ENERGY EFFICIENT LIGHTING AND APPLIANCES
in East and Southern Africa

Energy Efficient Lighting and Appliances (EELA) Project in East and Southern Africa

EELA for on-grid and off-grid productive use in EAC and SADC

12 April 2022

Sweden Sverige

UNIDO

SACREEE
SADC CENTRE FOR RENEWABLE ENERGY & ENERGY EFFICIENCY

EACREEE
Building a Sustainable Energy Future

Swedish Energy Agency

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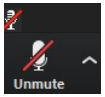
- Kindly ***mute*** your microphone during the presentations. 

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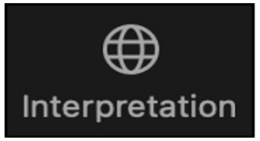
- ***Type*** your comments and questions (English, French or Portuguese) in the *group chat* on the right of your screen. 

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Virtual and interactive!

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Agenda

No.	Webinar Item	Time (CAT/EAT)	Name	Organisation
1	Welcome remarks	10:00-10:10 / 11:00-11:10	Ms. Karin Reiss-Haimbala	UNIDO
2	Presentation on EELA Project market assessment and recommendations on PUE for SADC and EAC regions	10:10-10:40 / 11:10-11:40	Mr. James Wakaba, Director East Africa Ms. Monica Wambui, Senior Associate Clean Energy Access	CLASP
3	Presentation on global outlook on PUE appliances drawing on LEIA examples	10:40-10:50 / 11:40-11:50	Ms. Richa Goyal, Senior Insight Manager Ms. Sarah Hambly, Partnership and Communications Manager	Energy Saving Trust
4	Q&A	10:50-11:10 / 11:50-12:10		
5	Presentation on EELA Project activities on PUE	12:10-12:20 / 13:10-13:20	Mr. Readlay Makaliki, Lead Technical Expert, EELA Project	SACREEE
6	Facilitated discussion in breakout rooms on “Country experiences on EELA for PUE”	12:20-13:05 / 13:20-14:05	All Participants	
7	Closing remarks	13:05-13:15 / 14:05-14:15	Mr. Kuda Ndhlukula, Executive Director	SACREEE

Moderator: Denis Ariho, Lead Technical Expert, EELA Project, EACREEE

Welcoming remarks and objectives of the webinar

Ms. Karin Reiss Haimbala, UNIDO - EELA

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EELA Project market assessment and recommendations on PUE for SADC and EAC regions

Mr. James Wakaba, Director East Africa, CLASP
Ms. Monica Wambui, Senior Associate, CLASP

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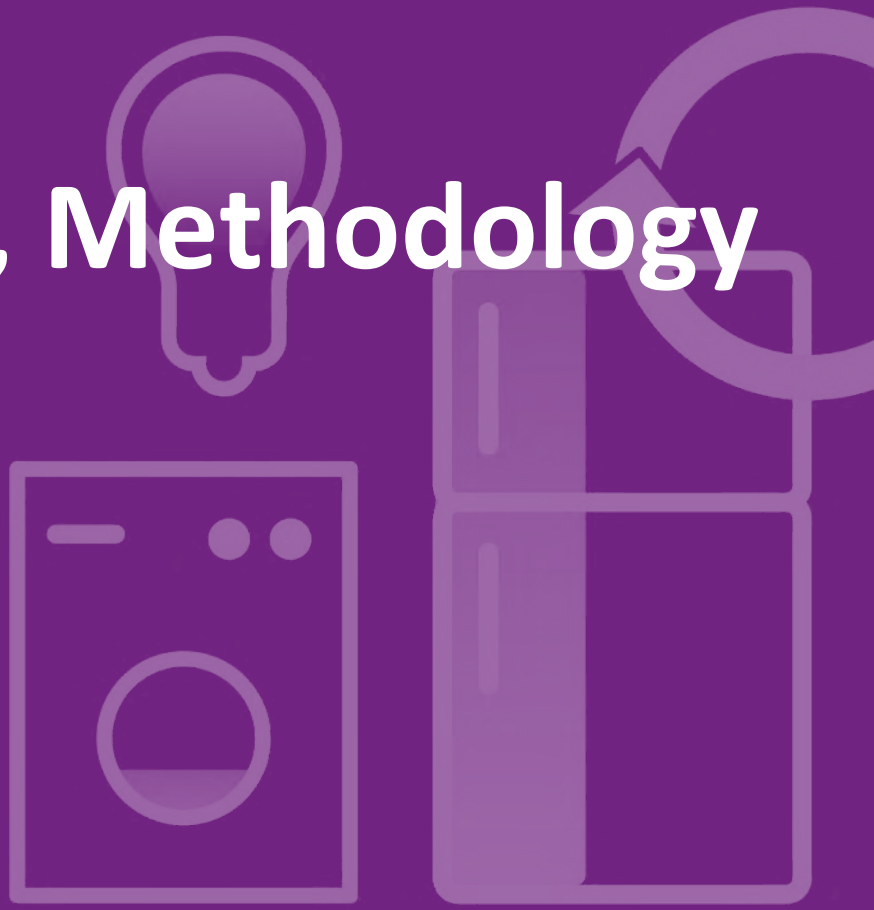
Study Objective, Methodology and Tools



The Assignment

Objectives

- Characterize the market for energy efficient appliances and equipment for on-and off-grid productive use in the EAC and SADC regions
- Analyze the existing supply/value chains for on-and off-grid productive use
- Identify high impact interventions to support increased uptake of PU appliances and equipment

Activities

- Macro-level analysis of the regional market
- In-depth analysis of 6 selected countries;
- Identification and prioritization of most relevant PUE appliances
- Market sizing for priority appliances in focus countries

