Experiences of VSBK within Nepal

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Start 2001-till date – visiting brick kilns
Monitoring 2003 VSBK- Sick

Transformations- physical wok

7 bricks/person- 2001

20 bricks/person

60-70 bricks/person

Barrier: Investment on tools if paying in no. of bricks- Needs some positive motivations!!

2000 bricks/person

Hand - Machine

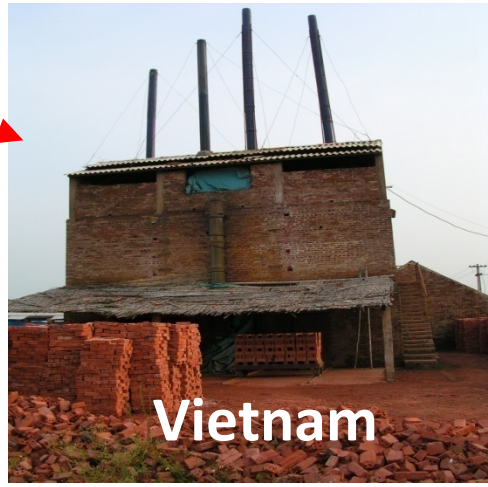
Agenda

- History of VSBK within Nepal
- Technology development initiatives
- Energy and Environmental performances
- Technology adaptation & Operational challenges
- Lesson learned :Nepali experience – Positive and other side of coin
- Conclusions

