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

Money
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 benchmarking 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/Nm³
  – RK Bricks : 214 mg/Nm³

• 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!
One 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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