

Solar Energy for Resilient Health Infrastructure: ISA CARES initiative

Shishir Seth
Chief of Unit(Governance and Partnerships)



PRIMARY HEALTHCARE CENTERS ARE THE BACKBONE OF HEALTHCARE DELIVERY

ROLE OF PRIMARY HEALTHCARE CENTRES



Community mobilization and Education



Nutritional support



Maternal and child care



Immunization Programs



Prevention and control of locally-endemic diseases and pandemics



First line of treatment of common diseases and injuries



Provision of essential drugs and medicines



Basic lab services and selected surgical procedures

LACK OF ACCESS TO RELIABLE ELECTRICITY - Impediment To Robust Health Infrastructure

Lack of reliable data on electrification status of rural primary health centres

A 2018 survey found only 41 % health facilities in low-and-middle income countries had reliable electricity

Rural Health Survey 2019 of India identified 795 PHCs with no electricity while DLHS 4 in 2012 noted 50 % lacked reliable supply

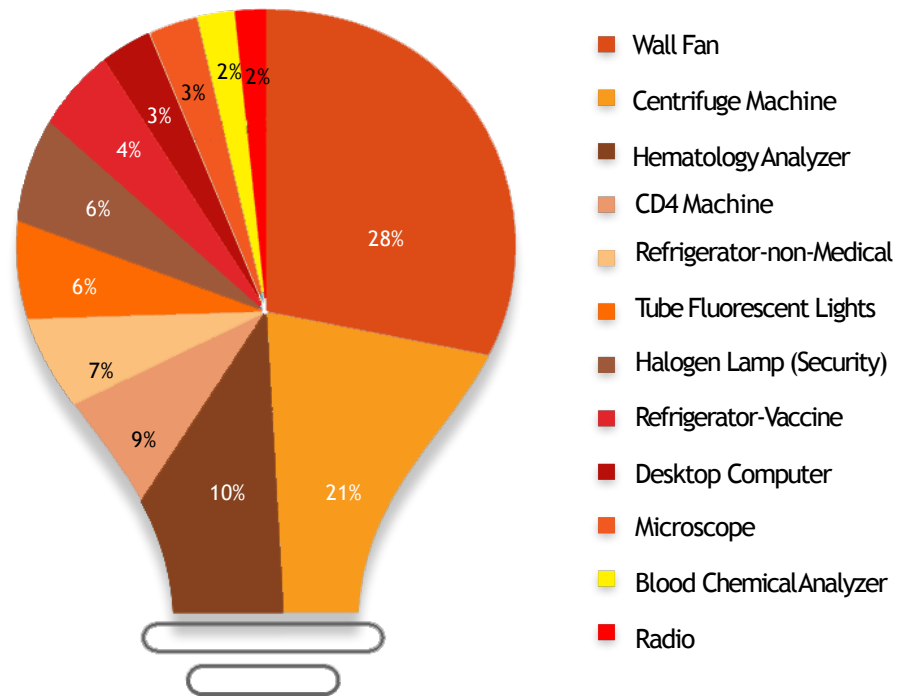
Less than 50 % of Community Clinics in Bangladesh had regular access to electricity (BHFS 2017)

1 in 4 health facilities in Sub-Saharan Africa had no access to electricity and more than 2 in 3 lacked reliable supply

Only 28% of health facilities and 24% of hospitals had 'reliable' access ('without prolonged interruptions') in 2015

