

# **National Approach of Reduction of SLCPs in Bangladesh**

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# Bangladesh: Climate Adaptation and Mitigation

- **Bangladesh Climate Change Strategy and Action Plan 2009**
  - ❖ **Both Adaptation and Mitigation**
  - ❖ **Two Funds: BCCTF (own resources) and BCCRF (Multi-donor)**
- **Vision 2020, Sixth Five-Year Plan, NSDS**
- **Bangladesh and Sweden joint workshop on SLCFs before CCAC started formally**
- **Bangladesh is a founding member of CCAC**
- **Low Emissions Development Strategy (LEDS)**

# Main Sources of SLCPs in Bangladesh

- ▶ **Cook stoves: black carbon**
- ▶ **Brick kilns: black carbon**
- ▶ **Vehicular emission: black carbon**
- ▶ **Open burning: black carbon**
- ▶ **Rice parboiling systems: black carbon**
- ▶ **Flooded irrigation in rice field: methane**
- ▶ **Municipal waste deposits: methane**
- ▶ **Livestock: methane**

# Traditional Cook Stoves

- ▶ **30 million households and 1 million institutions, restaurants etc use traditional cook stoves**
- ▶ **Inefficient (thermal efficiency: 5% - 15%) and polluting (indoor air pollution and black carbon emission)**



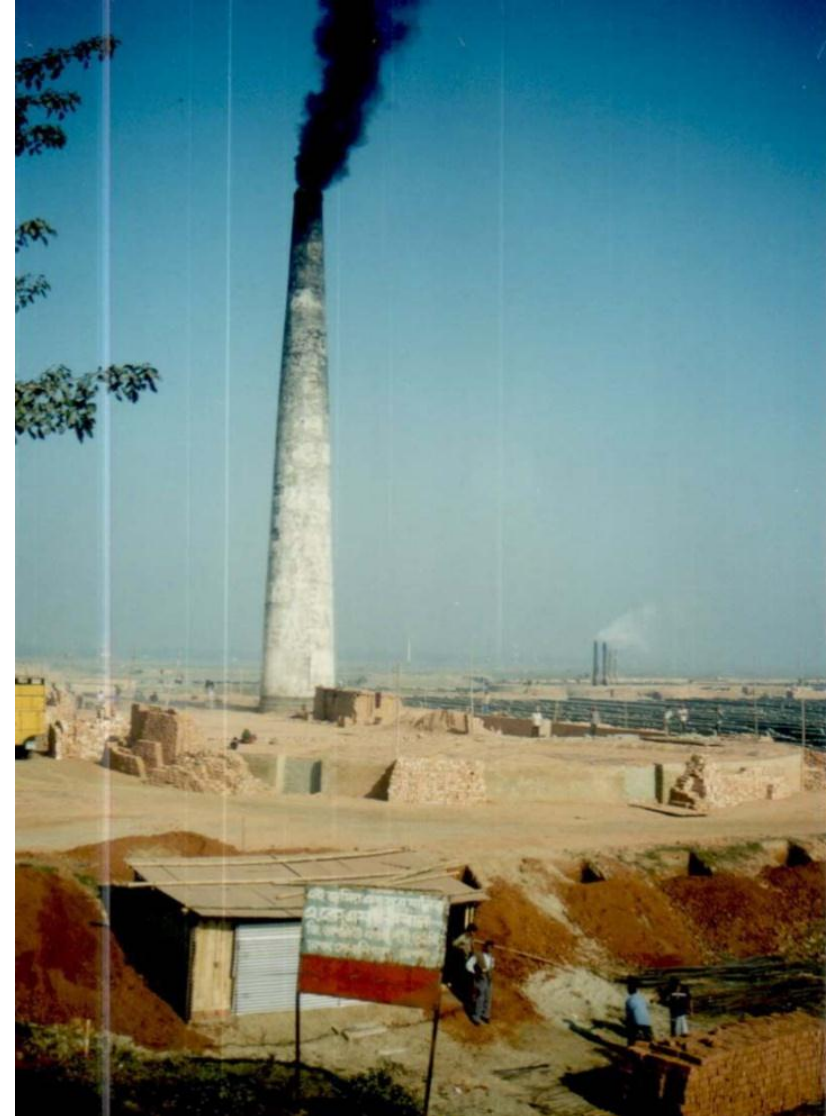
# Improved Cook Stoves (ICS)

