Safety and Quality as Overlooked Aspects of Rural Development

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Background

• Safety is too often an after thought, sometimes too late

• Quality installation is critical for project success

• SmartVillage has made Safety and Quality (Standards and Reliability) additional pillars of its projects

What is wrong with this picture?

Photo credit: C. Satish
Background: Safety, tale of two situations

- Developed countries learned the hard way; Numbers now going down despite larger populations and increased use of electricity
- Development does not have to follow the same pattern

Fatal Work-Related Electrical Injuries in the U.S., 1992-2013

Fatal Electrocutions in India, 1991-2015 (reported by NCRB)

Source: C. Satish, Conference on Electrical Safety, India, 2017
What is quality?

• In the context of an ISVx project:

• Quality is a catch-all term for several interconnected features:
  • Good specs
  • Performance verification
  • Standards:
    • To ensure product compatibility with country location
    • Product uniformity and compatibility

• Purpose:
  • Quality product means reliable installation
  • Less maintenance increases ROI (return on investment)
  • Happy entrepreneur, happy customers spread the word on benefit of technology
  • Less maintenance, proper grounding, etc, means safer installation

**Quality and safety are interconnected**

Shock-resistant pump starter
(C. Satish)
Examples: Safety improvements in rural India

- Field study by C. Satish in India (2010’s) revealed:
  - Majority of electrical accidents not in urban or factory settings
  - Major sources were in rural India with:
    - Down powerlines
    - Faulty equipment

Source: “Awareness and Prevention of Electrical Accidents”, ieee.tv
Down powerlines: Solutions

1) Better design and maintenance (utility responsibility)
2) Education and awareness: Everyone’s responsibility

Source: “Awareness and Prevention of Electrical Accidents”, ieee.tv
Many farmers in rural India use pumps for irrigation

Pumps are driven by induction motors with a soft starter

Lack or improper grounding, metallic enclosure, etc, lead to:
  • Equipment failure
  • Farmers attempting to fix problem themselves

Source: “Awareness and Prevention of Electrical Accidents”, ieee.tv
What is SmartVillage doing?

• Include quality and safety as part of the application process
  • Raises awareness of issue
  • Improves project success potential
• Gather data on these subjects from on-going projects
  • Improves understanding of critical issues
• Develop information suited to rural / developing areas
  • Modeled after C. Satish’s work and movie on safety for rural India:
• Participate in conferences and workshops (educate the educators/engineers):
  • Electrical Safety Workshops in India, Brazil, Costa-Rica
  • PowerAfrica Conference (panels, keynotes, tutorials)
Conclusion

• SmartVillage and generally electrification efforts can learn from past mistakes of development

• Number one solution: Awareness and education
  • Emphasize quality as beneficial long term
  • Raise awareness of safety issues

• Spread the word!