




Health-Energy nexus in Humanitarian settings

GLOBAL SDG7 HUBS
A SELCO Foundation Initiative

SELCO FOUNDATION

Health Sector

- ✗ Lack of awareness of sustainable energy solutions for health care.
- ✗ Limited capacity to implement sustainable energy solutions.
- ✗ Limited awareness of the use of energy efficient devices/technologies/ green building guidelines with relation to health.

Final goal - Universal access to Healthcare

Health-Energy Nexus

- ✓ Critically understanding the health care access gaps and energy needs that hamper the delivery of health care.
- ✓ Conduct joint audits and optimize energy solutions parallel to health gaps which will help the improve quantity as well as quality of health services offered.
- ✓ **Final goal - Sustainable Delivery of Health**

Energy Sector

- ✗ Lack of awareness and understanding of how to develop customized, optimized and efficient sustainable energy solutions for health care settings.
- ✗ Lack of prioritization of energy projects in the health sector as well as lack of active collaboration with health care centric organizations & bodies.

Final goal - Access to Sustainable Energy

Key infrastructure components

1. A well lit, ventilated and well designed physical space where mothers feel comfortable

Eg. The KEBA Sub Center Building in Arunachal Pradesh

2. Necessary medical equipment which are robust, reliable, appropriately designed and energy efficient

Eg. Efficient Baby Warmer by GE at Kannur PHC, Karnataka

3. Availability of a reliable, decentralized, clean electricity source to run the equipments when needed

Eg. Solar System Design at Tribal Hospital, Tamil Nadu

Value chain approach

to determine energy gaps

Pre-Natal Care

Portable Solar Powered kits for community health workers to deliver basic care at home

Intra-Natal Care

Mobile/Stationary labour room with equipments for emergency/regular delivery and stabilization

Neo-Natal Care

Efficient neo-natal equipments for reliable care at the primary level

Ecosystem approach

Stakeholders to implement and manage energy-health interventions

ECOSYSTEM STAKEHOLDERS IN HEALTH-CARE FOR SUSTAINABLE ENERGY, EFFICIENT APPLIANCES, AND EFFICIENT BUILT ENVIRONMENTS

Tech & Design

- Manufacturers, vendors, suppliers
- Clean energy enterprises
- Architects, masons, contractors, civil engineers

Training & Skills

- Training health staff / medical officers at the healthcare service point
- Training institutes for pubic building constructions, Masons

Service & Delivery

- Public health care points
- NGOs bridging last mile delivery in health private health care providers
- Public private partnerships

Finance & Ownership

- Procurement guidelines, Govt. certifications
- National and state level health depts. & public works department

Policy

- Multilateral/ international development health agencies (public and private),
- National and state level health depts,
- Incubators/ accelerators

Trajectory of energy-health programme development

Proving of models and processes with Karuna Trust

30 health centres

District-wide strengthening of health+energy system in Yadgir

80 health centres

Blanketing efforts with State Health Departments

(leveraging government funds)

