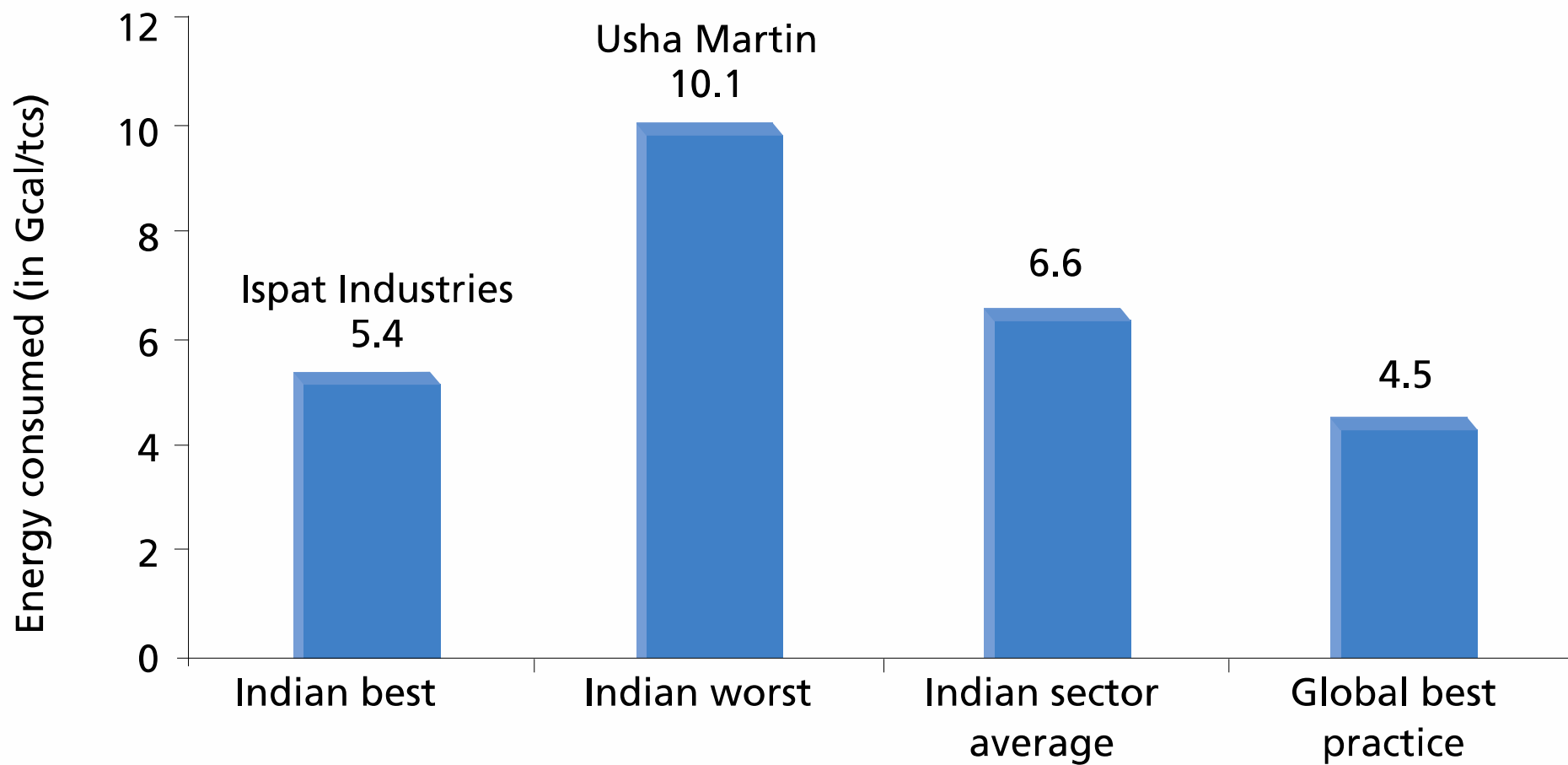




How the sector has
performed?