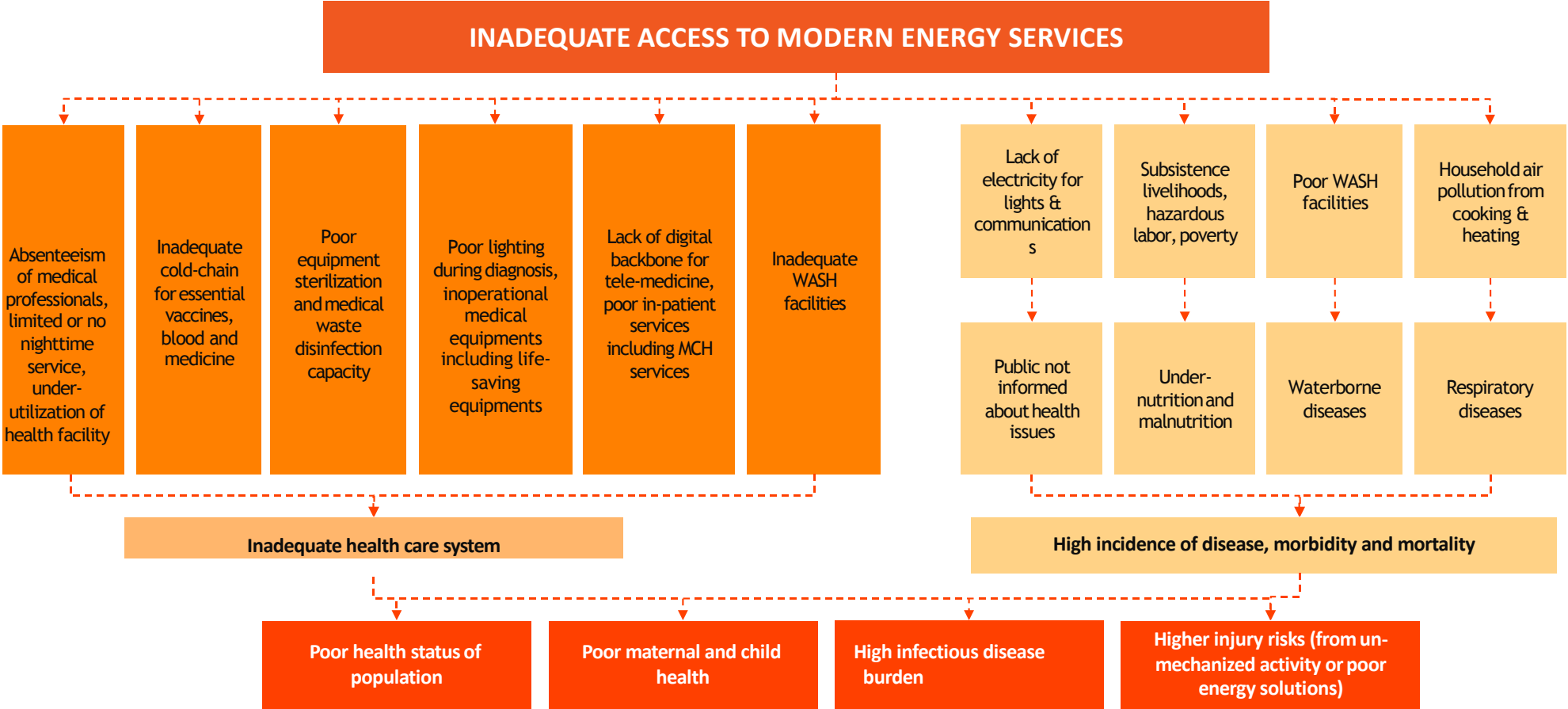
Reliability of energy access presents a key issue with numerous negative knock-on effects for medical service delivery, including those relating to lighting, refrigeration and sterilization.

Power requirement across different products in Primary Healthcare Centre (Nigeria Case Study)