~1300 health facilities across 5 Indian states

Global efforts working with partners and key stakeholders

Improving tools and approaches to training and system design

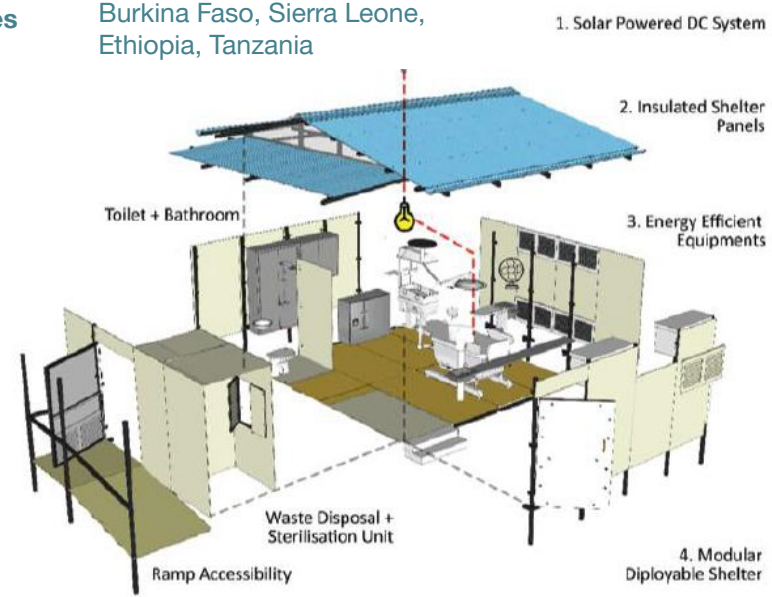
Global programmes

Burkina Faso, Sierra Leone, Ethiopia, Tanzania

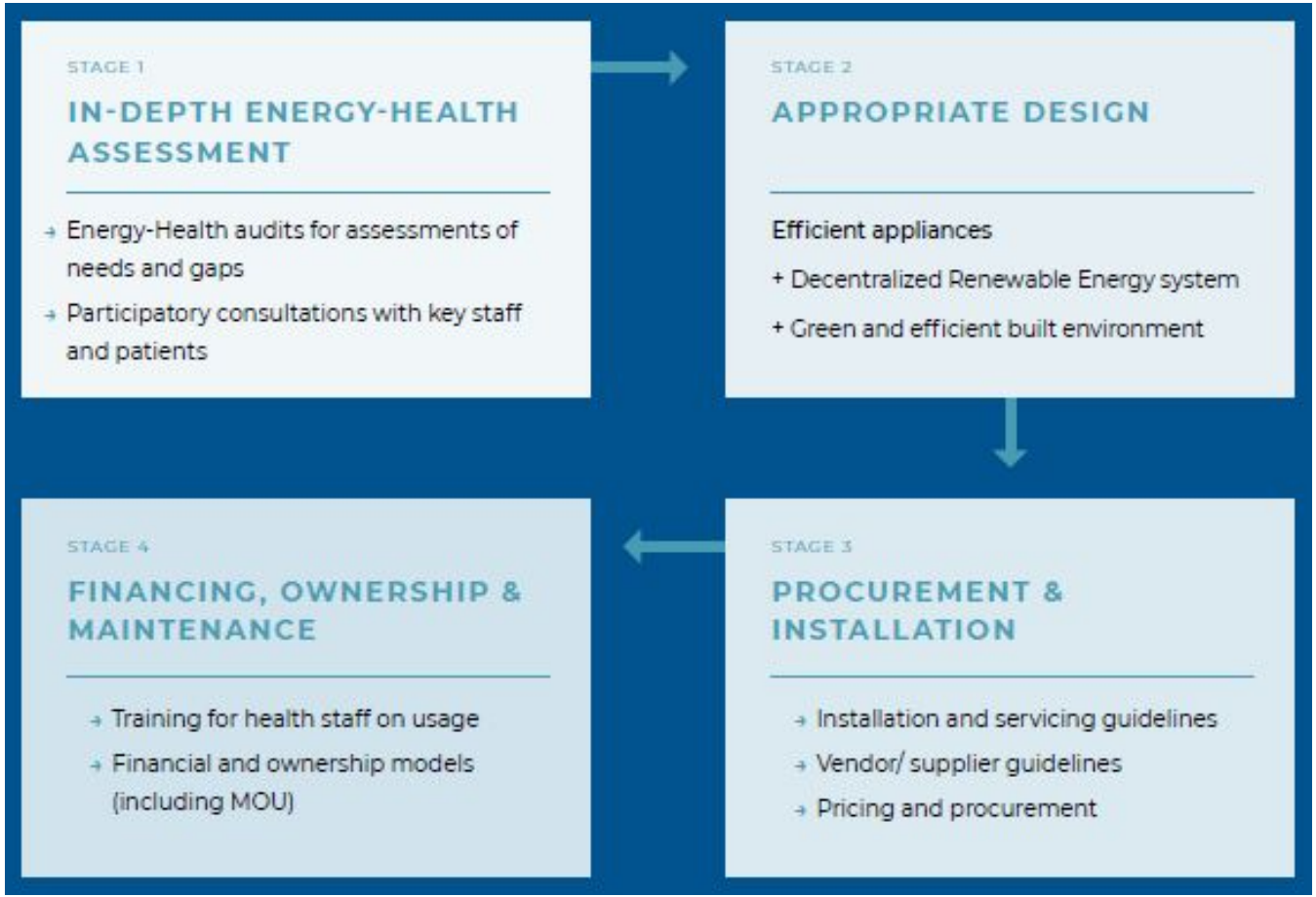
National level procurement guidelines

+

Co-designing programmes with global stakeholders- GAVI, WHO, IRENA etc.