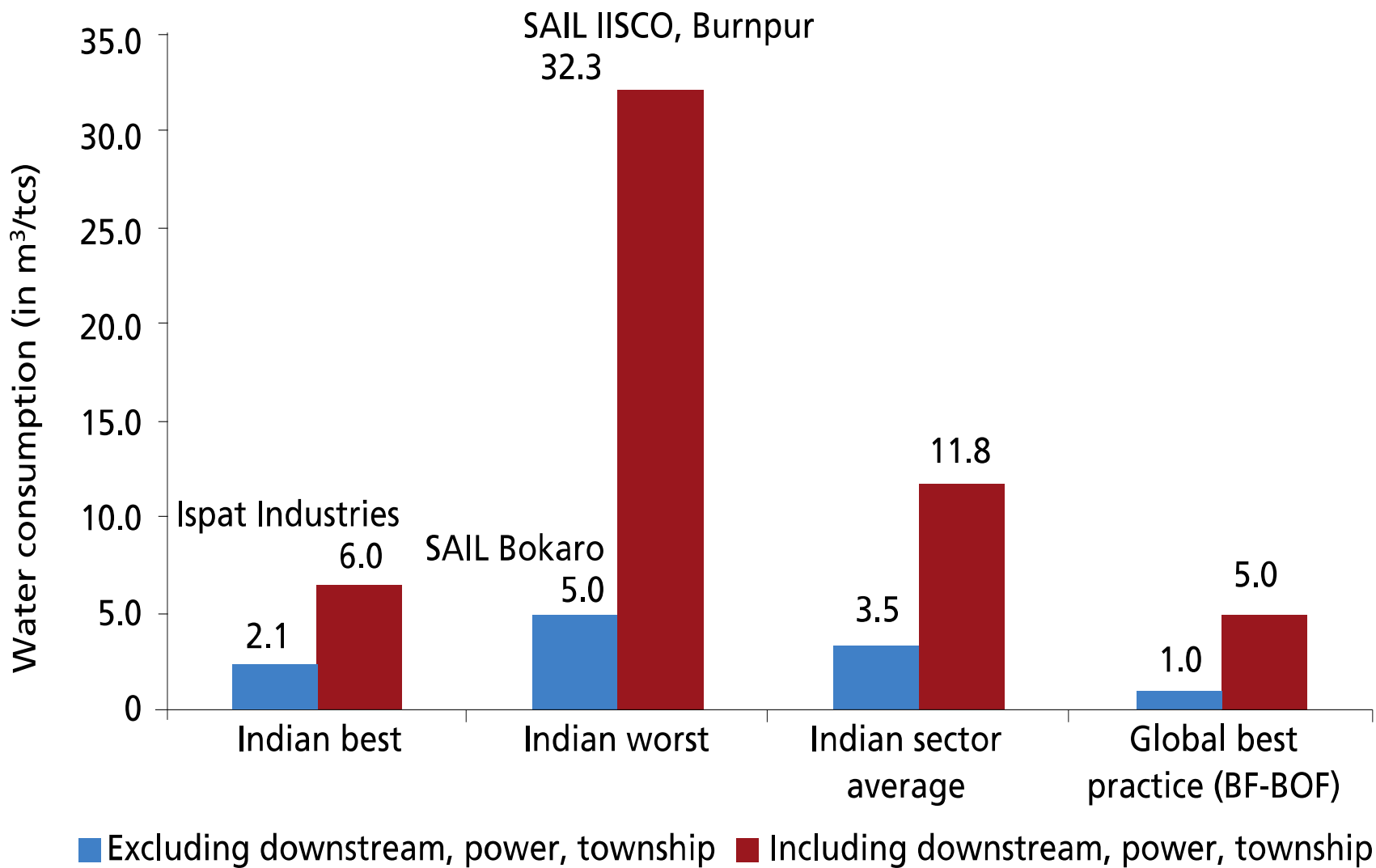


Energy



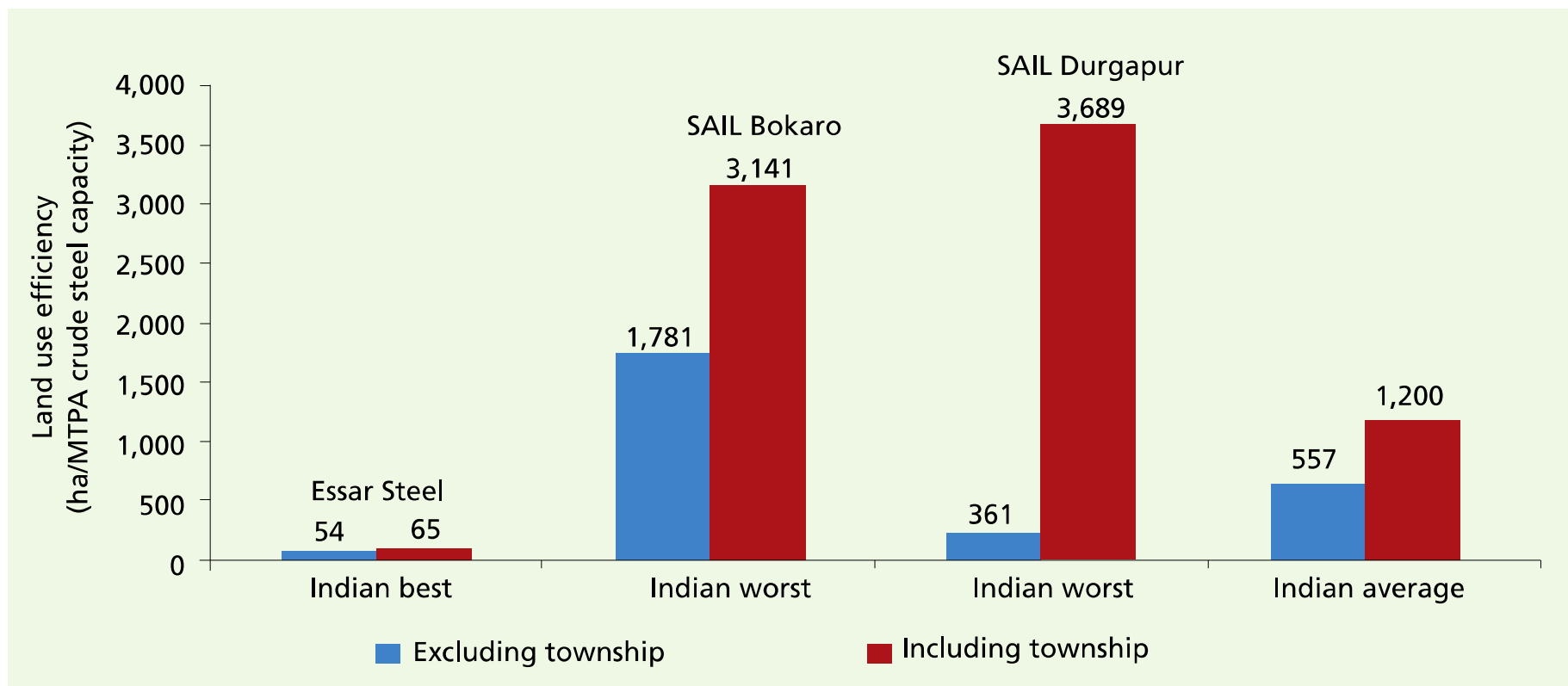


Water



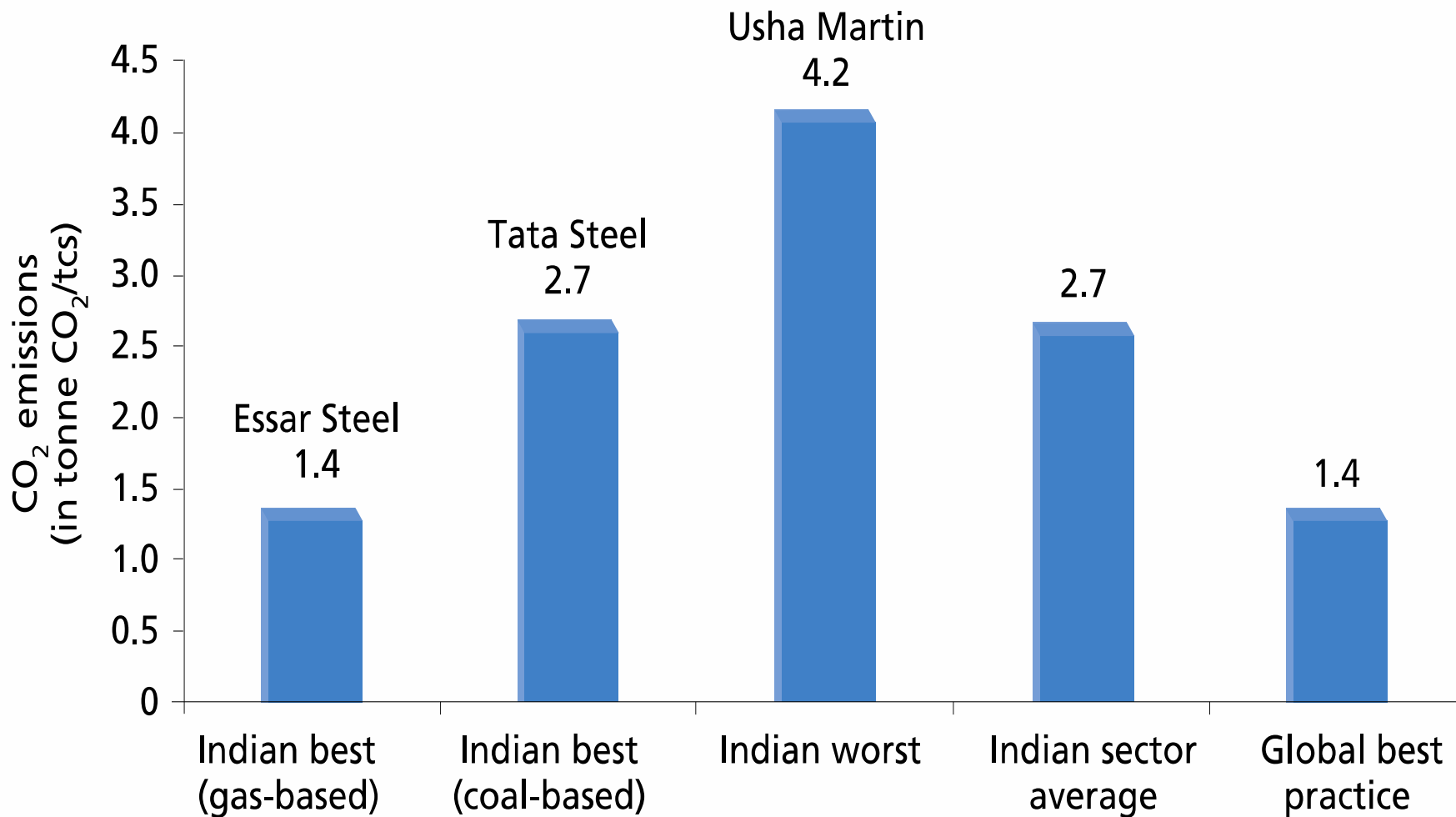


Land





CO₂ Emissions





Pollution and compliance

Of all the sectors rated by GRP, steel sector has the **worst compliance** record