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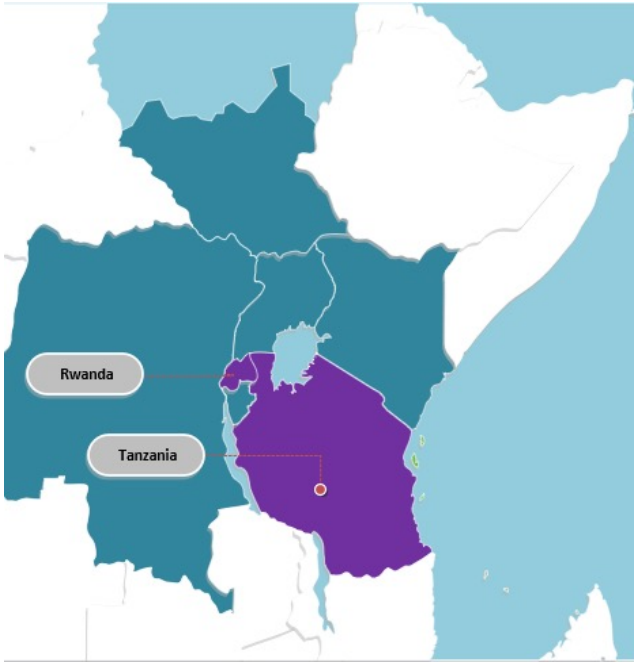
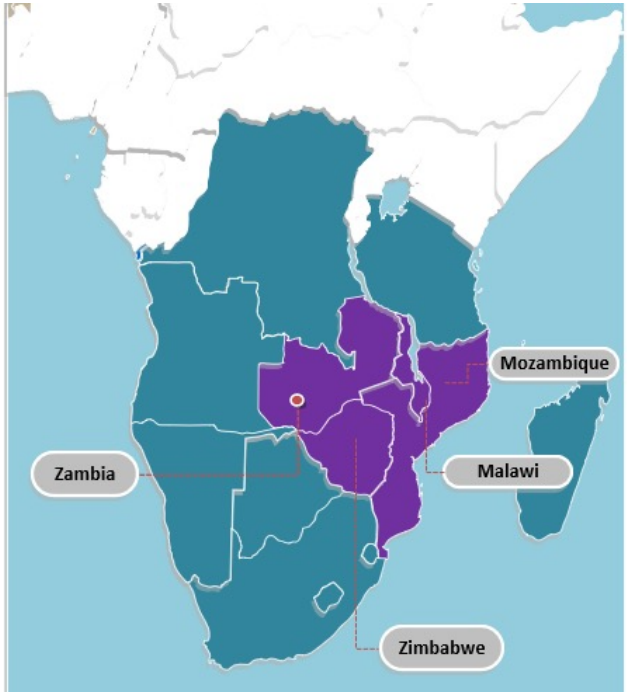
Consultative Country Selection



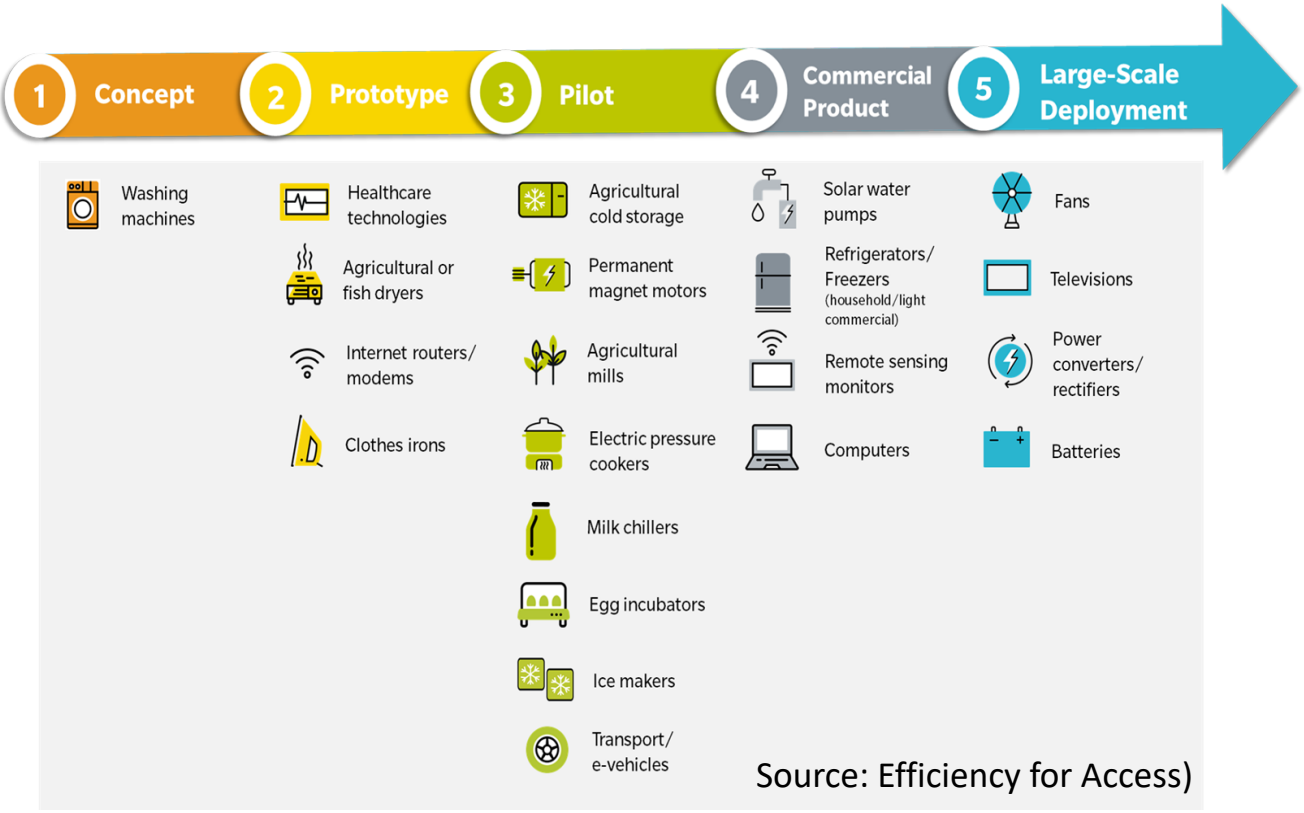
- Regional representation: 2 EAC, 4 SADC
- Geographical diversity - coastal and landlocked countries
- Market nascence: development and electrification levels
- Status of EE and PUE policies
- Climatic conditions
- Energy situation, challenges in the sector
- Structure of the private sector
- Availability of data

