Minigrids and productive uses of energy

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Who is Practical Action?

- International NGO
- Founded on belief that technology can play an important role in lifting people out of poverty
- Offices in Africa, Asia and Latin America
- Energy access is a core sectoral focus
- **Practical Action Consulting** - technical arm of Practical Action
  - Provide high quality advisory services in the use of technology for poverty reduction

What are productive uses of energy?

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- PUE: activities which use electricity that enhance income and employment
  - vs consumptive use of electricity
- Examples: carpentry, food/milk cooling, ice-making, irrigation and water pumping, metalwork, food drying, poultry hatcheries, feed production, milling.

Why PUE matters 1 – enables rural development

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- Important mechanism to improve incomes and livelihoods and create jobs
- Can support existing businesses and enable start-up of new businesses
- Three types of PUE:
  - Recycling income within community
  - Preventing loss from a community
  - Bringing new value into a community

Why PUE matters 2 – supports sustainability

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- PUE best way to increase demand, therefore improving commercial viability of energy projects
- But PUE **doesn't happen organically – access alone is not enough!**
  - Energy providers need to play an active role
  - PUE can't be an afterthought

Practical Action and productive uses of energy

- We work alongside private sector, government and NGOs to enable PUE.
- We focus on COMMUNITY ENGAGEMENT and MARKET LINKAGES
  - ensure community participation and ownership
  - bringing added value into the community

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How to enable PUE – a step-by-step methodology

STEP 1: Market assessment

GOAL: Identify high potential PUE activities

A) Criteria for decision-making:

- Market size
- Ease of entry into value chain
- Energy usage
- Community impact
- Community interest
- Availability of product/inputs
- Ease of sector start/up growth

STEP 1: Market assessment

B) Sector mapping to shortlist sectors

C) Interviews with key experts, community members, local market actors

D) Value chain analysis for key sectors

STEP 1: Market assessment

EXAMPLE: FEED PRODUCTION

- Energy usage
- Market size
- Ease of entry into value chain
- Community impact
- Community interest
- Availability of product/inputs
- Ease of sector start/up growth

STEP 2: Go-to-market strategies / business plans

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- Support existing businesses vs develop new businesses
- Assess how bottlenecks in value chain can be addressed
- Develop business plan and financial model
- Identify pilot sites and pilot plan
- As much as possible, link up with existing development programs and projects

STEP 3: Business development support

- Raise awareness of PUE within community
- Identify entrepreneurs
- Develop training package
  - Technical skills – purchasing and operating equipment/machinery
  - Entrepreneurial and business management skills
  - Information about inputs, market access, service providers, credit facilities, etc
- Ongoing support – mentoring/training

STEP 4: Appliances and equipment for PUE

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- Assess whether community can access appliances/equipment
  - Appropriate, affordable, quality, warranty, maintenance/repair available?
- **If yes**, disseminate information on appliances/equipment and recommended suppliers
- **If no**:
  - Connect community with vendors
  - Become a distribution channel for equipment

STEP 4: Appliances and equipment for PUE

- Assess whether community can access finance
- If not, explore other options for enabling access to finance:
  - Work with MFIs
  - Develop an appliance financing mechanism

STEP 5: M&E to assess impact of productive power

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- Why M&E matters
- Elements of M&E:
  - Theory of change
  - Social and environmental impact metrics – baseline/target and MOV
  - Plan for data collection
  - Tools for data collection
  - Don’t forget the E in M&E!

STEP 5: M&E to assess impact of productive power

Energy business sustainability

- % increase and kW increase in demand for energy
- % increase in operator revenue
- % increase in operator profitability

Household income

- Average % increase in income of microentrepreneurs and employees
- Total number of microenterprises founded
    - % of microenterprises founded that are women-owned

Job creation and skill development

- Number of employees working for new enterprises or for enterprises that have been able to expand and hire due to electricity access
- Total number of microentrepreneurs trained

Sustainability

- % of microenterprises that remain in operation 12 months after start-up
- Average time it takes microenteprises to generate a profit

Case study – GIZ in Madagascar

Questions

- How might an energy provider support productive uses in this community?
- What do you do to support / enable / promote PUE for communities like this?
- What else could you do?

Thank you

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