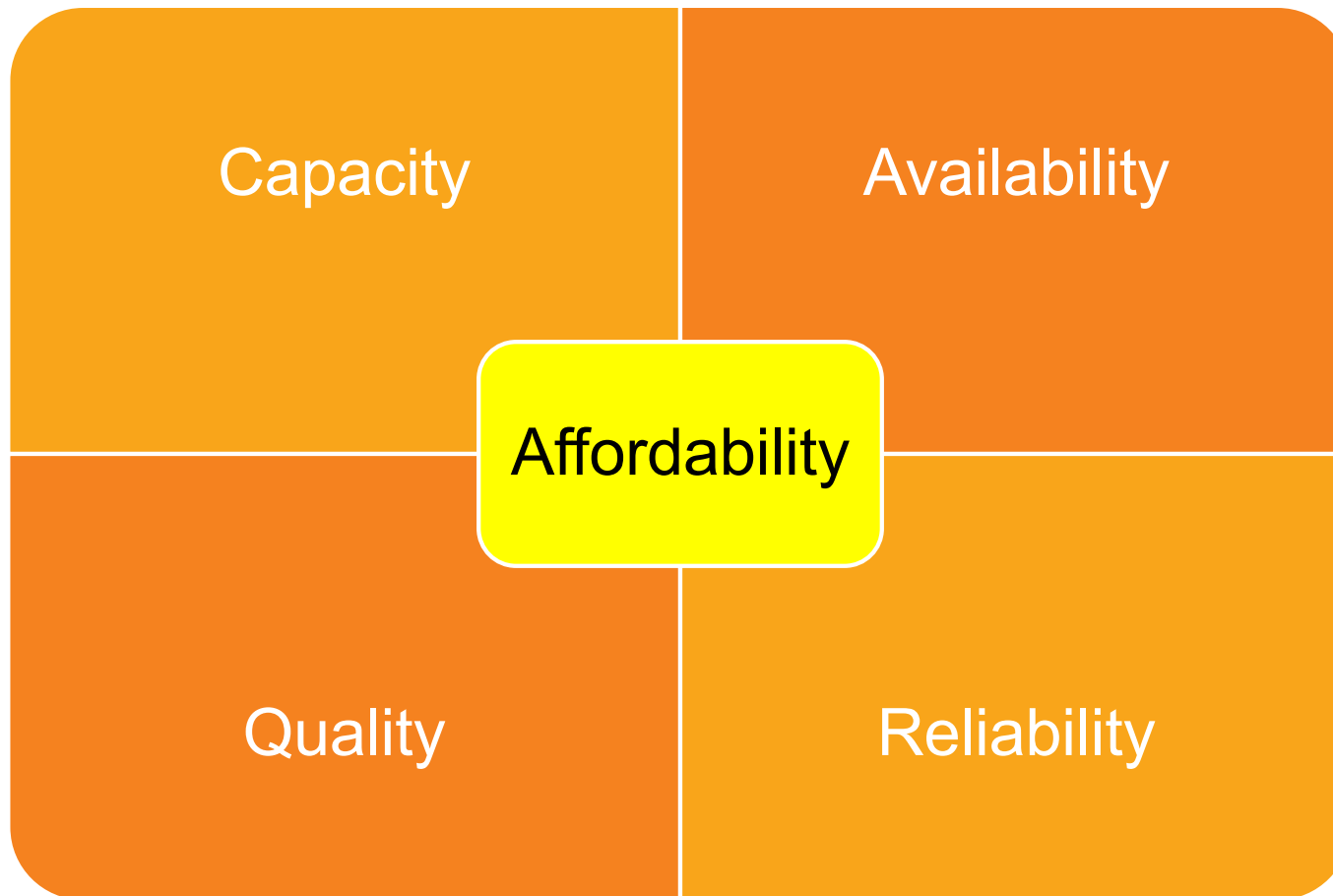


Source: Off-grid hybrid renewable energy system for rural healthcare centers: A case study in Nigeria

INADEQUATE ACCESS TO ELECTRICITY HAS SERIOUS CONSEQUENCES ON HOUSEHOLDS DUE TO LACK OF OVERALL HEALTHCARE SERVICES



MULTI-DIMENSIONALITY OF ENERGY ACCESS FOR HEALTH CARE



SOLAR PV AND HYBRID SYSTEMS WITH BATTERY BACKUP - VIABLE SOLUTIONS

Configuration	Solar PV Capacity (Kw)	Generator Capacity (KW)	Number of batteries	Converter Capacity (KW)	Initial Capital (US\$)	Annual Generator Usage (hours)	Annual quantity of diesel (L)	Total Net Cost (US\$) for 25 years	Cost of Energy (US\$/KWh)
Generator only	-	2.0	-	-	2000	6570	2258	62862	1.981
PV + Generator	4.0	2.0	-	2.0	10640	3714	1157	43139	1.359
Generator + Battery	-	2.0	18	2.0	7014	2327	1395	39917	1.258
PV + Battery	3.5	-	16	2.0	11528	-	-	13992	0.441
PV + Battery + Generator	3.0	2.0	8	2.0	10584	253	91	13778	0.434

Cost assumptions include Generator (US\$ 1000/kW); Fuel (US\$ 1.2/liter); PV system (US\$ 2 000/kWp or US\$ 2/Wp); Inverter (US\$ 0.320/Wp) and battery (US\$ 180/kWh), all including installation. Interest rate (7.5%). A daily “noise” potential of electricity load variation of 10% and potential of hourly variations of 15% also are assumed.

Source: USAID's Powering Health (United States Agency for International Development, 2012), and based on the USA National Renewable Energy Laboratory (NREL) HOMER® power optimization model

'ISA CARES' INITIATIVE FOR SOLAR ENERGY SOLUTIONS FOR HEALTH



Picture Relevance: Shabasonje, Zambia Health Center. Since the implementation of the solar panels on the roof of the clinic, there is an uninterrupted supply of electricity which ensures that vaccines stay cold and do not spoil

Cross-sectoral approach to health through solar energy-based power infrastructure at primary health facility level in low-and middle-income countries - a partnership of ISA and HIEx

Pilot and building robust infrastructure in 10 countries through demand aggregation

Blended finance through ISA CARES Fund for first loss tranche through grant support and senior tranche through investment for project financing

Technical Assistance fund for readiness & project preparation support to countries

Risk mitigation Grant support for Sovereign guarantee and subsidy as needed

Reverse auction through transparent bidding process in partnership with local line ministry and renewable energy development agencies

Blend of equity and concessional mezzanine debt to attract private investors

Expected Outcome/ Impact of the Initiative

Uninterrupted power supply for safe and effective diagnostic & surgical health services

Improved staff retention, reduced absenteeism and increased operational hours

Digital innovations, Tele-medicine and Health information systems

Improved Health indices -MCH indicators

Reliable supply chains for medicines and vaccines

THANK YOU