Overview of state of regulation and challenges

Centre for Science and Environment

March 11, 2015

ANIL AGARWAL DIALOGUE 2015

Brick making process

Mining of clay
(Clay is excavated/collected from agricultural fields, ponds, river banks)

↓

Preparation of wet clay-mix
(Homogenous wet clay mix is prepared by adding water and additives to clay)

↓

Moulding of bricks
(Wet clay-mix is put in moulds to shape into bricks)

↓

Drying
(Bricks after moulding are dried in the open or under shed)

↓

Firing
(Bricks are fired in a kiln to a temperature of 800–1100 °C)

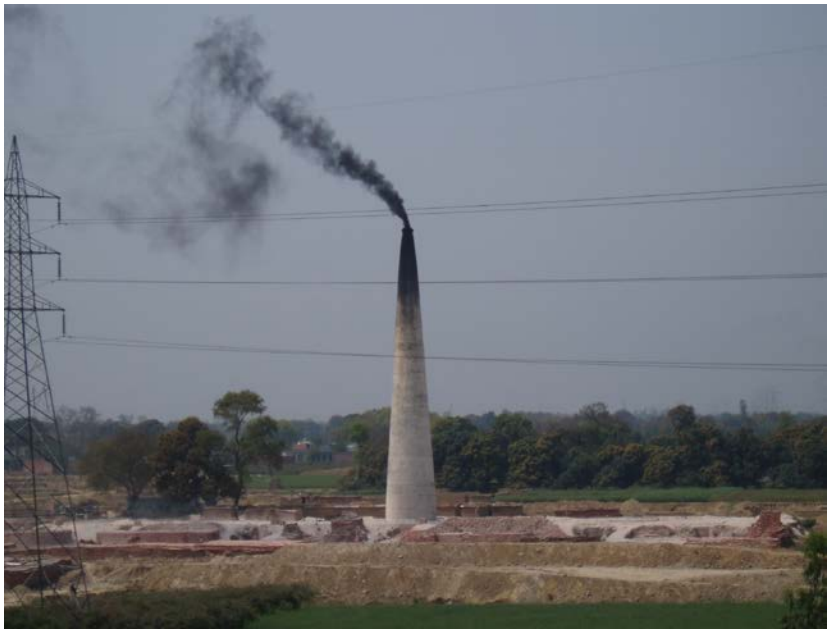
CSE

ANIL AGARWAL DIALOGUE 2015

Environmental impacts

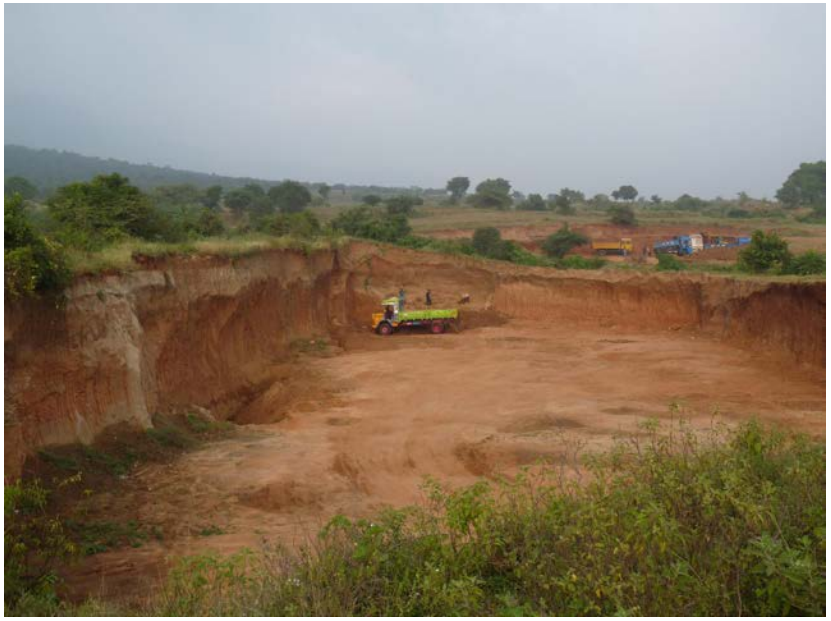
Emission

- Particulate matter
- SO_X, NO_X
- GHG
- Black carbon
- Toxics emission



Clay mining

- Unregulated mining
- Land degradation



CSE

ANIL AGARWAL DIALOGUE 2015

Brick kiln sector

Countries have emission standards as well as norms for stack height

Country	Emission standard (mg/Nm^3)	Stack height (m)
Bangladesh	1000	37
Nepal	400 -700	15-30
India	250-1200	12-30
Vietnam	No emission standard	
South Africa	Clamps: Ambient air quality standard	
Pakistan	No standards for brick kiln, ambient air quality standard applies	

CSE

ANIL AGARWAL DIALOGUE 2015

Clay mining

- Run majorly by informal players
- Regulations are lax- comes under 'eco-friendly mining' (*No blasting, less manpower*)--- CTO obtained easily from SPCB
- No specific guidelines on working depth.
- Nexus between brick manufacturers and farmers: Brick manufacturer procures clay from unregistered farmlands also--- goes unrecorded

CSE

ANIL AGARWAL DIALOGUE 2015

Siting Guideline

- India, Bangladesh and Nepal has
  - Distance from human settlement, hospitals, school
  - Distance between two kilns
  - Distance from water body, forest
  - Water sprinkler, paved approach road, housekeeping,
  - A Sign Board showing the name, address and capacity of the brick kiln as well as validity of the consents should be displayed at the entrance of the site
- **Rarely followed**

CSE

ANIL AGARWAL DIALOGUE 2015

Problem in implementation

Size	*Kiln capacity*	*Stack height*
Small	Less than 15,000 bricks per day (less than 15 ft tench width)	Minimum stack height 22 metre [OR] Induced draught fan operating with minimum draught 50 mm WG with 12 metre stack height
Medium	15,000 to 30,000 bricks per day (15 ft to 22 ft trench width)	Minimum stack height 27 metre with gravitational settling chamber [OR] Induced draft fan operating with minimum draft 50 mm WG with 15 metre stack height
Large	More than 30,000 bricks per day (More than 22 ft trench width)	Minimum stack height 30 metre with gravitational settling chamber [OR] Induced draft fan operating with minimum draft 50 mm WG with 17 metre stack height

CSE

ANIL AGARWAL DIALOGUE 2015

Policy interventions

- Nepal: Banned the movable bulls trench kiln
- Europe: Tall chimney because of acid rain issue
- Bangladesh: Banned FCBTK, moving towards zigzag, Hoffman kiln and VSBK, banned use of agricultural soil
- India: Banned Moving bulls trench kiln in 1996 and introduced emission standard for VSBK kiln
- South Africa: Government incentive to move from energy inefficient clamps to cleaner technology, carbon tax on brick sector

CSE

ANIL AGARWAL DIALOGUE 2015

Policy interventions

- Vietnam
  - Department of building Materials
  - Vietnam Construction Glass and Ceramic Corporation
- China
  - Organised sector: Township and Village enterprises & State Owned Enterprises
  - Easy to regulate
  - 1999: Banned the use of solid clay bricks in coastal cities
  - 2004: Controlled use of solid clay brick in small towns and rural areas
  - 2005: 170 cities
  - 2007: Phasing out outdated technologies

CSE

ANIL AGARWAL DIALOGUE 2015

Challenges with sector

- Run by informal players
- **Cheap traditional kiln**: cost of conversion is not small.
- **Low cost of labor**: hindrance to mechanization
- Conservative building material
- Lack of R&D

CSE