- ▶ **Improved cooking stoves (ICS) developed**
- ▶ **Thermal efficiency: 27% - 30%**
- ▶ **Fuel saving: 40% - 55%**
- ▶ **Significant less indoor air pollution (chimney!) and black carbon emission**
  
- ▶ **1.23 million ICS in use**
- ▶ **1 million more will be in use shortly**
- ▶ **Local small entrepreneurs all over the country being trained and patronised**



# Traditional Brick Kilns

- ▶ **8,000 brick kilns in Bangladesh**
- ▶ **Inefficient and huge pollution**
- ▶ **Annually 200000 tonnes of coal used for brick production**



# Improved Brick Kilns

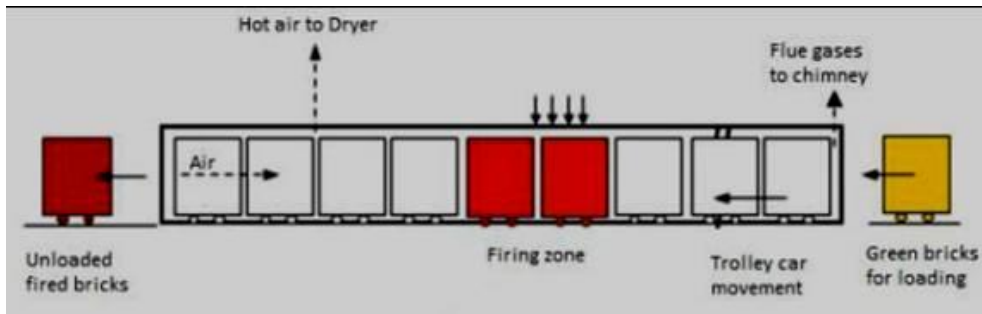
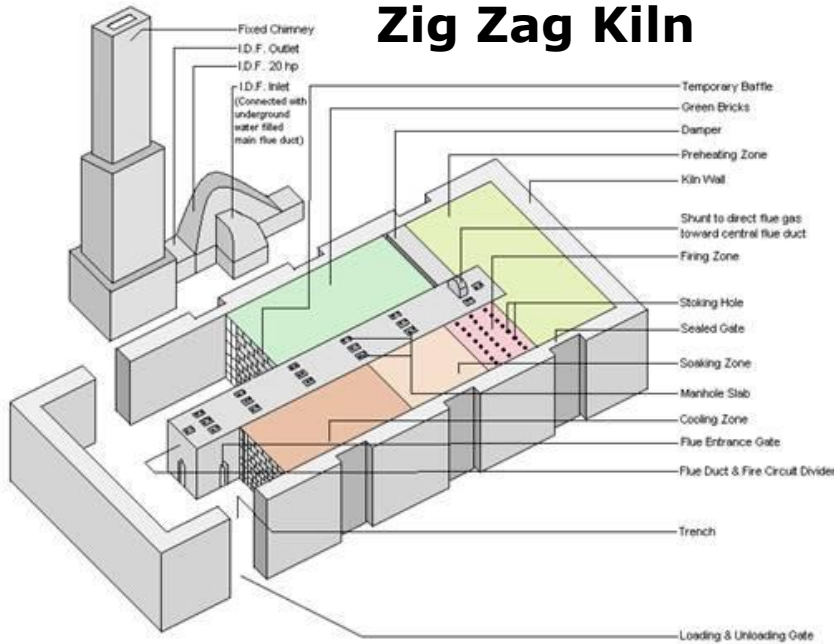
- **Improved brick kilns introduced in Bangladesh**
  - Hybrid Hoffmann Kiln
  - Vertical Shaft Kiln
  - Zig Zag Kiln
  - Tunnel Kiln
  - Green bricks
- **Efficient in energy use**
- **Significant less black carbon emission**



