Vertical Shaft Brick Kiln VSBK

Workshop on:
Science and Policy of Short-lived Climate Forcers

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SWISSCONTACT
CONSTRUCTION SECTOR IS THE LARGEST CONTRIBUTOR TO CO$_2$ EMISSIONS IN INDIA

**Brick Production**

- ~300,000 kilns worldwide

**Brick production is highly concentrated in four counties (~75% global production):**

- China: 54% ~700-800 billion/year
- India: 11% ~140 billion/year
- Pakistan: 8% ~100 billion/year
- Bangladesh: 4% ~50 billion/year
Energy Consumption in Brick Production

Clamps (Brick) = 4.5 to 8.0 MJ / Brick
Movable Chimney (BTK) = 4.2 MJ / Brick
VSBK = 1.80 MJ/ Brick
Vertical Shaft Brick Kiln (VSBK)

- Loaded at top, bricks removed from bottom
- High efficiency, low emissions
- Kiln of choice for aid agencies
  - India, Nepal, Pakistan, Vietnam

Schematic of single shaft VSBK & a four-shaft VSBK in Kathmandu
Schematic Diagram of VSBK
Vertical Shaft Brick Kiln fired with wood or other biomass (EcoSur kiln)
### EMISSION DATA

Colombia emission norm for new plants

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<tr>
<th></th>
<th>PM</th>
<th>SO2</th>
<th>NOX</th>
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<tbody>
<tr>
<td></td>
<td>50</td>
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VSBK reported (Nepal)

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<tr>
<th></th>
<th>325</th>
<th>36</th>
<th>nr</th>
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NEED FOR FURTHER RESEARCH AND DEVELOPMENT

R&D in the area of local brick production is still in a very early stage. Having achieved good results with the Latin American version of the VSBK is a good start.

Need for better documentation, energy efficiency and emissions
VSBK is energy efficient
VSBK can not produce thin wall products such as hollow brick and tiles
The continuous operation requires managerial skills and good organisation
Investment may be behind the possibilities off small enterprises

Thanks