Focus Countries

- EAC: Rwanda, Tanzania
- SADC: Malawi, Mozambique, Zambia, Zimbabwe



Appliance selection criteria



Source: Efficiency for Access)

- Technological maturity
- Income generation potential
- Private sector stimulation
- Efficiency gains
- GHG emission reduction potential
- Inclusivity
- Scalability

2	1	0
Has All indicators/ very likely/ significant potential	Has at least two indicators/Likely/ Some potential	No indicators/ unlikely/ too niche/ not potential;

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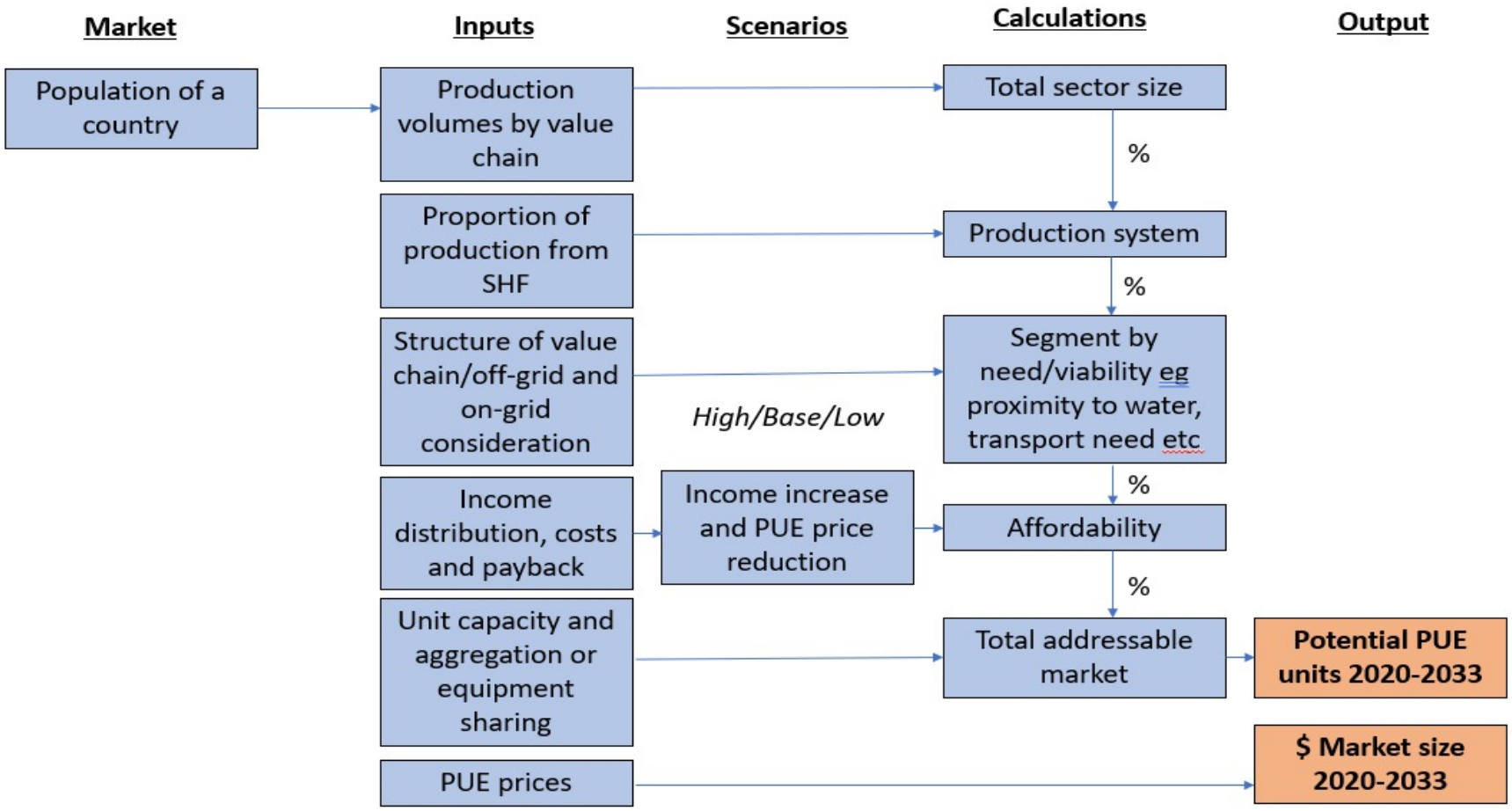
Market Sizing Methodology



