



Sustainable energy & Productive Use of Energy : A practitioner's perspective

Sustainable Energy & Reducing Inequality



At Risk Communities

Community at risk of climate change, natural disasters or conflicts who may have to be displaced in the near future.

Eg. Mining Communities of Ri Bhoi, Meghalaya



Nomadic/Migratory

Communities which are always on the move, either due to shifting agricultural practices, newer and better markets or due to traditional cultural practices.

Eg. Dholakwale (Drum Making) Community in Bangalore, Karnataka



Permanently Displaced

Communities which have permanently migrated, or remain displaced over an extended period of time. These communities often have families living in their villages but lack employment/livelihood opportunities in their villages.

Eg. Kanbargi, Belgaum, Karnataka



Temporarily Displaced

Communities which have recently been struck by a disaster or have temporarily migrated in search of work. These communities squat in urban settlements or live in refugee camps.

Eg. Contract Labour Camp of Construction Workers in Bangalore, Karnataka

Decentralized energy access models offer ways to

Democratize access of basic amenities

Create assets & resilient pathways

Sustainable Energy - Livelihoods

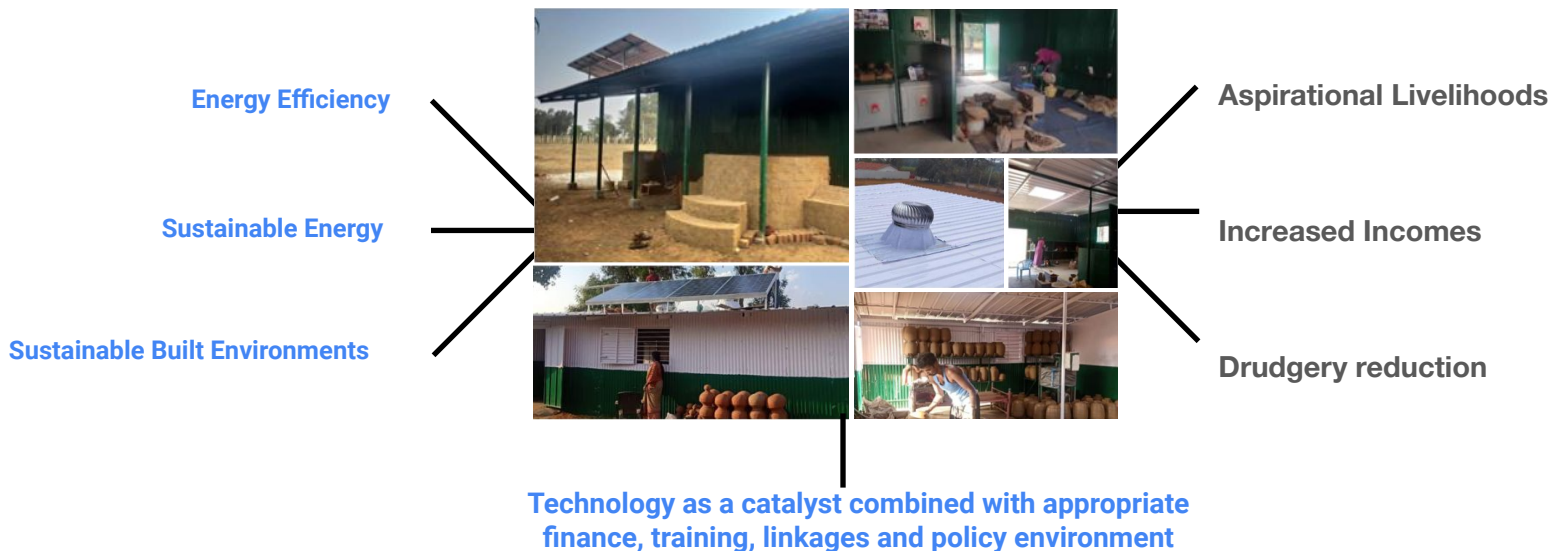


Sustainable energy driven livelihood solutions require an ecosystems approach



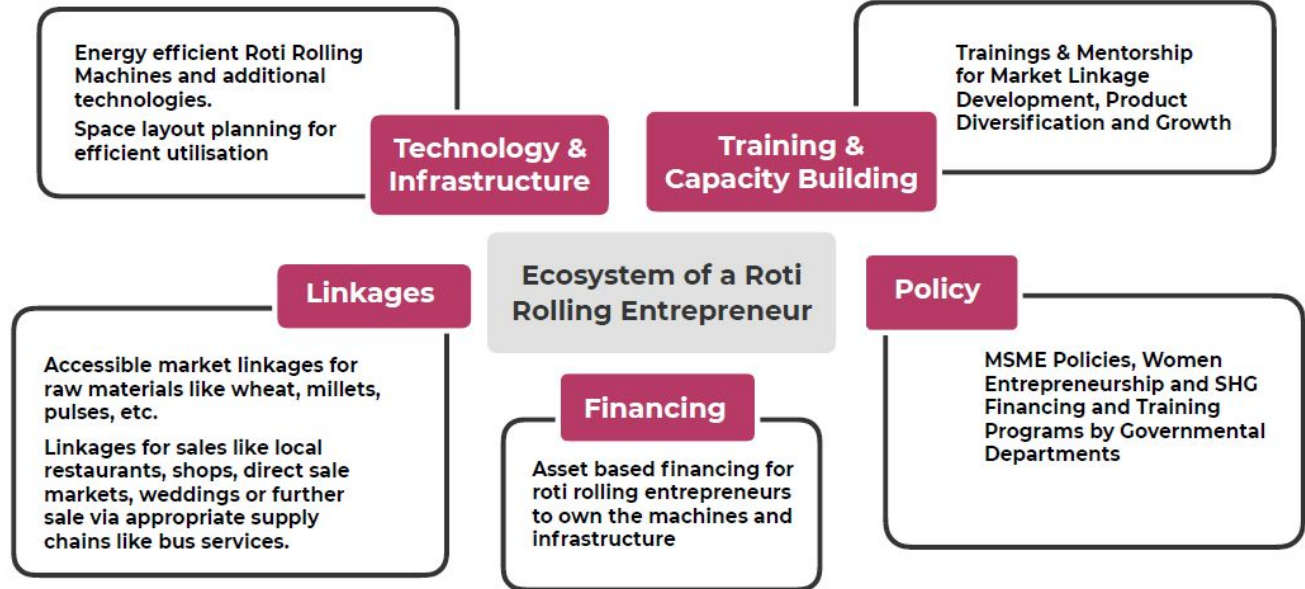
Sustainable Energy and Livelihoods

