow.

# IRON & STEEL

## The challenge of water, steam waste in the Steel and Iron smelting industries

### Water consumption

#### 1. High demand:

- Massive freshwater use for cooling, washing, and smelting.
- Global impact: Industry consumes ~16% of global freshwater, rising to 22% by 2030.
- Hidden water: Mining iron ore and processing add to “invisible” water footprints.
- Steam & UPW Waste: Large losses in the form of evaporated steam and inefficient cooling.

#### 2. Water pollution

- Toxic discharge: Wastewater often contains heavy metals (lead, arsenic) and chemicals.
- Long-Term damage: Pollutants persist in ecosystems for decades.
- Eutrophication: Nutrient-rich discharge → algal blooms & oxygen depletion.
- Weak regulation: Developing nations face higher contamination risks.

#### 3. Impacts on the industry

- Operational risks: Droughts & pollution → reduced output or shutdowns.
- Supply chain strain: Disruptions in raw materials and logistics.
- Higher costs: More water treatment, stricter compliance, rising water prices.
- Reputation and regulation: Negative ESG ratings and potential water-use caps.
- Sustainable water and steam management through recycling, closed-loop cooling, and digital monitoring can help the iron and steel industry forge a future that’s strong and sustainable.

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