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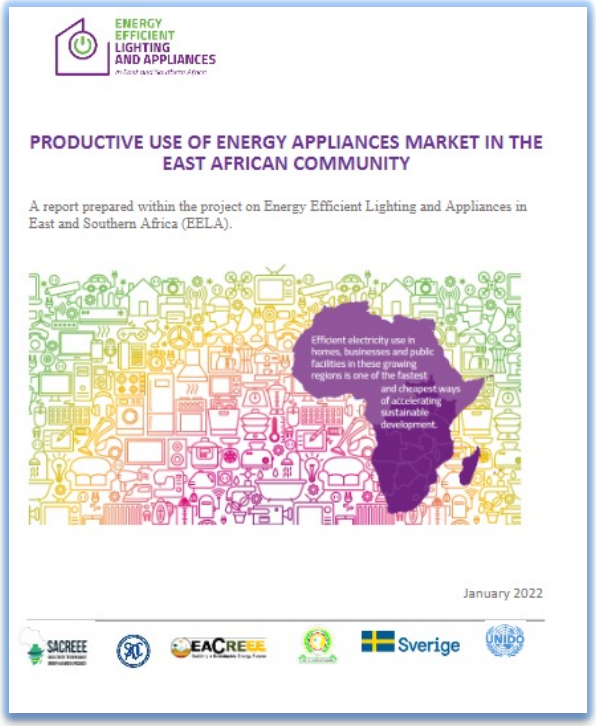
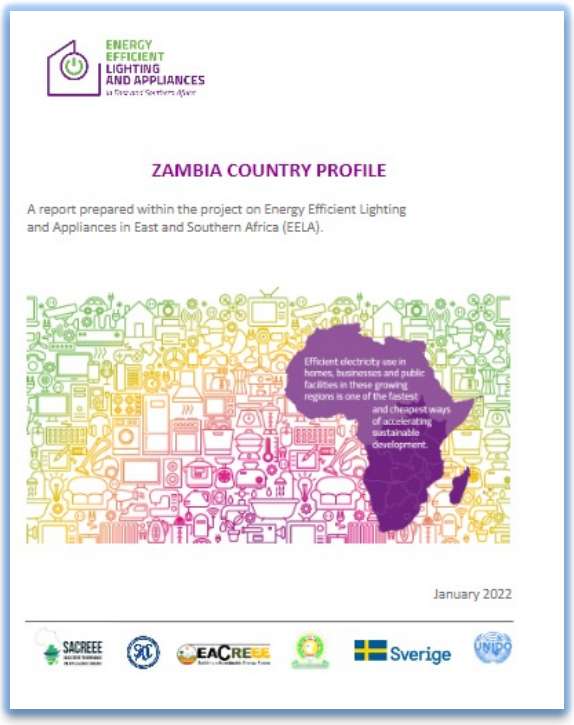
The Outputs



PUE Analyses in EAC and SADC



6 PUE Analyses on 6 Focus Countries

PUE Market Sizing Report for Priority Appliances

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Country Findings

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Rwanda and Zimbabwe

Rwanda	Zimbabwe
Demographics	
Geographically smaller compared to neighbors	Relatively large geographical size
High population density: 525/sq.km	Low population density: 38/sq.km
Key Economic Activities	
Agriculture, mining, manufacturing,indsutry, services, tourism	
On/Off Grid Status	
48.6% of the population accessing electricity via the main grid	Access to electricity stands at 40% i.e., 16% in rural and 78% in urban areas
52% of the population will be reached through Off grid solutions	Population 6% best served by mini-grids, 13% by SHS and 44% live with 15km of grid, hence, grid extension**

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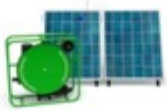
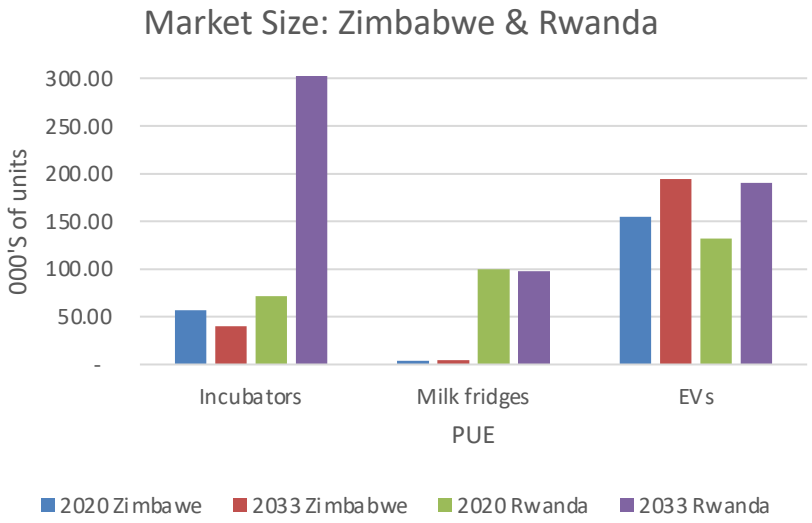
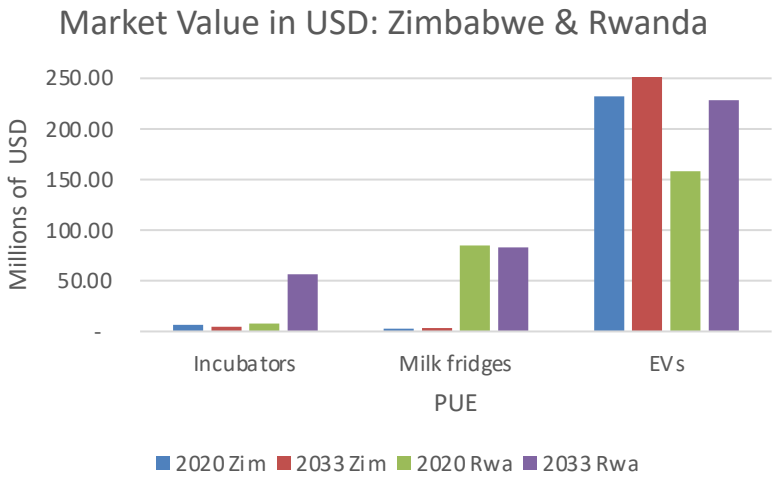
Rwanda and Zimbabwe