Basic Concept: Combination of energy efficient appliances, decentralized renewable energy and sustainable built environments can lead to decentralized, sustainable and resilient models for livelihood generation. If implemented through appropriate finance, training, linkages and policy environment - sustainable energy driven innovations have the potential to spur improved aspirational livelihoods, increased incomes and drudgery reduction for under-served existing and new businesses.



Ecosystem Approach - Example

Solar Powered Roti Rolling



Livelihood Options for Underserved Communities



Agriculture and Animal Husbandry



Starting new seasons/projects for farming or animal rearing



Providing agricultural technical support services - like installation and upkeep of irrigation systems.



Manufacturing and providing essential inputs for agriculture and animal husbandry - like animal feed manufacturing, fertiliser manufacturing, agri-machine rental services



Agriculture & Food Processing and Marketing



Providing aggregation and linkages to forward linkages like local processing facilities, or cold storage facilities or markets



Providing agricultural processing services for locally grown produce for self consumption, linkage to markets or government distribution systems.



Providing cold storage, carrying and forwarding and marketing services to local farmer groups



Creating food processing enterprises, for adding greater value to locally available resources for easier or better consumption



Textiles and Crafts



Carrying out textile or craft manufacturing or value addition of such products for intended sales or for augmenting other local products or by-products.



Providing storage, aggregation and linkages between different nodes of the craft/textile manufacturing processes or between producers and markets.



