Sustainable energy solutions for Humanitarian Settings

2022





Need for Sustainable Energy







DRUDGERY AND INCONVENIENCE

IRREGULAR POWER; USE OF FOSSIL FUELS INCOME GENERATION and SAFETY NETS

LONGER TERM RESILIENCE BUILDING

SDG7 Nexus for Poverty Alleviation and Climate Action



Energy is a primary requirement for a large number of developmental activities. Essentially making SDG 7 a prerequisite to achieve other SDG targets.



HUMANITARIAN CONTEXT

Key factors and drivers Community typologies Energy needs



Humanitarian crises and SDG7: Context



Source: *https://www.un.org/en/sections/issues-depth/refugees/

Context:

In addition to persecution and conflict, the 21st century has seen climate disasters (sometimes linked climate change)- many of which have resulted in some of the worst humanitarian crises with people forced to seek refuge in other regions or other countries. By the end of 2018, more than 70.8 million people were forced from their homes by conflict*. In Africa out of the total 18 million individuals in situations of displacement, 12.5 million are Internally Displaced People (IDP) who are seeking refuge within their own countries. In the case of those affected by climate risks, most of the displacement is internal.

Defining the Humanitarian crisis

Settlements resulting from forced displacement:

Due to one or more of the following drivers

- Climate change and natural hazards
- Socio-political conflict
- Economic reasons

Currently in one of these timeframes./ stages:

- Emergency
- Post emergency
- Protracted

that require solutions across different developmental areas for sustenance and well being.

Forcibly displaced communities include*:

- A. Refugees
- B. Asylum seekers- refugee status claim yet to be determined
- C. Internally Displaced People (IDPs)
- D. Their host communities

*Adapted based on definition from Endev 2021

Humanitarian crises and SDG7: Gaps



The <u>cluster approach</u> in humanitarian settings, constituted by a number of organisations within and outside the United Nations umbrella provides a host of different support services to such individuals in situations of displacement. Despite the efforts as part of the Cluster approach, there are clear gaps that need to be addressed.

Missing energy link:

- SDG7 and energy access currently not part of cluster approach and hence are not part of priority planning
- Lack of energy solutions at various stages within the crisis- onset, emergency, post emergency and longer term solutions for displaced communities

Timeframes and solution options:

- Settlements are often not as 'temporary' as they may appear
- Current response strategy is cyclical and highly aid-dependent
- Growing interest among organizations to move from purely immediate relief efforts to more longer-term developmental solutions

Developing more sustainable solutions for humanitarian settings requires an understanding of the crises in terms of the drivers, timeframes and settlement types (rural/ urban; restricted/ unrestricted; temporary/ permanent), mapping community typologies based on these factors and identifying energy solutions and SDG7 programmes that have been deployed in similar contexts

Key factors: Drivers of Displacement and Humanitarian crises

CLIMATE RISK and NATURAL DISASTER



SOCIAL and POLITICAL CONFLICT



ECONOMIC CRISES



Key factors: Timeframes of Humanitarian crises



Notes:

- Emergency: "any situation in which the life, rights or well-being of refugees and other persons of concern...will be threatened unless immediate and appropriate action is taken...".
- Protracted: "a protracted refugee situation is one in which refugees find themselves in a long-lasting and intractable state of limbo. Their lives may not be at risk, but their basic rights and essential economic, social and psychological needs remain unfulfilled after years in exile. A refugee in this situation is often unable to break free from enforced reliance on external assistance."

Adapted from UNHCR definitions: UNHCR emergency handbook, https://www.unhcr.org/40c982172.pdf,



Typical Humanitarian and Displacement contexts + Energy needs

SOCIO-POLITICAL CONFLICT



Refugee Camps; Internal Displacement camps





Flood and Cyclone affected communities

ECONOMIC CRISIS



Urban Slum communities

- Plug and play energy options
- Modular housing structures

- Reliable energy for disaster shelters
- Portable options for basic lighting + mobile charging
- Health kits for emergency check-ups

EMERGENCY

PROTRACTED

- Income generation + livelihood opportunities; reduce drudgery
- Reduce expenditure on fossil fuels
- Reliable energy + appliances for Health posts
- Power for local services
- Need for more resilient livelihoods
- Disaster resilient homes, infrastructure

- Energy for household needs
- Income generation opportunities
- Reduce expenses on fossil fuels