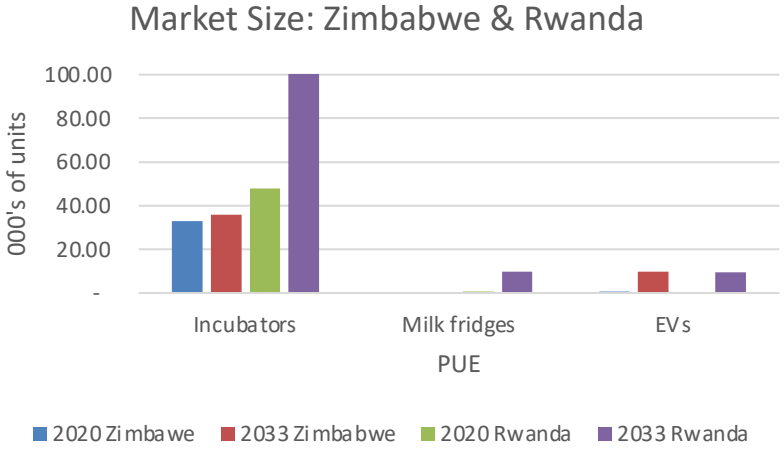
Rwanda	Zimbabwe
Enablers	
Supportive existing overarching policy and regulatory frameworks	
mechanisms to mainstream gender across all sectors	
PU Highlights	
Existence of cooperatives present an opportunity to implement PU appliances ad equipment at a larger scale	The PUE market is extremely nascent
High population density=access through mini grid= integration of PU technologies	Opportunity to leverage the infrastructure in the nascent but developing standalone solar and lighting market to expand into and scale PUE appliance
Key PU Appliances	
  	

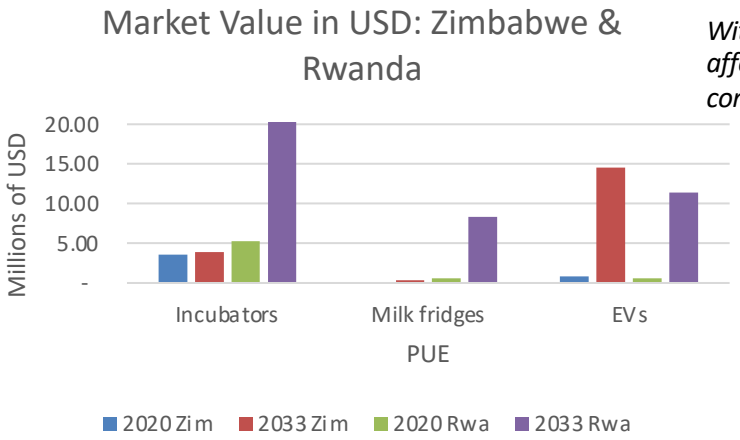
Market Sizing Sample Results: Zimbabwe and Rwanda





Without affordability constraint





With affordability constraint

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Regional Findings

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Relevant PUE and Value Chains

Motor driven Agro- processing e.g., Milling, Hulling Threshing (excluding drying):

Ideally at community level. Energy intensive energy used is proportional to the throughput achieved. Consider:

- sufficient catchment to utilize the service effectively (population density)
- efficient technologies to reduce operation cost
- If stand-alone solar PV is utilized, consider
  - Provision of ancillary services, to leverage idle energy.
  - Demand side management -to ensure max operation at peak sun-hours
  - Value proposition highest in remote area

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Relevant PUE and Value Chains

Water Pumping- community based or individually owned. Highly customizable depending on crop-specific water needs, climate, weather patterns and water source.

- Available water- thus water resource mapping is key.
- Poor water quality (high levels of sediments) is a major cause of pump performance decline.
- Pump add-ons such as water storage and irrigation systems are crucial.
- Quality, durability and thus warranties vary significantly across technologies and markets
- If Solar water pumps:
    - Pump efficiency is key to achieve maximum possible water yield
    - Portability may be desired and expected by end-users.

Relevant PUE and Value Chains

Cooling - Refrigeration, walk-in cold stores, milk chillers. variety of scales from individual. community to largescale warehousing solutions.

- Different technologies for different use cases- mapping in vital.
- Performance heavily affected by ambient temperature and relative humidity.
- Skilled and specialized labor required
- Choice of refrigerant is crucial and regulated
- If community-based solutions – sufficient catchment areas needed
- Cannot be viewed in isolation as most value chains require a cold chain.
- If stand-alone solar PV is utilized, consider
    - Energy storage can be prohibitively expensive- Innovations like solar direct-drive (SDD) technology

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Other Value Chains

Other Industries			
Industry	Opportunity	Incumbent Technology	Possible PUE Replacement
Textiles & Garments	Tailoring		Solar powered sewing machines
	Ironing	Use of Charcoal Iron box to iron fabric	Electric iron box
Artisanal production	Metal working	Manual tools	Electric drills, Welding machines
	Wood working	Manual tools	Carpentry machines
Services	Cooking	Biomass	Popcorn machines, Electric pressure cookers
	Entertainment	N/A	TVs , Radios
	Cooling	N/A	Refrigerators &Freezers
	Barber shops and Saloons	Manual tools	Hair dryers and Hair clippers
E-commerce & e-services	Communications	N/A	Mobile Phones and computers, printers, scanners

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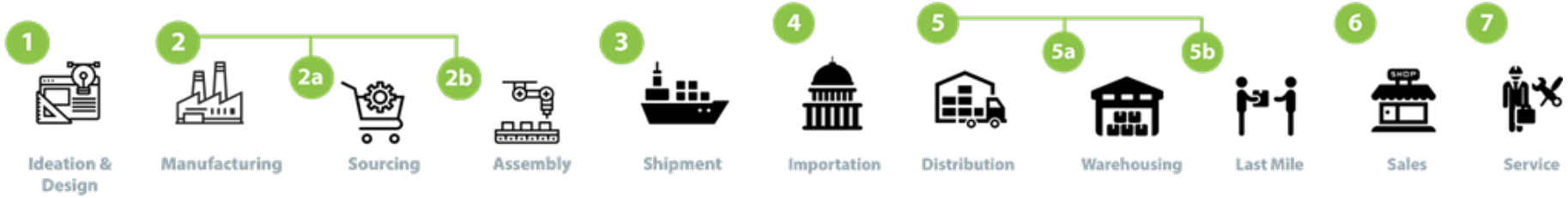
PU Supply Chains and Actors

Typical PUE Supply Chain



There are several types of private sector supply chain actors involved in the delivery pf PUE, The most common type, emerging are **Producers/ OEMs** coupled with **vertically-integrated companies** or **distributors.**

Producer overlaid with OEMs (ORANGE)

KEY: Colored icons represent the activities that supply chain actors are commonly involved
Dotted lines signify the activities that supply chain actors sometimes involve.

