

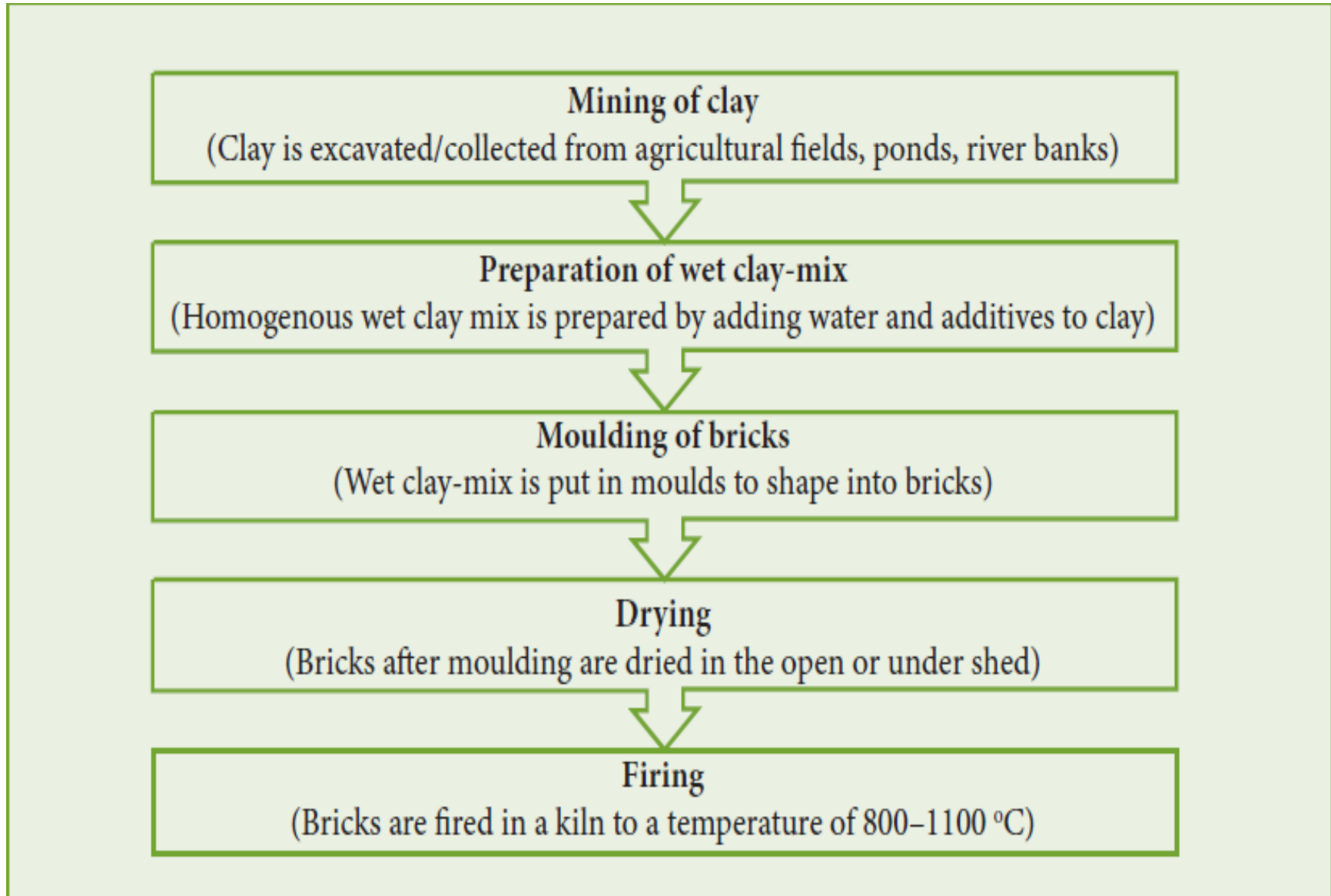


New Draft Standard Is this the Solution?

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Brick Making Process





Environmental Impacts

Emission

- Particulate matter
- SO_x, NO_x
- GHG
- Black carbon
- Toxics emission

Clay mining

- Unregulated mining
- Land degradation





Emission standard

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	



Siting Guideline

- ***Important component***

- 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**



Emission Standards - Present

Size	Kiln capacity	Maximum limit concentration of SPM (mg/Nm³)
Small Bull's Trench kiln	< 15,000 bricks per day	1,000
Medium Bull's Trench kiln	15,000- 30,000 bricks per day	750
Large Bull's Trench kiln	>30,000 bricks per day	750
Small Down Draft kiln	< 15,000 bricks per day	1,200
Medium Down Draft kiln	15,000- 30,000 bricks per day	1,200
Large Down Draft kiln	>30,000 bricks per day	1,200
Small VSBK	< 15,000 bricks per day	250
Medium VSBK	15,000- 30,000 bricks per day	250
Large VSBK	>30,000 bricks per day (>7 shafts)	250



Emission Standards - Draft

Size	Kiln capacity	Maximum limit concentration of SPM (mg/Nm³)
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Medium Bull's Trench kiln	15,000- 30,000 bricks per day	250
Large Bull's Trench kiln	>30,000 bricks per day	250
Small Down Draft kiln	< 15,000 bricks per day	1,200
Medium Down Draft kiln	15,000- 30,000 bricks per day	1,200
Large Down Draft kiln	>30,000 bricks per day	1,200
Small VSBK	< 15,000 bricks per day	250
Medium VSBK	15,000- 30,000 bricks per day	250
Large VSBK	>30,000 bricks per day (>7 shafts)	250



Can SPCB monitor brick kiln?

SPCB	Total manpower	Total brick kilns
UPPCB	702	17,000
PPCB	443 (Vacant post – 102)	3,000
GPCB	468 (Vacant post - 269)	7,500
MPCB	717 (Vacant post - 144)	15,500
WBPCB	321	5,500
Bihar	72	6,000
Tamil Nadu	697	13,000



Problem in implementation

- Inspected **not even** once since established
- Notification talks about gravity settling chamber:
Brick entrepreneurs do have knowledge or chamber is broken/not repaired
- **Stack Monitoring?** – stack without porthole
- **When to monitor?** – During firing or gap between two firing



Policy Intervention

- **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



Solution - Technology based standard

Parameters	FCBTKs	Zigzag	Zigzag	VSBKs	HHKs	Tunnel
		(Natural)	(induced fan)			
Production capacity (bricks million per year)*	3-8	3-8	2.5-6	1.5-3	15-18	15
Specific energy (mj/kg of fired bricks)	1.30	1.06	1.03	0.8	1.20	1.4
Black carbon (gm/kg fired brick)	0.13	0.01	0.02	0.001	NA	0.00
PM (gm/kg fired brick)	1.18	0.22	0.24	0.15	0.29	0.24
Per cent of good quality product	60	85	80	90	90	95