Air pollution

Most companies were struggling to meet air pollution norms in one area or another – stack, fugitive or work zone

- Of the 45 recovery coke oven batteries assessed, only 11 were complying with leakage norms;
- Of the 14 plants with sinter process, only 3 were meeting the sinter plant stack emission norms;
- Most of the coal DRI kilns assessed were not meeting stack emission norms



Pollution and compliance

- Fugitive emissions from raw material storage, handling and transportation were very high in most plants – **guidance and standards absent**
- High air pollution from solid waste disposal, especially in DRI plants

Water pollution

Major problem with BF-BOF plants having by-product recovery coke oven

- Most **not meeting** Cyanide and Phenol norms;
- Metallurgical wastewater **not meeting** solids and heavy metals norms



Pollution and compliance

Solid waste disposal

Major problem with Coal DRI plants; most disposing it outside the plant creating high air and water pollution.

Weak regulation and even poorer monitoring



Environment, Health & Safety

- All have environment policy and environment department;
- Most have ISO 14001, OHSAS 18001 and some even have SA 8000 for social accountability, decent working condition and human rights.
- Only sector with no correlation between management systems and actual performance.
- Plants with ISO 14001 were found to be non-compliant with even minimum environment norms



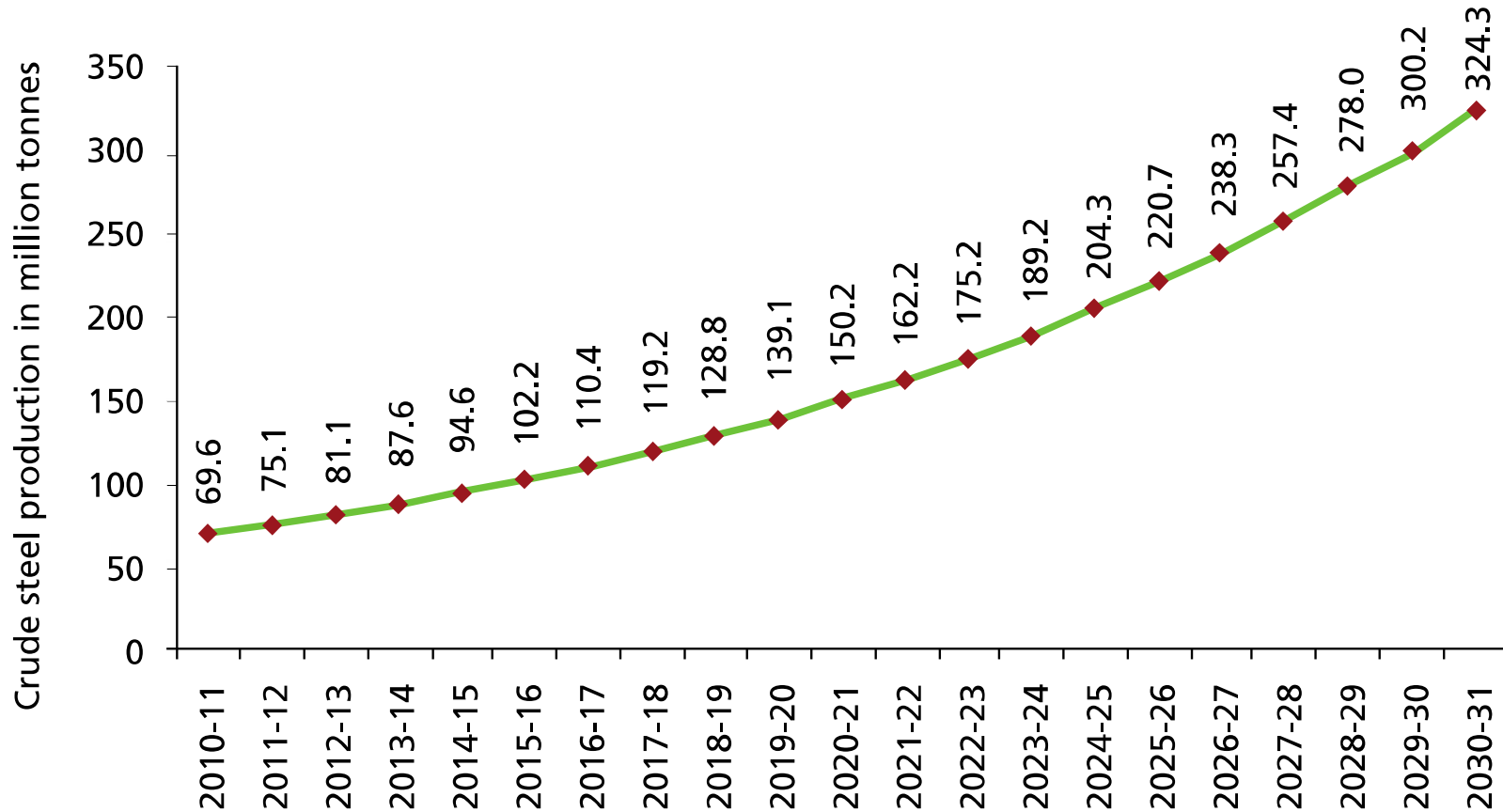
Environment, Health & Safety

- OHSAS 18001 certification had no correlation with OHS performance. OHS performance found very poor across the sector
- As many as **144 fatalities** reported in 3 years (2008-2010) in the 17 plants for which data was available; **63 fatalities in the 9 OHSAS 18001 certified plants.**
- Health records not disclosed
- Health and safety of contract workers is a major concern; half of the workers are on contract.