ENERGY ECOSYSTEM

Ecosystem approach for humanitarian settings

Energy solutions for livelihoods, health and community institutions



Energy Ecosystem in Humanitarian and displacement contexts



Energy solutions for typical small businesses



ICT and DIGITAL SERVICES

- Digital services- laptop, printers, ICT Hub
- Mobile charging business



MIXED BUSINESSES AND SERVICES

- Refrigeration for Petty shops, Small restaurants
- Energy for salons and hairdressers



SMALL MANUFACTURING

- Tailoring- sewing machines
- Pottery- pottery wheels

Energy solutions for typical agriculture and livestock needs



SUBSISTENCE AGRICULTURE

- Solar Water pumping + sustainable irrigation
- Basic tools for on-farm activities



LIVESTOCK

- Poultry- Backyard poultry + for sale
- Vaccination needs
- Pastoralists and Dairy farminghydroponics, refrigeration, milking machines



AGRO PROCESSING and MILLING

- Value chains: Flour, Sorghum
- Hulling, destoning, grading, grinding, milling

Energy solutions for health facilities and community institutions



HEALTHCARE SOLUTIONS:

- Energy efficiency drive in health facilities
- Solar energy systems to replace diesel in health posts
- Portable vaccine carriers, maternal health kits, solar powered boat clinics



DISASTER SHELTERS: (cyclone/ flood)

- Solar energy for basic lighting, mobile charging in shelters
- Solar powered rescue boats
- Climate resilient built environment



SCHOOL- LEVEL SOLUTIONS

- Basic lighting, audio-visual aids
- Refrigeration
 - (eg: for School-feeding initiative of WFP-World Food Programme)

Energy planning for Disaster affected communities:

Mapping response timeline and solution possibilities for cyclones and floods

PREPAREDNESS	IMMEDIATE RELIEF and RECOVERY		RESILIENCE BUILDING
Early warning systems + Evacuation	Cyclone makes landfall/ He Flooding occurs; up Shelters come into use ho Diesel generators available, but access to fuel itself	ealth camps and check os; Attempts to rebuild omes	Rebuild livelihoods To reduce future vulnerability to disaster and increase community resilience
• Day -2	• Day 1-5 • Da	ay 5-20	• Day 30 onwards
•	•		•
ZERO CARBON, DISASTER- RESILIENT HOMES / SHELTERS	• SUSTAINABLE ENERGY POWERED, MULTI-PURPOSE SHELTERS including SCHOOLS + PRIMARY HEALTHCARE	ZERO CARBON, TRANSITIONAL HOUSING PORTABLE SOLAR LIGHTS and MOBILE CHARGING	ENERGY FOR LIVELIHOODS Energy for Agriculture: Small businesses

CASE STUDIES

Disaster affected communities (Internal displacement)

Refugee settlements

Internal displacement camps



Typical Humanitarian and Displacement contexts + Energy needs

SOCIO-POLITICAL CONFLICT



Refugee Camps; Internal Displacement camps





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- Income generation opportunities
- Reduce expenses on fossil fuels

INTERNAL DISPLACEMENT (Disaster affected)

Lakhimpur, Assam, India

Context

- Annual flooding in Assam (North East India); Access to mainland cut off for a few weeks to months every year

- Primarily agrarian community
- Field organizations such as IGSSS provide immediate relief, food, and Non Food items
- Damage to electricity grid during disasters affect basic energy and service access (lighting, mobile charging, milling, digital services)

SOLAR POWERED LIVELIHOODS + DISASTER SHELTERS

SDG7 Solutions:

- Solar energy systems for 8 disaster relief shelters- basic lighting and mobile charging
- Improved, flood-resilient disaster relief shelter
- Livelihood assets- rice mill, solar irrigation system,
- portable, Plug and play solar pump (to cover multiple fields across riverine islands)
- Local NGO (focused on disaster relief and local development) to support utilization and maintenance
- Energy enterprise for solar system servicing
- Local entrepreneurs owning livelihood solutions





INTERNAL DISPLACEMENT (Disaster affected)

Puri, Odisha, India

Context

- Pottery community (Kumbharpada, Puri) + Fishermen community (Pentakhata, Puri)
- Region is highly cyclone prone with high wind speeds on the coast
- In the aftermath of a cyclone, communities cut off from the grid for 1-3 months
- Energy needed for mobile charging and basic lighting for well-being and establishing contact in the aftermath
- Energy needed to help resume livelihoods