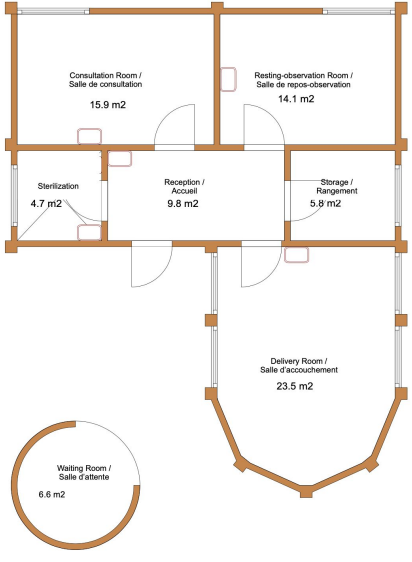


Approach to design energy-health interventions



Health-Energy assessments

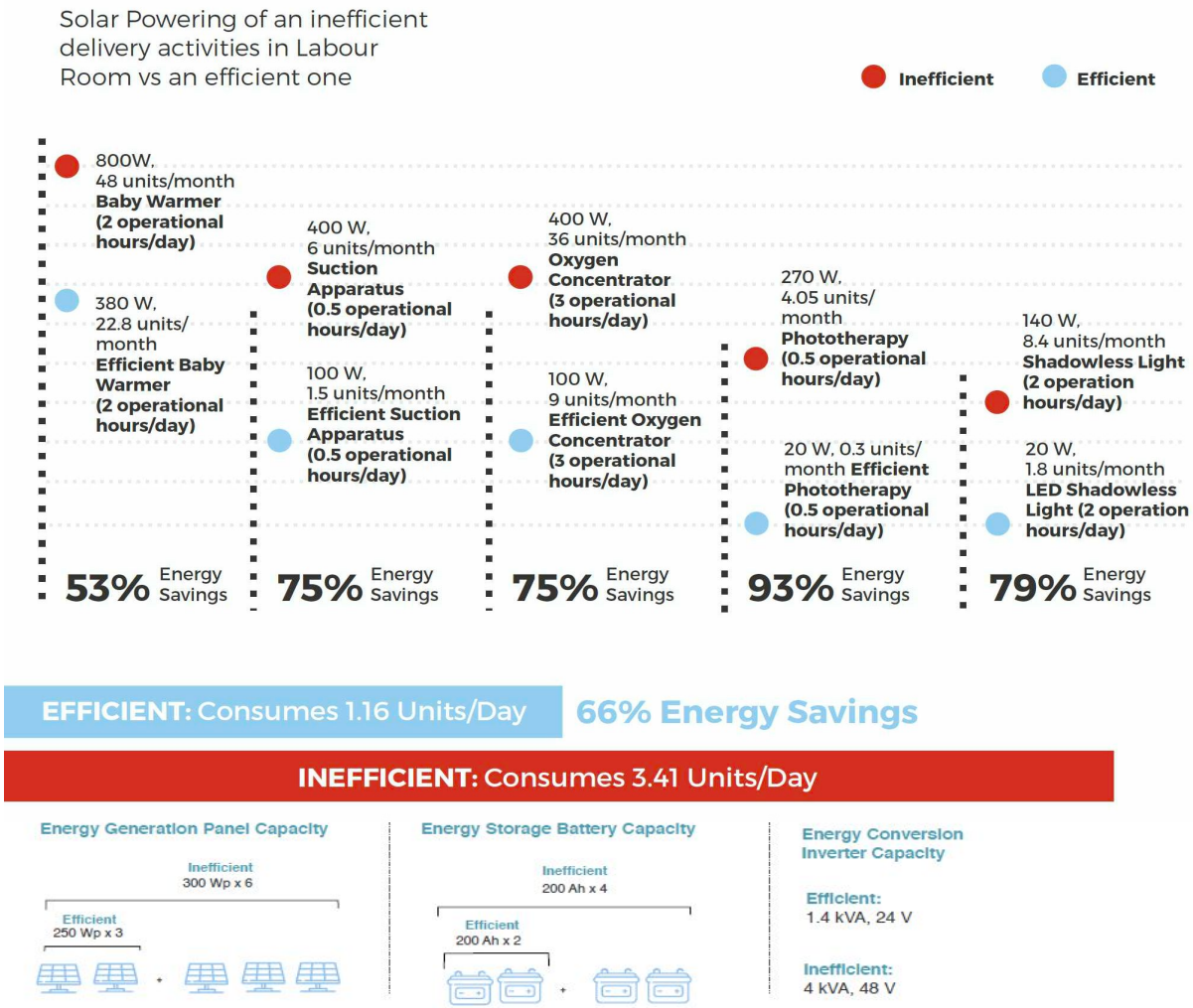
- Identifying gaps in health service delivery
- Mapping energy inputs to bridge these gaps
- Consultations with health staff, patients