The future: Production

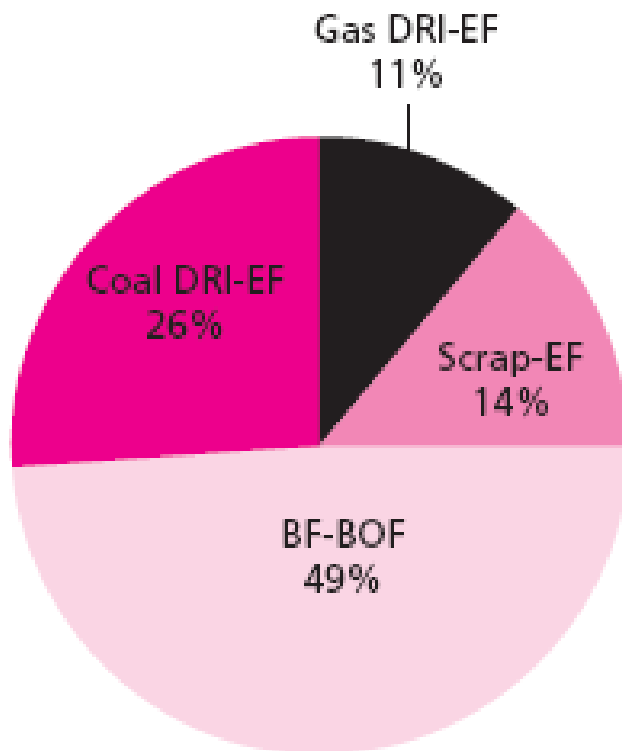
- About 8% CAGR in steel production since 1991
- At this rate, four-folds increase in steel production by 2030