SOLAR POWERED LIVELIHOODS + BASIC ENERGY ACCESS in CYCLONE SHELTERS

SDG7 Solutions:

- Pottery community: Solar powered Common Facility Center
- Household solar lighting, mobile charging, pottery wheel
- Basic lighting, mobile charging in 5 anganwadis (also used as cyclone shelters)
- Solar powered sewing machines, Digital center
- Solar systems designed and installed for high-wind speeds

- Energy enterprise for solar system servicing
- Local entrepreneurs owning livelihood solutions
- Pottery community market linkage: Puri Temples
- Community ownership of common pottery facility center
- Strong regulatory mechanisms + institutions for Disaster preparedness and relief (Odisha disaster management)







INTERNAL DISPLACEMENT (Disaster affected)

Jamkhandi community, Karnataka, India

Context

- Agricultural labourers; Dairy is the main occupation
- Socially- vulnerable community historically
- Flooding every year for 30 days + Heat stress during summer
- Damage to houses and livestock
- Unreliable grid access

SOLAR POWERED LIVELIHOODS + IMPROVED HOMES

SDG7 Solutions:

- Basic solar home energy systems
- Improved Homes for heat stress
- Solar powered sewing machines for individual tailors
- Solar powered flour milling machine- entrepreneur run for community needs

- Part Financing through local MFI-NGO (SEEDS) for all solutions
- Energy enterprise for maintenance, servicing
- Market linkage: Local community
- Micro- entrepreneur run businesses





REFUGEE SETTLEMENTS

Nyaragusu Refugee Settlement, Tanzania

Context

- Nyarugusu is the largest refugee camp in Tanzania hosts over 130,000 refugees in 30,437 households.
- UNHCR coordinates including through partners for delivery of various service, including health care for refugees.
- Electricity access is limited and expensive (off-grid diesel generators)
- Health posts unable to operate beyond 4pm owing to lack of electricity; High operational expenditure for Main hospital using diesel
- Health facilities cater to both refugee and host communities

PLANNING and PROGRAM DESIGN: SOLAR POWERING HEALTHCARE FACILITIES

SDG7 Solutions (being planned)

- Energy-health assessment undertaken for 9 facilities
- Solar energy systems + efficient electrical, medical equipment:
 - OPD services + maternity care in health posts
 - OPD + Maternity + laboratory + vaccination in dispensaries and main hospital

- Strong local health partner (Tanzanian Red Cross Society) and UNHCR TZ local team
- Capacity built of key stakeholders on energy-health nexus
- Health facility technicians/ electricians to be trained
- Energy enterprise for solar system installation, maintenance to be identified



CC- Tanzania Kigoma location map.svg

INTERNAL DISPLACEMENT CAMPS

Juba, Central Equatorial State, South Sudan

Context

- 3 IDP camps- Mangaten, Protection of Civilian 3 (PoC3) and Mahad IPD designated by UN Mission in South

- Sudan to protech lives, property and dignity of vulnerable communities affected by South Sudan conflict
- Camps located within Juba city- 84,000 individuals across the 3 camps (established post 2013 conflict)
- Earnings of an average household engaged in small businesses is \$1 per day on average
- Largely unelectrified; where available mainly through diesel generators

ENERGY ASSESSMENT OF LIVELIHOODS + CAPACITY OF LOCAL PARTNERS FOR ENERGY PROGRAMMES

Energy needs assessed

- Over 90 small scale business owners covered
- Small businesses within the camp- mobile charging,tailoring, restaurants, salon shops, petty shops
- >50% have no access to power; those that do use diesel generators which are unreliable + expensive
- Fewer individuals involved in poultry and farming

Local ecosystem:

- Strong local partners engaged within the camp on aspects of basic wellbeing and livelihoods
- Basic market linkage available within the camp
- About 30% of businesses are access financing through Rapita (Merry-go-round), Village Savings and Ioan associations (VSA), Local SACCO



CC- Central Equatoria in South Sudan



Energy livelihood assessments to design energy programmes; Capacity building of local humanitarian and development partners on energy assessment, ecosystem

Partners on Energy programmes for Humanitarian contexts







UNHCR Tanzania







Delivered by:

wfp.ore

World Food Programme

unitar

Kickoff Meeting

11 February 2021, 14:00-15:15 CET

Energy Delivery Models Training





Thank You

https://globalsdg7hubs.org/