**Hybrid Hoffmann Kiln used in Bangladesh**

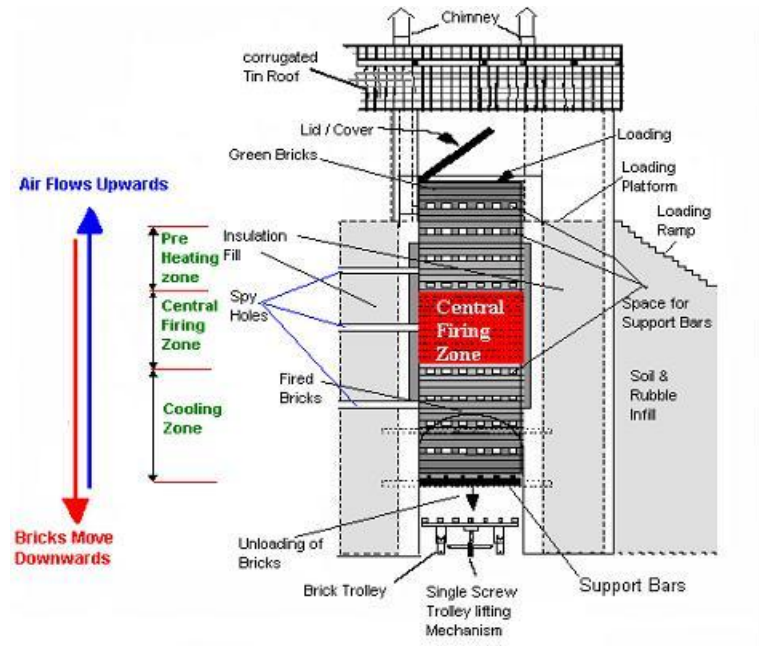
# Different Types of Kiln

## Zig Zag Kiln



## Tunnel Kiln

## Hybrid Hoffmann Kiln



## Vertical Shaft Kiln



# Traditional Rice Parboiling

- ▶ **50,000 traditional rice parboiling units**
- ▶ **Use most of 8 mill ton rice husk as fuel**
- ▶ **Thermal efficiency: 15% - 30%**
- ▶ **Very high air pollution**
- ▶ **Very high black carbon emission**