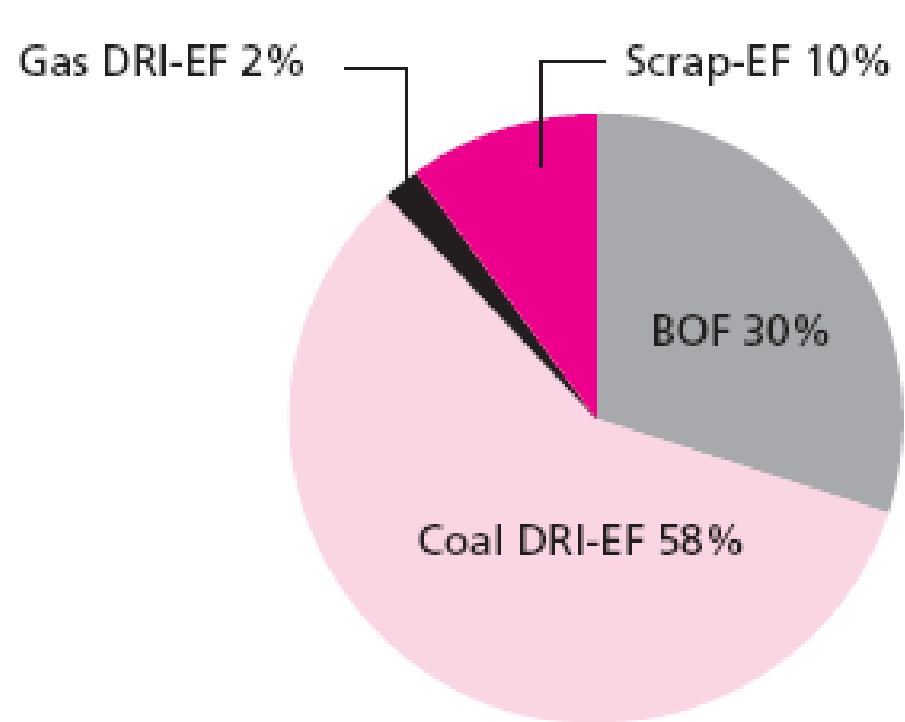


The future: Process route

2008-09



2030-31





Pollution: business-as-usual

Solid waste disposal

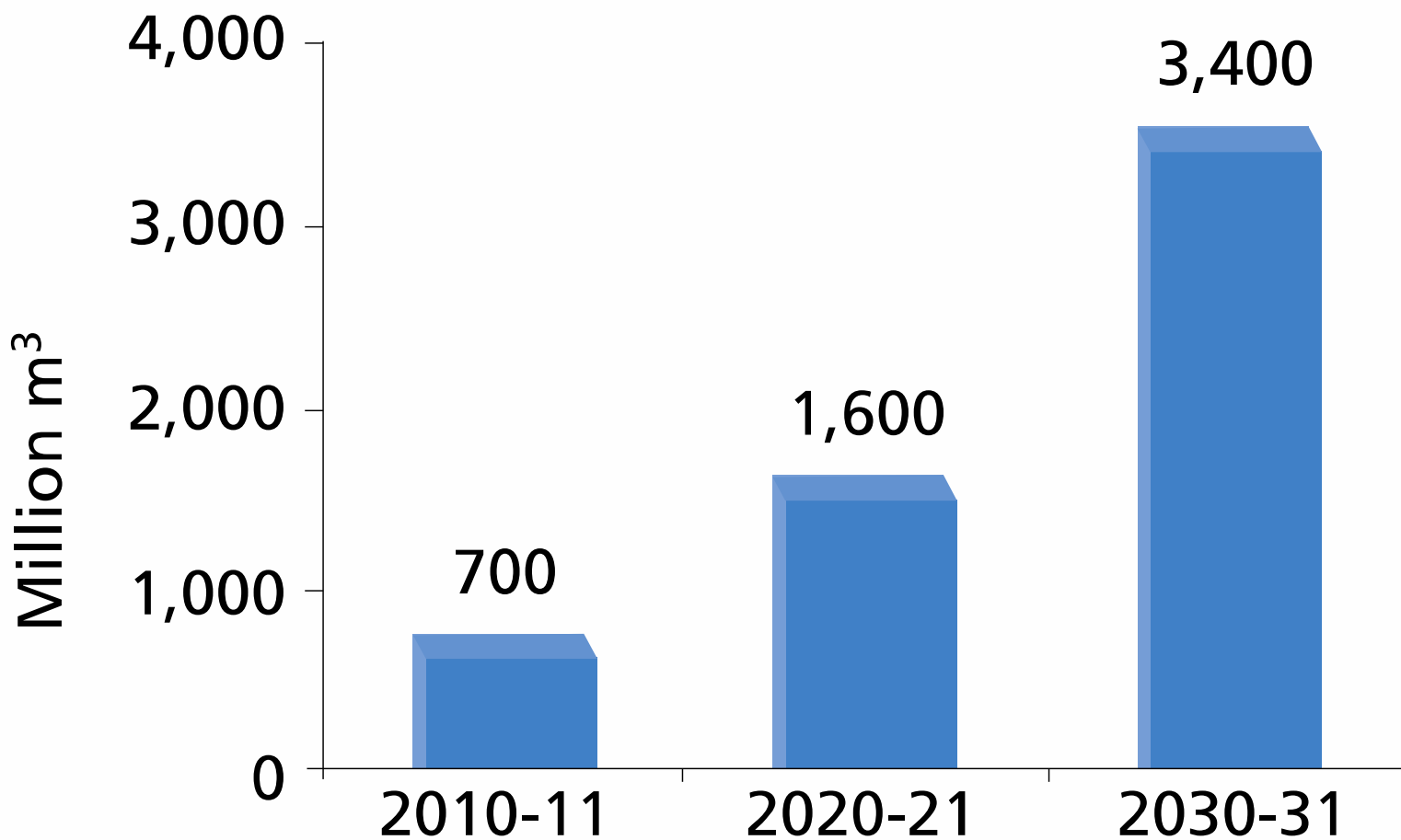
- Current average: 0.5 tonne/tcs (*0.3 tonne for BF-BOF and 1 tonne/tcs for coal DRI-EAF*)
- Annual disposal: 30 million tonnes
- Projected disposal under BAU in 2030: 150-200 million tonnes

Example: Vizag Steel

- Current disposal: 0.24 tonnes/tonne; 0.72 million tonnes annually at 3 million tonne capacity
- Expanding to 10 million; 2.4 million tonnes to be disposed