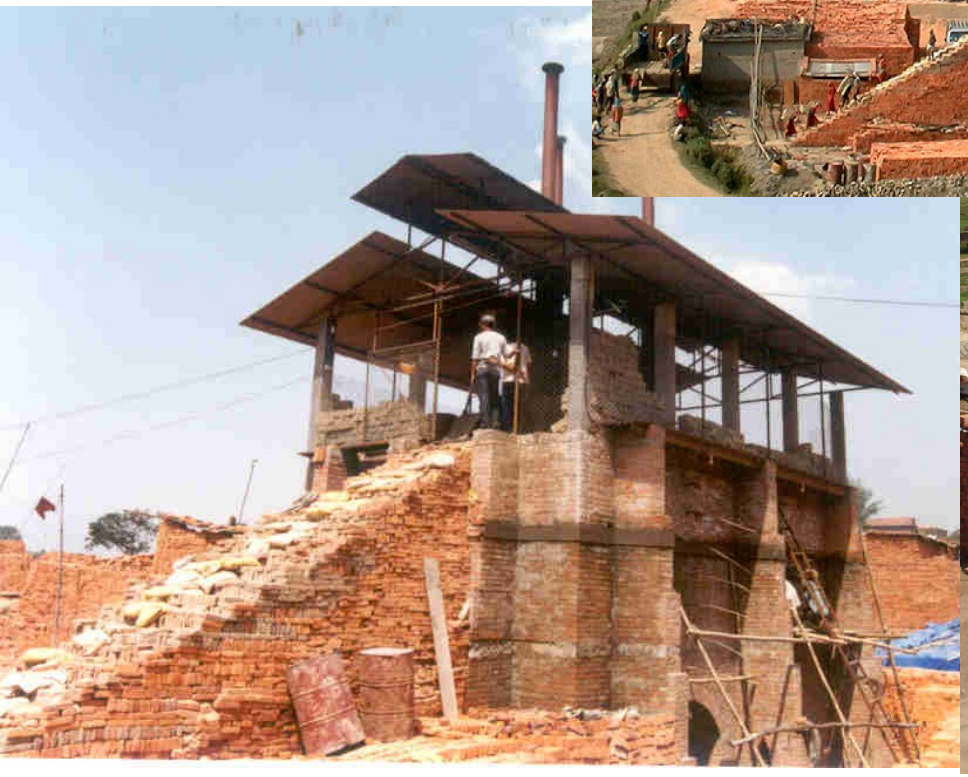

China


India


Nepal


Vietnam

Technology -
Journey- 2003-2015



History- Nepal

- China- India- Nepal
- Vertical Shaft Brick Kiln (VSBK) -energy efficient technology for firing clay bricks
- It was also introduced in Nepal in 1990 through GTZ Ceramic Project but due to various technical issues, the project was closed down
- Swiss Agency for Development and Cooperation (SDC) – through their programme in Nepal: "**VSBK Programme** (Nepal)". Two pilot VSBK kilns have been set up by entrepreneurs in Kathmandu Valley- 2002-One is already closed- One is working well.
- Energy and environmental monitoring – performance improvement
- Around 30 VSBK units were constructed around Nepal during the program duration- 5-6 are in operation
- EU- Switch Asia- Sustainable construction practices – VSBK-construction- recently establish
- Consulting company established and working around different countries

Technology Development

- Nepal has developed – Engineers, owners, fireman – contributing in Afghanistan, South Africa, Africa….
- Some skill transformation towards brick making, soil testing, firing temperature, mechanization.
- Energy and environmental performance and bench- marking of brick kilns.
- Internal fuel
- Hallow , perforated bricks

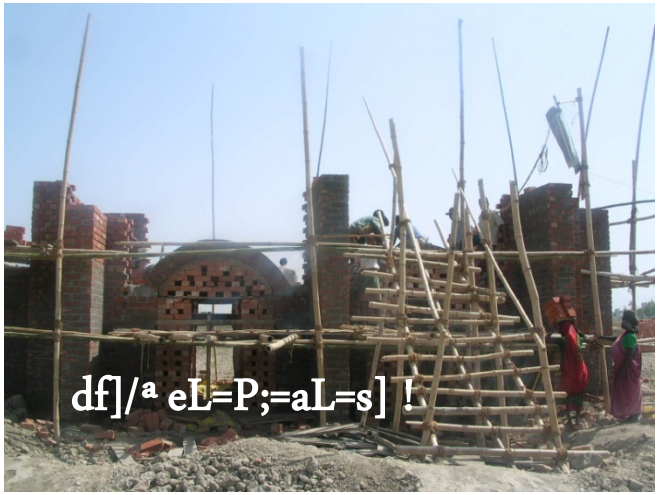
Energy and Environmental Performance

- It is very good- Energy- Less than 1 MJ/kg of fired brick- very good compared with other prevalent technology
- Emission
  - W Bricks : **155 mg /Nm^3**
  - RK Bricks : **214 mg /Nm^3**
- Cost of brick making less- but????--- Quality, clay sensitive .. Customer demand..

Technology adaptation and challenges

- Initial Investment - other prevalent technology
- Out of 30 units- 5 are in operation- Adaption rate?? – resource
- Quality issues
- Scale of production
- Owners of brick kilns- education- technology transformation
- Pilot projects- successful but!

0ne is working !!



The perception of VSBK technology is mixed

- There are both cases of success and absolute failure.
- VSBK technology transfer in Nepal has experienced a lot of difficulties. There are still many technical issues yet to be addressed. To scale it up, if expected as the right direction to go, a lot more support is needed
- The technology is operationally very sensitive and requires higher management skill
- The technology is also very sensitive to the quality of clay.
- The production capacity of VSBK is too small;
- Brick quality is low and breakage rate is high;
- Interest in further investment from entrepreneurs is limited; there is no existing support from the Government for VSBK and further support is very unlikely

Lesson Learned

- Site selection- Hilly areas where small clamp kilns are in operation- VSBK is very successful to replace it- Skilled Owners- cost of production!!- looking for mechanization and modernization- intermediate ladder!!
- Energy and environmental bench marking
- Internal fuel piloting
- Awareness – Government institutions
- Scale of production- Can not compete- Need lots of promotional activities.
- Alternate bricks- ???
- Technology adaptation and Investment !!!
- Among the brick owners- It is not popular.

Conclusion

Technology transformation and adaptation is a challenging process- Programme driven

Scale- Demand- Applications- Locations- transportations

Thank you

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