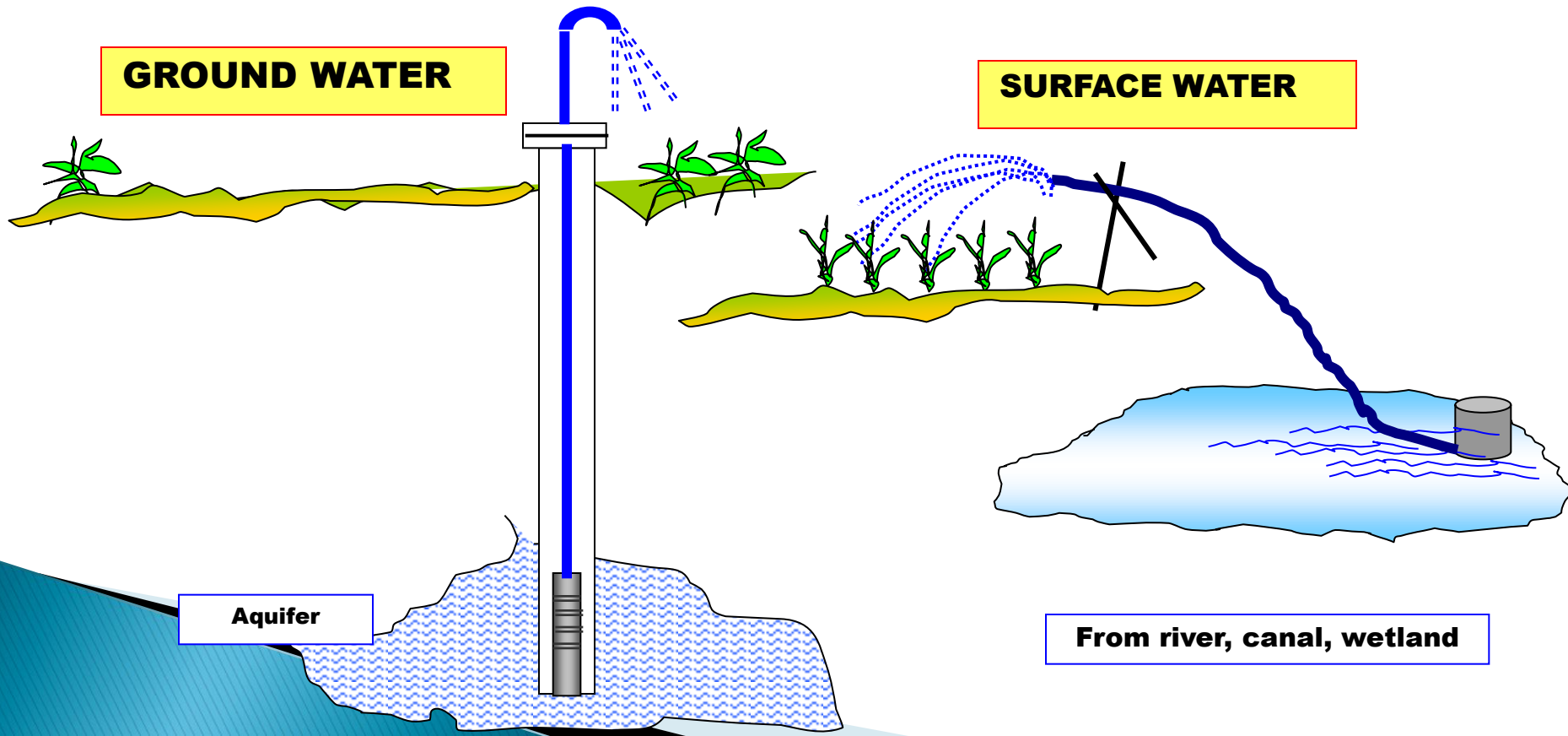
# Improved Rice Parboiling Systems

- ▶ **Improved rice parboiling systems developed**
- ▶ **Thermal efficiency: 50%**
- ▶ **Fuel (rice husk) saving over 50%**
- ▶ **Black smoke not visible**
- ▶ **42 improved plants in use**



# Traditional Rice Field Irrigation

- **Traditional irrigation is flooded irrigation**
- **3-6 inches depth of water in rice fields**
- **Methane emission**



# Intelligent Rice Field Irrigation

- **Drought Assessment (DRAS) Model or Climate Mitigation Crop Model (CM2)**
- **Alternate Wetting and Drying (AWD) Method**
  - ❑ **Model developed and validated**
  - ❑ **Irrigation, fertilizer given as required**
  - ❑ **No standing water**
  - ❑ **40% less water, 30% less energy**
  - ❑ **30-40% more crop**
  - ❑ **Less methane emission**
  - ❑ **Field level extension to be introduced**

# Municipal Solid Waste

- **Currently 600–1000 tonnes municipal waste produced daily**
- **Methane emission can be reduced by proper waste management**
  - ❑ **Aerobic fermentation (fertilizer ): good experience**
  - ❑ **Anaerobic fermentation: methane & fertilizer production and use (no experience)**

# Enabling Documents under Preparation

- ▶ **National Action Programme (NAP) to reduce SLCPs being prepared and adopted**
  - ▶ **Open burning control rules drafted**
  - ▶ **Ambient Air Quality Standard under revision**
  - ▶ **Environment Conservation Rules revised and will be adopted soon**
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# CCAC Initiatives as Fast-Actions to Reduce SLCPs with many co-benefits

- **Finalised Sectoral initiatives led by Partners**
  - Heavy duty diesel vehicles and engines
  - Brick kilns (Bangladesh is a partner)
  - Cook stoves (Bangladesh is a partner)
  - Agriculture
- **Agriculture Initiatives**
  - Manure management component
  - Open burning component
  - Paddy rice component
- **Bangladesh is a lead partner of Agriculture Initiatives**

**Thank you.**