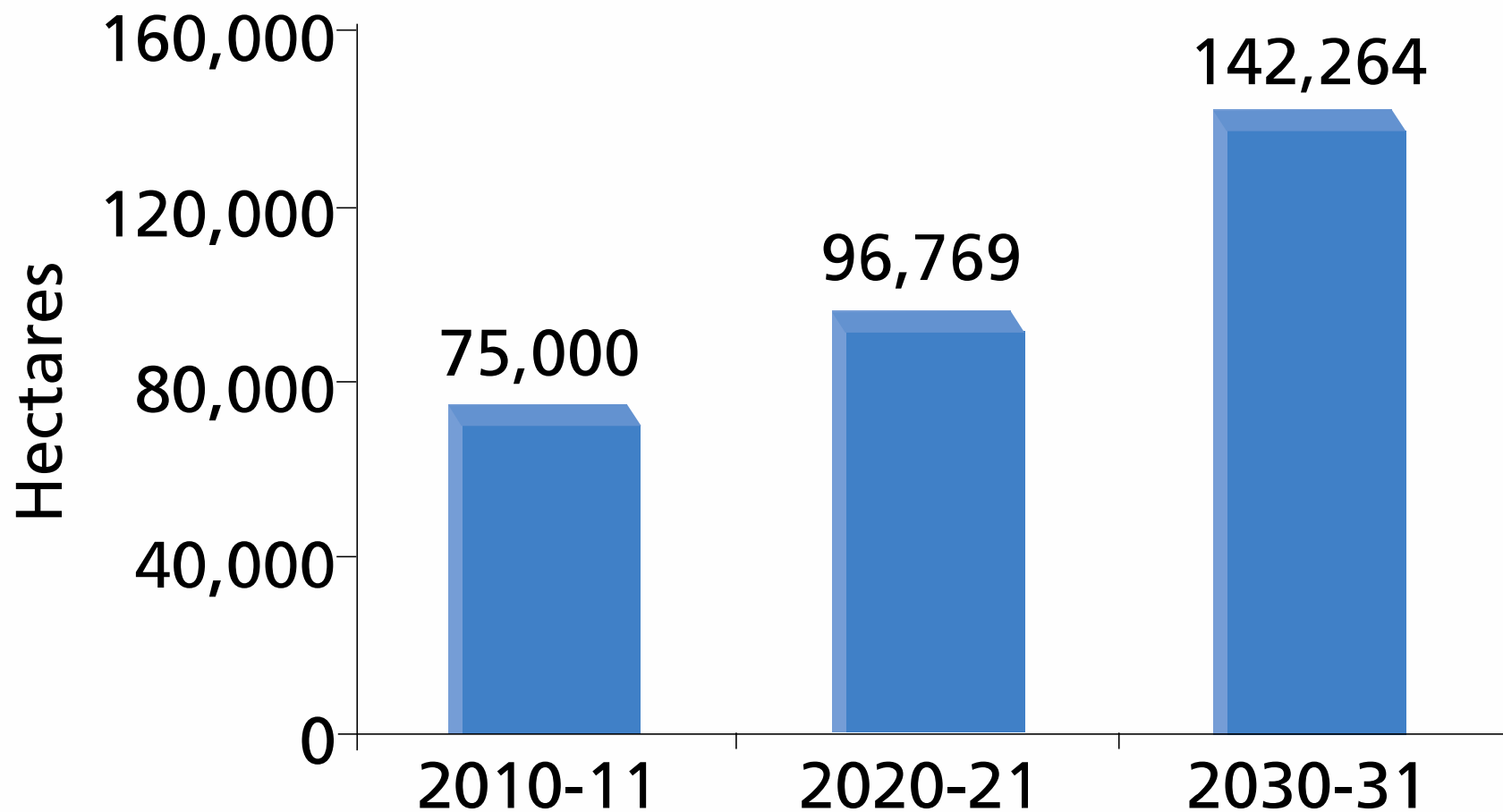


Water: business-as-usual





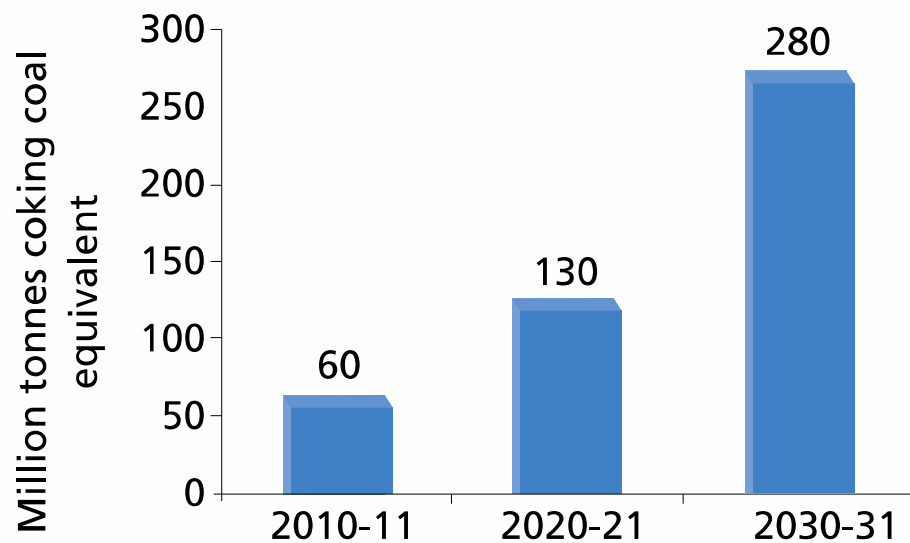
Land: business-as-usual



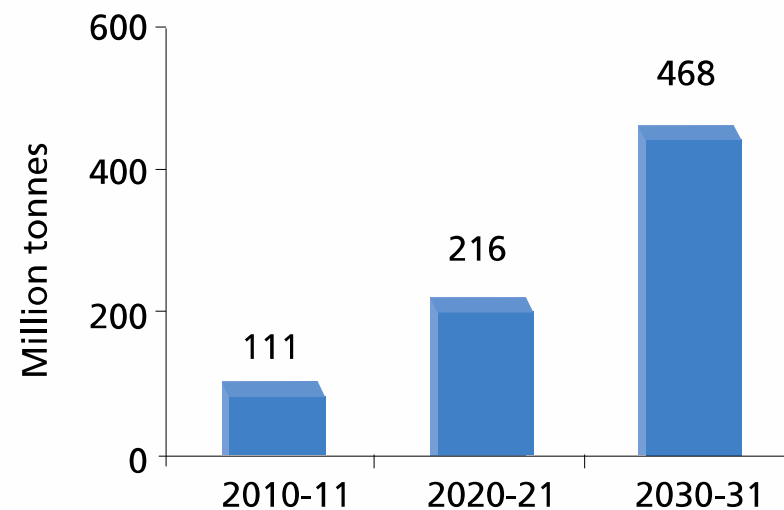


The future: Resources

Coal

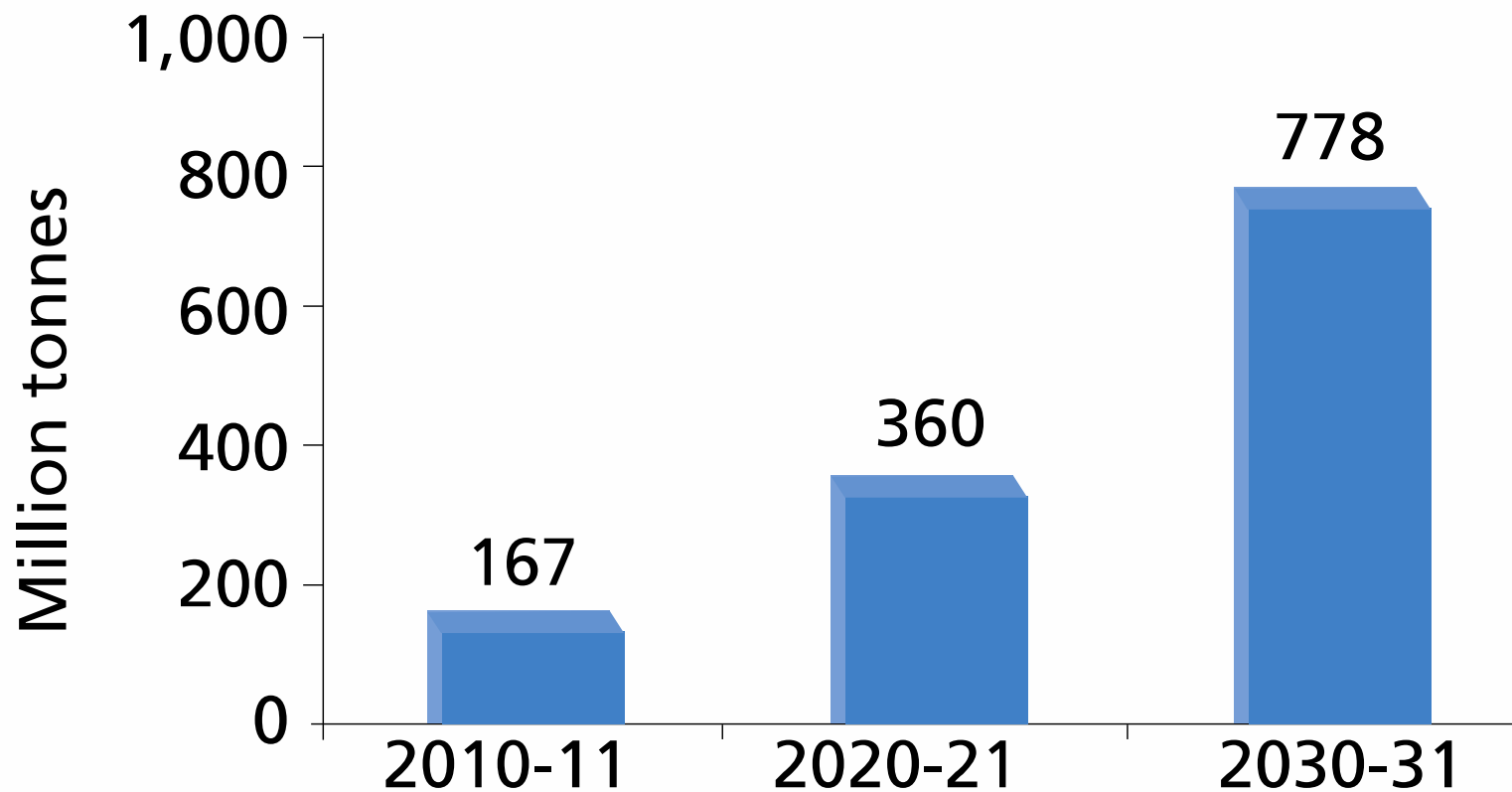


Iron Ore





The future: CO₂ Emissions





Future imperfect

TWO KEY MESSAGES:

- **First, there is a tremendous scope for improvement in all areas.**
- **The second message is a warning: If business-as-usual continues, soon the sheer size will create insurmountable ecological and social problems.**
- **Marginal improvement will not help; leapfrog solutions are required.**