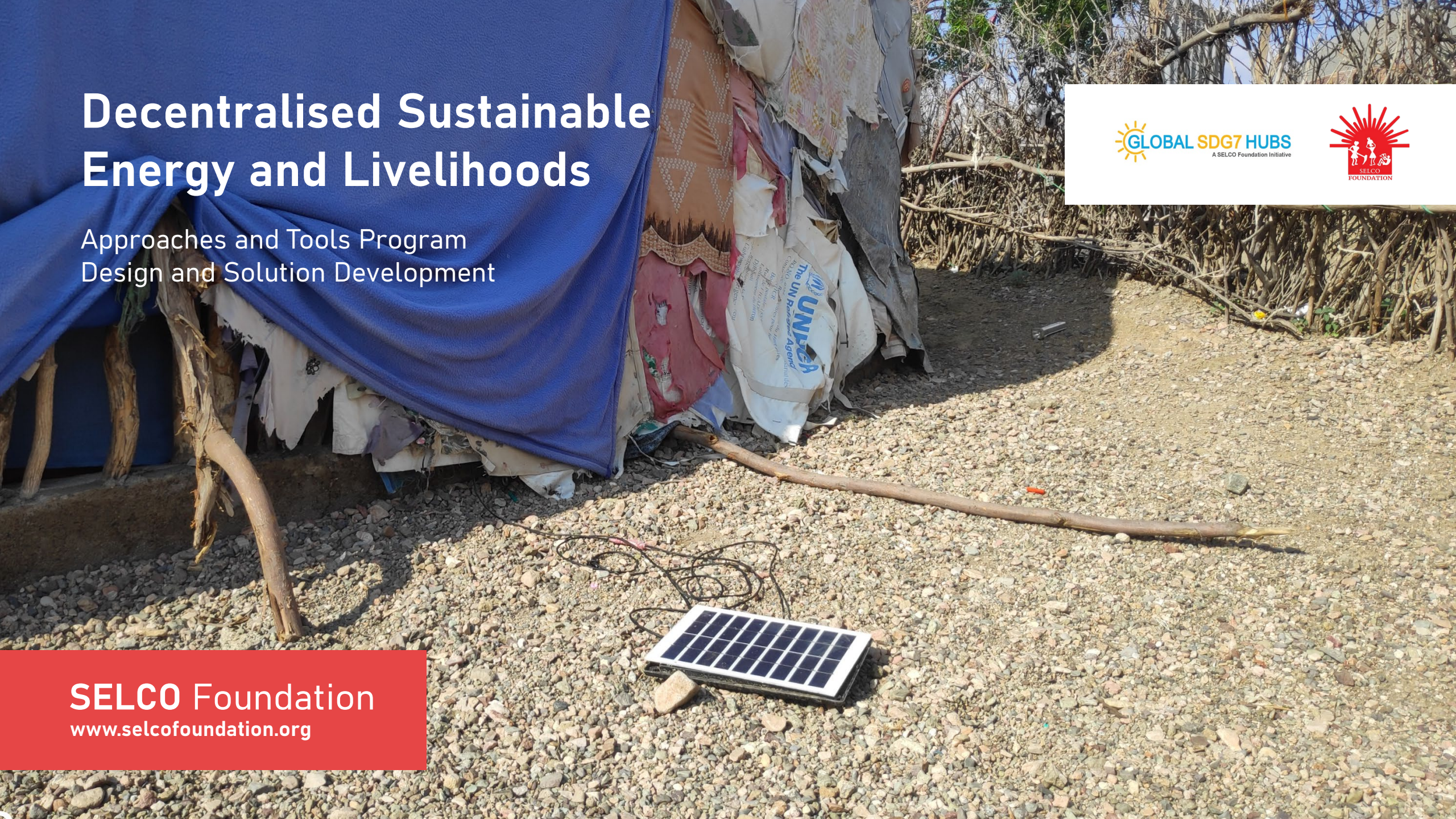
# Decentralised Sustainable Energy and Livelihoods

Approaches and Tools Program
Design and Solution Development




**SELCO** Foundation
www.selcofoundation.org

# Approaches to Program Design and Solution Design for DRE Based Solutions

## Supply Driven
## Top Down Approach

Renewable energy and technology decisions are prioritised

May not account for/be tuned to – livelihood needs, market linkages of businesses and ownership dynamics of users, hindering usage/uptake

Cookie-cutter approach to deployment with little consideration for long term viability

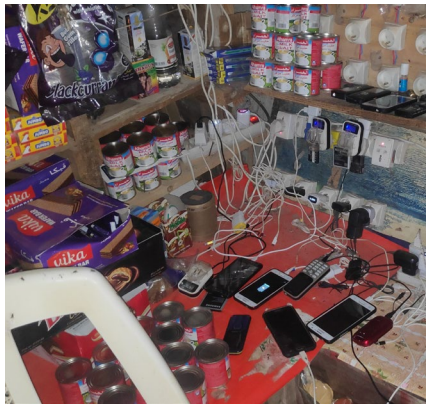
## Demand Driven
## Bottom Up Approach

Livelihood needs are prioritised with technology and renewable energy built for them

Ownership models and financial modelling are built in practices, providing for higher chances of success and asset utilisation

More complex to deploy requiring dedicated personnel with livelihood-energy nexus focus

# Understanding **Livelihood Types and Role of Energy Access**



Livelihoods where **services** are provided to local communities

Energy access can help provide new services

Livelihoods where goods are **traded**

Energy access can help store goods, and avoid wastage, or improve retail practice.

