

## Burning questions



### BOOK REVIEW

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Indian industry has one foot mired in outdated and unsustainable practices, while its other foot is poised for a leap forward. This dichotomy is clearly displayed in the environmental and operational health and safety practices of some of our heavy industry — the backbone of infrastructure and manufacturing growth. The Centre for Science and Environment (CSE), New Delhi, via its Green Rating Project (GRP) has been at the forefront of uncovering this unsustainability while providing pathways and

best practices aimed at sustainability.

The treatise on the iron and steel sector, *Into the Furnace*, documents the due diligence CSE has undertaken for its most recent GRP. This project itself has been in place for a decade, and has been carried out for industry sectors with large environmental, resource and energy footprints — paper and pulp, automobile, cement, chlor-alkali and so on. CSE terms this effort “using public disclosure to drive policy and practice change”. The GRP invites voluntary disclosure on the part of the invited firms, verifies this information through expert technical surveys, site visits, audit and secondary research, and then makes it public. Participating companies may have to undergo the public “red-face” test, but they will also benefit from expert advice on how to reduce their ecological footprint — and save costs.

*Into the Furnace* is an example of the outstanding quality of technical due dili-

gence of the GRP, starting with process definition, customisation to the specific industry segment and sample, study boundary, challenge process and verification — including multiple-track independent data collection, from local regulatory bodies, media articles and community members — data analysis, benchmarking against world standards, and documentation of alternative technologies. It documents the rigorous ratings process — each rating is the weighted sum of several parameters scored from 0 (worst practice) through 2 (regulatory standard or sector average) to 10 (theoretical best practice). The study is conducted under the oversight of an independent technical advisory panel. It is hard to imagine a more comprehensive and transparent methodology.

The report presents data collected for 21 plants — of which 13 participated voluntarily with full disclosure — that account for 68 per cent of India’s steel. Where companies fail to provide data voluntarily, the GRP invokes Right to Information legislation to secure infor-

mation. Four of the eight non-participating units rated in this case belonged to the public sector giant SAIL.

Steel production in India has been growing at 10 per cent a year since 2001, compared to China’s 16 per cent and the world’s six per cent (albeit on a lower base). Steel production in India is expected to more than quadruple to 325 million tonnes (Mt) by 2030, from 75 Mt today. About 75 per cent of India’s steel production is in the private sector; the share is expected to grow. The nature of production processes is changing significantly, with the Blast Furnace-Basic Oxygen Furnace (BF-BOF) configuration giving way to coal-DRI (direct reduced sponge iron-electric furnace steel). Economics drives this change — the higher cost of imported coking coal versus the adequacy of domestic low-grade coal for construction-grade steel production and the lower capex costs of the DRI unit. Unreliable gas supply is forcing modern gas-DRI units to also move in the direction of coal-DRI, which has the highest ecological footprint. Thus, the quadrup-

pling of steel production will be accompanied in a business-as-usual scenario by at least a fivefold increase in certain vital parameters such as energy use, which is 30 per cent higher for coal-DRI-EF compared to BF-BOF.

On the whole, the GRP reports a dismal picture with regard to the state of emissions and resource consumption in the iron and steel sector. In terms of aggregates, the industry uses over 11 tonnes of water for every tonne of crude steel produced versus five tonnes for global best practice; 1,100 hectares of land per Mt installed capacity versus 200 ha best practice; 6.5 Gcal/t (crude steel) energy use versus best practice of 4.6 Gcal/t, and so on. The size and scale of the challenge is enormous since each plant handles approximately 4.5 times as much raw material as its output, and plants are growing in size, with 20 mtpa plants expected to become the norm.

However, the biggest problem is not the scale of materials and waste, the substandard processes or the resource use. The GRP has pointed out two larger prob-

lems: extremely inadequate occupational health and safety practices; and poor regulatory standards, compliance and oversight. Contract workers and rural communities bear the brunt of this unholy collusion — with 50 reported (and how many unreported!) deaths every year, and poisoning of life-giving water bodies.

*Into the Furnace* is equally useful as a textbook in industry benchmarking; as an environmental practitioner’s handbook of the iron and steel industry; and as a source of best practice for industry and policy input for governments. Providing normalised assessments of the benchmarking parameters would make it possible to compare the different parameters measured. The book stimulates the thought that regulatory bodies ought to be similarly assessed and rated for their performance.

### INTO THE FURNACE

The Life Cycle of the Indian Iron and Steel Industry  
Centre for Science and Environment,  
New Delhi, 2012; 250 pages