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Challenges and Recommended Interventions

Legislative and Regulatory Barriers

- Insufficient regulatory frameworks
- Insufficient quality standards

- Adoption of quality, performance, and testing standards provides uniform technical requirements for appliances and equipment entering a market.
- Adoption of clear, efficient, and supportive policy and regulatory framework
- Gender inclusive policies

Capacity and awareness barriers

- Low consumer awareness and limited technical capacity
- Lack of up-to-date information/data
- To strengthen the PUE supply chain and market linkages between relevant actors in the PUE market

- Develop productive use awareness programs in order to build a strong belief amongst a wide range of stakeholders.
- Develop technical/implementation capacity of users and companies
- Enhance evidence-based decision-making
- Introduce PUE technology and training programs in higher education institutions or avail free courses on the same through media such as radio or the internet.
- Supply chain logistics enhancement

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Financial Barriers

- Poor access to finance/financial constraints for enterprises/companies;
- Affordability/lack of consumer financing

- Reduce affordability barriers for end-users
- Increased focus on the private sector

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THANK YOU

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Annexes: Tanzania, Malawi, Mozambique and Zambia Country Profiles

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PU Market Barriers and Interventions

- Low customer awareness
- Low consumer affordability
- Financing constraints for companies
- Variable quality and performance of PU
- Underdeveloped supply and value chains
- Limited Market intelligence and reliable data on industrial PU

Zambia

Demographics

- Geographically large
- Low population density 23/sq.km

Economic Activities

- Copper mining, manufacture, tourism
- Agriculture ; large(more developed) and small scale; crop, livestock and aquaculture

On & Off Grid Status

- 74.8% of the urban population is served by the grid compared to 4% in rural areas.
- The grid mainly serves the mining sector
- Only 4.7% of population is served by off grid solutions.

Indicator	2020
Total(million)[1]	18.38
Agricultural Land (Sq km)(2019)	238,360
Population density (people per sq. km of land area)	23.3
Electrification Rate (access to electricity(%)(2019)[1]	43
Rural Population, % of Total[1]	55

Zambia

Enablers

- Few existing overarching policy and regulatory frameworks
- Few national PU initiatives and budding private sector
- Very nascent gender mainstreaming action

Key PU Appliances

- Solar water pumping
- Milling
- Cold Storage
- Egg Incubators
- Oil pressing

PU Highlights

- The uptake of off grid solar solution is still nascent. Present concerted action to accelerate adoption can be paired with PU solutions
- Existing Rural Growth Centers(RGCs) mapped out to be served by minigrids can be used as a conduit to accelerate PU adoption

Tanzania

Demographics

- Geographically large
- Average population density 64/sq.km

Economic Activities

- agriculture(crop , Livestock and aquaculture), manufacturing, mining

On & Off Grid Status

- 73.2% of the urban population is served by the grid compared to 19% in rural areas. Focus on the grid areas is industrial PU
- The off-grid areas in Tanzania are mostly electrified through Solar home systems and mini-grids.

Indicator	2020
Total(million)[1]	59.74
Agricultural Land (Sq km)(2019)	396500
Population density (people per sq. km of land area)	64
Electrification Rate (access to electricity(%)(2019)[1]	37.7
Rural Population, % of Total[1]	65

Tanzania

Enablers

- Existing overarching policy and regulatory frameworks
- Multiple national PU initiatives
- Robust private sector

Key PU Appliances

- Solar water pumps
- Grain Mills
- Cold Storage
- Egg incubators
- Oil extraction

PU Highlights

- Access through mini grid = integration of PU technologies
- Existence of mini-grids and active private sector in the PU supply chains present an opportunity to implement PU appliances and equipment at a larger scale while meeting the goal of inclusivity, increased economic and social wellbeing

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Mozambique

Demographics

- Geographically large
- sparsely populated with low population density 39.74/sq.km

Economic Activities

- agriculture(Crop, livestock and aquaculture) manufacturing, mining

On & Off Grid Status

- 72.5% of the urban population is served by the grid compared to 4.93% in rural areas.
- The grid is Unreliable with frequent outages
- The off-grid sector is still undeveloped

Indicator	2020
Total(million)[1]	31.26
Agricultural Land (Sq km)(2019)	414138
Population density (people per sq. km of land area)	39.74
Electrification Rate (access to electricity(%)(2019)[1]	29.6
Rural Population, % of Total[1]	62.93

Mozambique

Enablers

- Existing overarching policy and regulatory frameworks
- Few national PU initiatives and mature private sector
- Very nascent gender mainstreaming action

Key PU Appliances

- Solar water pumping
- Milling
- Cold Storage
- Dryers

PU Highlights

- The uptake of off grid solar solution is still nascent.
- Working with FUNAE to accelerate their existing efforts on mini-grids and other off-grid solutions can be used as a pathway to accelerate PU adoption.