Livelihoods where goods are **manufactured** and processed

Energy access can help improve productivity, reduce drudgery and capture value at decentralised levels

Livelihoods where **primary production** takes place

Energy access can improve and create efficiency in production practices and lower costs of production

# Understanding **Livelihood Sectors**

Light Rentals and Mobile Charging

Digital and Documentation Services

Audio-Visual and Entertainment

Grocery Stores

Domestic, Micro Scale Food Processing (Eg. Spice, Juice, Bakery, Snacks)

Restaurants

Small to Medium Scale Food and Agro Processing

Tailoring and Other Textile Manufacturing, Crafts

Livestock Rearing (Eg. Poultry, Goats)

Agriculture and Horticulture

# **Processes** for DRE Livelihoods – Bottom Up Approach

## Landscape Assessment

What are the ongoing/past livelihoods + financing programs and who are the stakeholders?

What are the ongoing/past energy programs and who are the stakeholders?

What requirements from an energy + livelihoods point of view do key stakeholders prioritise?

## Livelihood Need Assessment

What are the currently practiced livelihoods, what are the livelihood processes and where are the energy/technology needs?

What are the opportunities for new livelihoods and what are the energy/technology needs?

## Solution Design

What technology (hardware) is being selected? How is the energy system designed?

How does the intervention impact the economics of the livelihood? How can the financing model be designed?

How and by whom is the system owned and utilised?

## Joint Program Design and Implementation with Key Stakeholders

Which stakeholders can come together to carry out the program and how?

What are the program components – vis. a vis. Ecosystem needs

How is the program phased and budgeted?

# Designing Appropriate Technology Models

## Technologies Selected as per Livelihood Need

Output/Capacity Needs of Livelihood Process

Suitability to User/Context Specific Needs

## Energy Efficiency of Technologies Selected

## Appropriate Energy System Designs

Duty cycles and hours of operation

Local weather conditions (sunshine hours)

Seasonality/frequency of livelihood processes for optimisation

## Consider built environment, spatial design and infrastructure needs

**Is the technology + energy solution locally available with spare parts?**

**Who is installing the system? Is the system supplier locally present?**

**How is the system being maintained?**

# Designing Appropriate **Financial Models**

**User needs for financing and livelihoods**

Establish features of livelihood solution required

**Gauging potential impacts of livelihood and DRE tech solutions**

Establish economic impact of solution and change (if any) in business operations after solution deployment

**Specific technology needs and costs of solutions**

Establish design, cost of solution and co-relation to economic impact ascertained

**Gauging affordability at the user level (Vulnerabilities of Communities)**

Establish gap financing and subsidy requirements

**Access to financial services based on regional ecosystems**

Establish financial products and terms of financing along with any additional support services

# Designing Appropriate **Ownership Models**

**Individual Entrepreneur Owned and Operated**

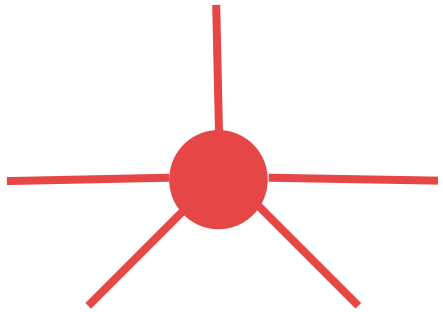
**Small of Large (Formal) Group Ownership (Depending on viable/minimum volume operations)**

**Institution owned with pay-per-use services for entrepreneurs**

# Building the **Ecosystem**

What technology solution is available, and who provides it? Are there local **technology +energy providers**?

What livelihood/ entrepreneurship **capacity building** needs are there and who provides it?



What financial products are available and who provides it? Are there local **financial institutions**?

Which livelihood **input/output linkages** are required and who builds them?

What is the **livelihood policy/energy environment**? How can risks be mitigated and opportunities capitalized?

About
## SELCO Foundation

**Since 2010**

- Inclusive innovation to meet end-user needs
- Incubation of local energy enterprises
- Institutionalization- working with partners across health, livelihoods etc.
- District level, State level Programs (India)
- National level advocacy (India)
- Global Replication and Knowledge Sharing

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## Reach out to us for further information, resources and support for DRE implementations

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