Infrastructure and Services



Providing infrastructure services like building design and construction



Providing reliable sustainable energy services and products



Providing digital services like awareness, information and linkages to financing, banking and governmental services



Providing logistics support for various industries



Providing mechanical or technical repair services



Providing last mile retail or cold chain services



Providing last mile health care services



Paddy/ Rice

CHALLENGES

- 1** Diesel for traditional mill is costly, causes pollution
- 2** Traditional mill is very large, not suited for small scale use
- 3** Poor quality/broken rice from PDS shops
- 4** Distress selling of surplus paddy to traders/middleman
- 5** Traditional mills are far away, transport is required

Paddy/ Rice

TECHNOLOGY SOLUTIONS

Rice Huller



50%

Energy Savings

The rice huller improves the output efficiency to 95% from 80-85% of the locally available machine.

Rice Polisher



25%

Energy Savings

Polishes 45-70 kgs of rice every hour depending on the polishing rate (1%, 5%, 14%)

Rice Mill (Separator + Huller + Polisher + Grader)



68.5%

Energy Savings

Processes 150 kgs/ hour of rice - semi automatic and 350 kgs/hour of rice - fully automatic



300 Wp x 12
Solar Panel Capacity



200 Ah x 8
Battery Capacity

MOTOR CAPACITY 2 HP

OUTPUT 100 kg/hr (Huller)
75 kg/hr (Polisher)



While developing innovations for various livelihood sectors (like Dairy in this example), a **value chain approach** is adopted.

SOLAR ENERGY + TECHNOLOGY INPUTS IN THE DAIRY VALUE CHAIN



Dairy Farming

CHALLENGES

- 1 Infrastructure in dairy farming needs improvement to manage labour issues and improve productivity
- 2 Unreliability of electricity in remote regions prevents dairy farmers to use motorised machines at critical milking times
- 3 Introduction of newer technologies can help at greater value to milk produce and encourage expansion

OPPORTUNITY

Improve productivity of small dairy farmers

By investing in reliable infrastructure for milking and other parts of the value chain, dairy farmers can greatly increase their productivity.



TECHNOLOGY SOLUTION

Milking Machine

MOTOR CAPACITY 120 W

TYPE Single Cluster Machine

Chaff Cutter

MOTOR CAPACITY 1 HP

OUTPUT 150-200 kg/hr



CATTLE CAMP BY MANN DESHI

- Cattle Camp for farmers from 60 villages with severe drought
- People moved into the camp with more than 8500 cattle
- Different sustainable energy solutions - from Heat Stroke Center to PUE solutions such as Chaff Cutter for the cattle

PUE examples in the vulnerable communities

Silk Reeling in Assam



Poultry Farming
Entrepreneurs
Developed by
Harsha Trust in
Odisha - (Right)
800 chicks
(Below) 100
chicks



Djibouti : Opportunities

Challenges

- Most economic transactions by refugee communities are consumptive with only city based traders ultimately benefitting.
- Economic transactions are heavily aided and influenced by inflow of food rations and cash into refugee settlements.
- Djibouti's consumption is mainly fulfilled by exported processed commodities. Production and value addition is sparse in Djibouti while supply chains are occupied by a few major players.



Camel Meat Sellers in Ali Addeh



Fishing in Markazi



Tailoring in Ali Addeh

Opportunities

- Increase benefits of livelihood activities and savings in expenditures by providing for commonly needed energy services and amenities.
- Produce commodities for local needs thus reducing external dependencies.
- Increase the diversity of livelihood activities carried out by opening newer markets, providing training and infrastructural support.



Bakery in Markazi



Sambusa Seller in Ali Addeh



Backyard Poultry in Markazi

Increased criticality of Decentralized Local Economies



Thank You!

Get in touch for more information.

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Useful Resources

[Collection of 65 Livelihood Appliances powered by Solar Energy](#)

[Case Studies of entrepreneurs using sustainable energy emerging successfully out of COVID](#)

[Links to video on Livelihood Solutions](#)