Malawi

Demographics

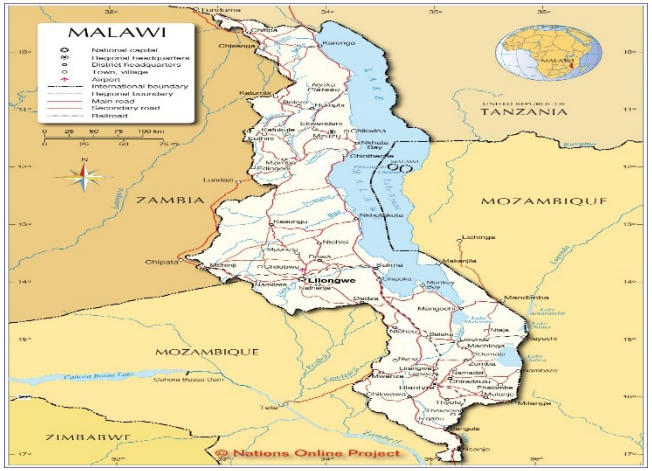
- Relatively medium–scale in geographical size
- High population density i.e., 202 per sq. km

Economic activities

- agriculture, services, industry

On & Off-Grid Status

- 23% of the population has access to some form of electricity, of which 10% is grid and 13% an off-grid solar device
- Electricity regulatory environment has been largely focused on grid power, but now extending to include mini-grids and Stand-Alone System
- Estimated potential to meet basic energy needs for 37% of the population through off and mini –grid renewable energy systems



Indicator	2020
Total(million)[1]	19.13
Agricultural Land (Sq km)(2018)	56500
Population density (people per sq. km of land area)	202.91
Electrification Rate (access to electricity(%)(2019)[1]	11.2
Rural Population, % of Total[1]	82.57

Malawi

Enablers

- Existing overarching policy and regulatory frameworks
- Favorable business environment to attract investment
- There is evidence of efforts to mainstream gender at least in the energy sector

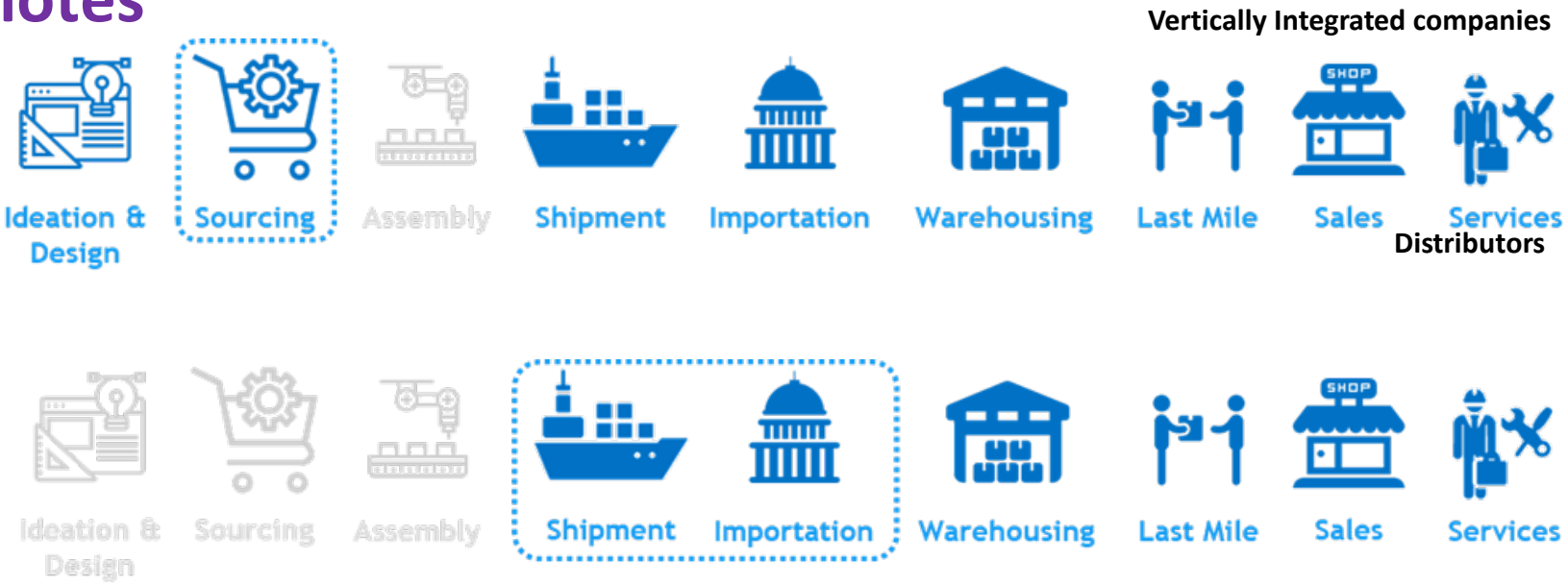
Key PU Appliances

- Solar water pumping
- Milling
- Egg incubators
- Cold Storage

PU Highlights

- Though nascent PUE , the country has an existing standalone solar and lighting market which provides a strong infrastructural foundational basis on which productive use appliances and equipment can be expanded into and scaled in the market.
- The high population density is favorable especially for small scale PUE centered businesses applications for which adequate demand for services/good is essential for profitability

PU Supply Chains and Actors remove this, add to notes



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Global outlook on PUE appliances drawing on LEIA examples

Ms. Richa Goyal, Senior Insight Manager, Energy Saving Trust

Ms. Sarah Hambly, Partnership and Communications Manager, Energy Saving Trust

energy saving trust

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About

- We will speak about two countries' experience promoting productive use and household appliances, using examples from the Low Energy Inclusive Appliances programme (LEIA)
- LEIA is a research and innovation programme that aims to double the efficiency and halve the cost of electrical appliances suited for off- and weak-grid households, small businesses, and industrial consumers.
- It is funded by UK aid and the IKEA Foundation and is delivered through Efficiency for Access.

