SLCP Emission Reduction from Brick Manufacturing through Skill Upgradation

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Urbanization, population and economic growth

Demand for Housing

Demand for Bricks

Rising demand for housing and hence for bricks (and other building materials).
Housing-Brick-SLCP

- Brick industry in India 250-300 billion bricks/year; 10 million workers
- 30-40 million tons of solid fuels mainly coal/year
- Total annual estimated emissions from the brick industry in South Asia: 120 Tg CO$_2$, 2.5 Tg CO, 0.19 Tg PM$_{2.5}$, and 0.12 Tg EC. [Weyant, et al., 2014].
Cleaner Brick Production: A Win-Win Policy Goal

Environment benefits
(reduction in SLCP, cleaner air, reduction in GHG emissions, saving in energy and clay,...)

Affordable & Good Quality Housing

Sustainable Jobs & Livelihoods
SLCP reduction from brick kilns (2010-2020): A decade of Incremental Improvements

- Low hanging fruit → Retrofitting existing FCBTK to Zigzag firing → Around 15,000 - 20,000 kilns in India modified
- Improving combustion → Reducing black carbon and particulate matter
- Specific fuel consumption reduction ~ up to 20%; PM emission reduction up to 50%; improvement in brick quality
- Capital investment US $ 20,000-50,000 per kiln; self-financed, payback 1-2 year
- Significant variation in performance depending on the design, construction and operation
SLCP reduction from brick sector (2021-2030): A decade of Transformation

Reduction Targets
- Specific fuel consumption: ~ 40%
- Specific Clay Consumption: ~ 50%
- Specific Black Carbon & PM emissions: ~ 90%
CCAC Initiative: Capacity enhancement to uptake cleaner brick production technologies in India & Pakistan (2022-2023)

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<th>Activity 1.1: Mainstreaming skilling of workers for operation of zig-zag kilns in the National Skill Development Framework in India</th>
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<td>Activity 1.1.1 – Development of National Occupational Standards and Qualifications Pack</td>
<td>2022</td>
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<td>Activity 1.1.2 Development of Model Curriculum</td>
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<td>Activity 1.1.4. Orientation and mobilisation of skill development missions of states for delivering skill training to zig-zag kiln workers</td>
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<td>Activity 1.1.5. Conduct of skill development programmes for zig-zag kiln workers by 2 states (500 kilns and 1500 workers)</td>
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Pilot Skill Training in Brick Sector in India

Acknowledgement: EU, CEC, GKSPL, PKT, NBIRT
Proposed Main Partners

- Skill Council for Green Jobs
- State Govts: W Bengal, Bihar, UP, Haryana & Punjab
- Brick Industry Associations
  - All India Brick & Tiles Manufacturers Federation
  - Associations of West Bengal, Bihar, UP, Haryana & Punjab
- Sectoral Experts
  - Punjab State Council for Science & Technology,..
- Implementation
  - Greentech Knowledge Solutions
  - Support and guidance from MoEFCC, CCAC, ICIMOD
Thank you for your attention!

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