	Sub-themes	Q&A (directed to health staff/ management)	Tangible Data Sources (energy meters*, data logging, bills receipts, registers etc)	Observation/ Checklists (benchmarking against actual on-site capacities & specs or IPHS Guidelines)	Photographs
TYPE OF CENTRE	Sub center, Primary Health Center, CHC, District Hospital	✓			✓
	Service Hours	✓			
COMMUNITY AND AREA PROFILE	Demographic details of the health centre	✓	✓		
	Amount of sunlight + seasonal variation of weather or disaster risk typology	✓			
	Remoteness and access to maintainence services	✓			✓
HEALTH SERVICES	Health services offered and implementation status - clinical and diagnostic service, other community services	✓		✓	
	OPD attendance and bed occupancy	✓	✓	✓	
	Diagnostic services carried out	✓		✓	
	Number of tests done	✓	✓	✓	
LOCAL ILLNESSES	List of various local diseases	✓	✓		
	Steps taken by health centre to counter these diseases	✓	✓	✓	
HUMAN RESOURCE	Medical Officer(s) and other health centre staff sanctioned and working	✓	✓		
	Training and capacity building of staff	✓		✓	
BUDGETING	Arogya Raksha Samiti - Financial allocations for the centre	✓	✓		
BUILDING	Building dimensions and materials, shading, roof type, existing wiring infrastructure(baseload/heating load), earthing quality		✓	✓	✓
EQUIPMENT	Utilisation of various amenities and equipments, and availability of equipments	✓	✓		✓
POWER QUANTITY, QUALITY & COST	Electricity situation, power cuts, existing back ups/ alternate sources, existing loads/ appliances (including pumping and heating requirments) - list capturing appliance type, specs, brand, wattage, duration of use etc	✓	✓		✓
	Voltage fluctuations		✓		
	Capital and recurring cost of existing energy sources (Diesel gen set, UPS, grid electricity)	✓	✓		

Appropriate design

Energy efficient medical and electrical appliances



Appropriate design

Efficient and green built environment

System	Efficient appliances with Green Building Design	In-Efficient appliances with Green Building Design	In-Efficient appliances with standard typical building designs
Total Load Connected	4290 W	5749 W	5749 W
Total Units Required	21.8 Units	30.63 Units	52.34 Units
Solar Panel Capacity	12 kWp	16.2 kWP	26 kWp
% of Savings (Energy)	28.82% (solution without energy efficient appliances and with green building design) **58.34%** (savings with both- energy efficiency and green building design)		

Appropriate design

Energy system: Need- based solar design options

Eg: Health post/ Sub Center

Option 1	Basic Needs: Lights + Fans + Mobile Charging + Street Light + Computer + Printer / Photocopier
Option 2	Basic Needs: Lights + Fans + Mobile Charging + Street Light + Computer + Printer / Photocopier Vaccine Storage
Option 3	Basic Needs: Lights + Fans + Mobile Charging + Street Light + Computer + Printer / Photocopier Vaccine Storage + Labour Room
Option 4	Basic Needs: Lights + Fans + Mobile Charging + Street Light + Computer + Printer / Photocopier Vaccine Storage + Labour Room + Staff Quarters

Financing, ownership, maintenance

- Procurement guidelines
- Existing resources for equipment and energy systems
- Allocation of maintenance funds

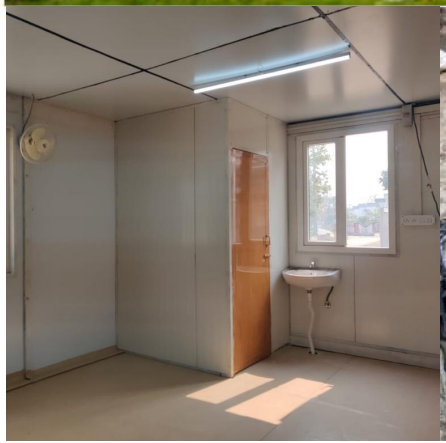
- Trainings with health facility staff
- Local energy enterprise and/ or local technicians

ARS Participation at G.H Koppa PHC by Karuna Trust

60 Km away from Dharwad, the Primary Health Centre (PHC) in G.H. Kopa is situated in Dandili Forest Range in Talaghataki Taluk of Karnataka.

Learnings and takeaways

- Models for healthcare delivery
  - Telemedicine
  - Mobile and last mile solutions
  - Emergency settings
- Design considerations:
  - Portability
  - Climate resilience
- Programme designs
  - Engagement with host communities
  - Cluster based approaches
  - Resource leverage
- Training and capacity building
  - Health equipment use
  - Energy system maintenance



Thank You

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For questions, additional information and comments, please contact:

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