Human-Centered Design of Crop Drying Solutions for Smallholder Farmers

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Rationale

Figure 1. Equatorial Africa

Figure 2. Open air drying of maize in Ghana

- Post-harvest losses (PHL) estimated at over $2 billion annually in Africa alone
- Health problems related to aflatoxin contamination
- The yield potential in grain is inhibited by high PHL
- No alternative technology to sun drying yet available

Figure 3. Conventional cooking practice

Objective

Develop a low-cost grain dryer for smallholder farmers

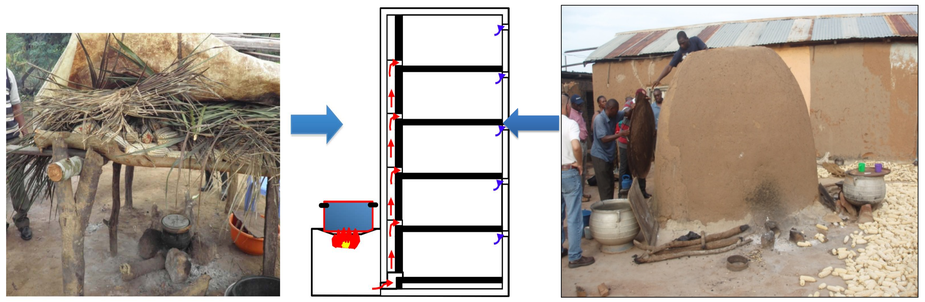
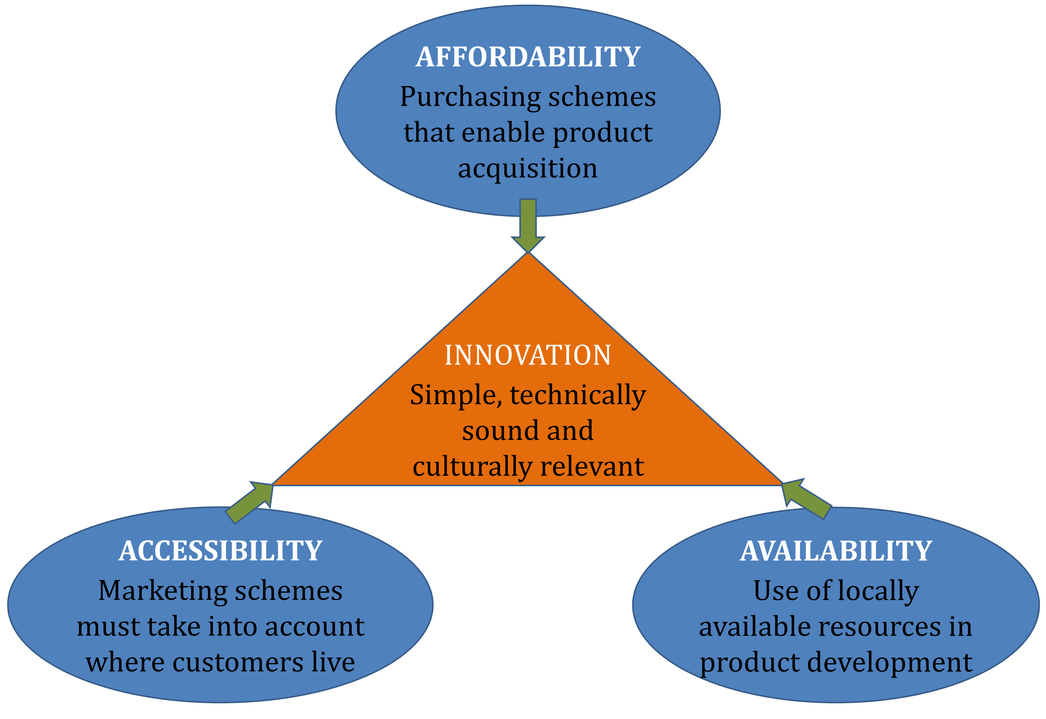
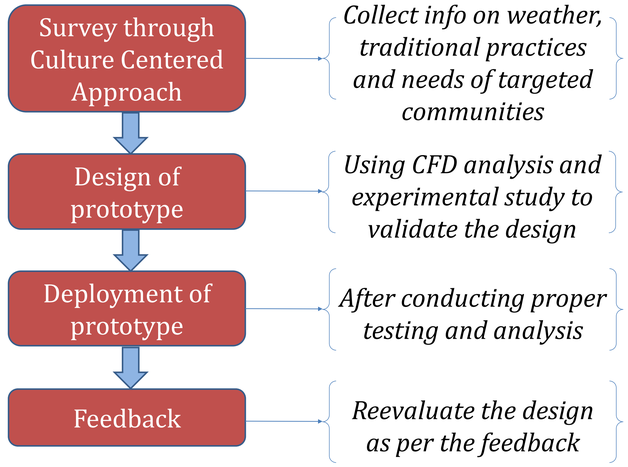


Figure 4. Integrating drying with cooking

Technology Development and Deployment Framework



Development of Design



Tests to be conducted

- Heat and temperature distribution (Target drying temperature of 70°C)
- Test two types of fuels (wood and corn cobs)
- Corn drying rate using lab study
- Control of smoke and flame
- Corn quality (by smell and product)
- Evaluate particulate release
- Energy utilization and efficiency
- Document dryer operation

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