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Solar Water Pump Experience in India

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Key characteristics of the Indian pump market

- In India, 54.6% of population is engaged in agriculture and allied activities. Agriculture contributes to 17.4% of the country's Gross Value Added.
- Number of installations: ˜30 million pumps (21M electric, 9M diesel, 0.25M solar)
- There is a stress on government led subsidy-based schemes

Key differences with the African market

- Land under irrigation: 52% in India and 4% in SSA
- High number of installations in India: India has about ˜30 million pumps
- India is a subsidy led-market: India a subsidy driven 'push' market, mostly a business to government market. 60-95% subsidy provided by government.
- Pricing: In India, SWP pricing depends on benchmark cost or tender cost, market-based price exploration is less.
- PAYGO financing is less prominent in in India
- Local manufacturing and supply is strong in India and weak in Africa
- Pump sizes: In India, 5 – 7.5HP are more prominent and common
- Appropriate density of farmers
- Higher grid availability for enabling grid integration or feeder models involving FiTs

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The water stress challenge

- In some places, water table is receding by 0.3 meters per annum. Over 18% of total electricity consumption and over 5% of total diesel consumption in India is used for irrigation purposes (Central Electricity Authority, 2015).
- Fuel powered ground water pumping is responsible for 8-12% of GHG emissions.
- National water supply is predicted to fall 50% below demand by 2030.
- 54% of India faces high water stress. In particular, the extremely high stress area blanketing Northwest India. The region is India's breadbasket.
- Water stress experience is heterogenous in nature.

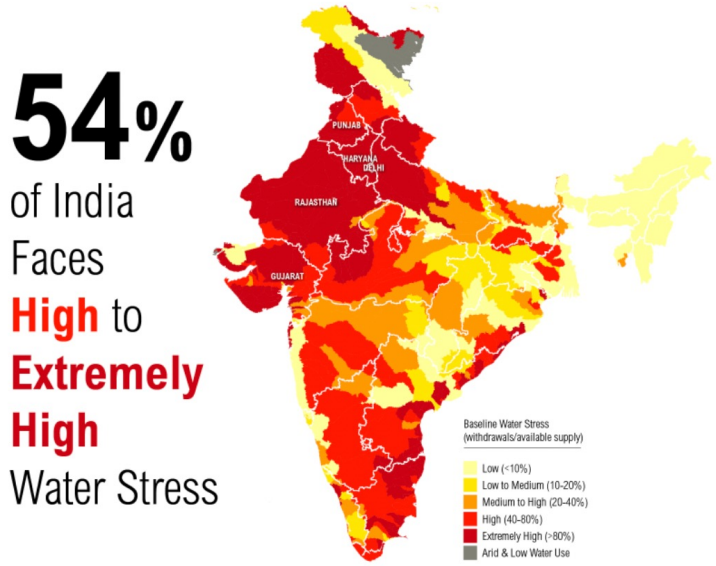
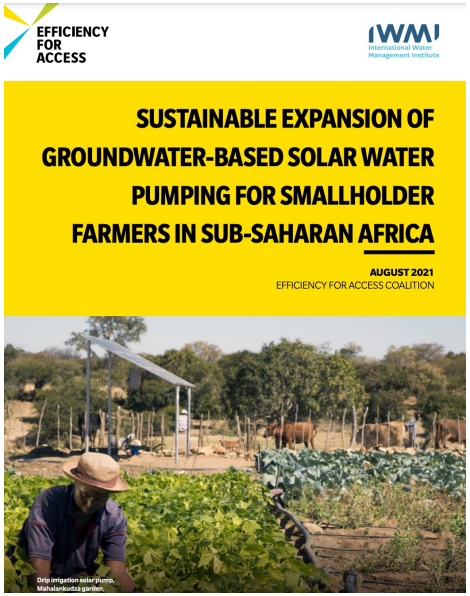


Image from www.indiawatertool.in, WRI



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Government subsidy scheme details

- PM – Kusum scheme launched in March 2019 is the government's flagship scheme for distribution of SWPs.
- GoI plans to add 15,750 MW through installations of 2.75M SWPs by 2022 under KUSUM scheme. Some of the leading states in terms of installations are Chhattisgarh, Rajasthan, and Andhra Pradesh. This scheme has 3 components:
  - Component A: 10,000 MW of Grid connected pumps (solar or any other RE) [Solar feeder model]
  - Component B: 17.5 lakh standalone solar pumps (up to 7.5HP)
  - Component C: Solarizing existing 10L grid connected pumps (up to 7.5HP)
- Solar Energy Data Management (SEDM) Platform, rolled out in 15 states across India

Image from mnre.gov

Examples of innovative business models and technological solutions being deployed in India

Grid connected models

- Watchdog transformers to curb free-riding
- Universal Solar Pump Controller (USPC) based systems to use surplus energy for food processing and cold
- Design appropriate FIT scheme to incentivize optimum use
- Gujurat Suryashakti Kisan Yojana (SKY) model in Gujarat
- Maharasthra's Solar Agricultural Feeder Policy
- Service based models: Asset lies with entrepreneur, or rural NGO, or farmer cooperative e.g. pilot by IWMI in Bihar, work on Irrigation As A Service by Claro Energy

Stand alone solar models

- Asset sharing models e.g. owned by Farmers cooperative or JLG
- Micro pumps or portable pumps where intersection with Africa is greater: <1HP pumps or Claro Energy type models where an e-vehicle with batteries will transport pump for hire
- IoT devices to monitor gw use

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Off-grid fan market in Pakistan

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Background context and end-users

- Pakistan regularly experiences high temperatures and humidity
- To keep cool, people need fans that provide high airflow and, as such, consume a lot of electricity
- Many people with low incomes struggle to afford available fans

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Available appliances

- Locally manufactured fans deliver high airflow, but consume a lot of energy and cannot be supported by small SHSs.
- Imported solar-powered fans often have low airflow and limited battery time, so cannot keep many of their users in Pakistan cool

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Limited commercial finance and investment/focus on low-income markets

- Previously, the IFC attempted to support local solar-powered fan manufacturers to improve the efficiency of their fans
- Small and medium enterprises have limited commercial finance & investment to improve their fans; big brand fan companies tend not to focus on DC fans.

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Inconsistent and unsupportive policy

- The market in Pakistan was largely unregulated and quality standards for solar-powered fans were lacking.
- Without standards, fan manufacturers produced metal fans that deliver high airflow but compromise on quality.

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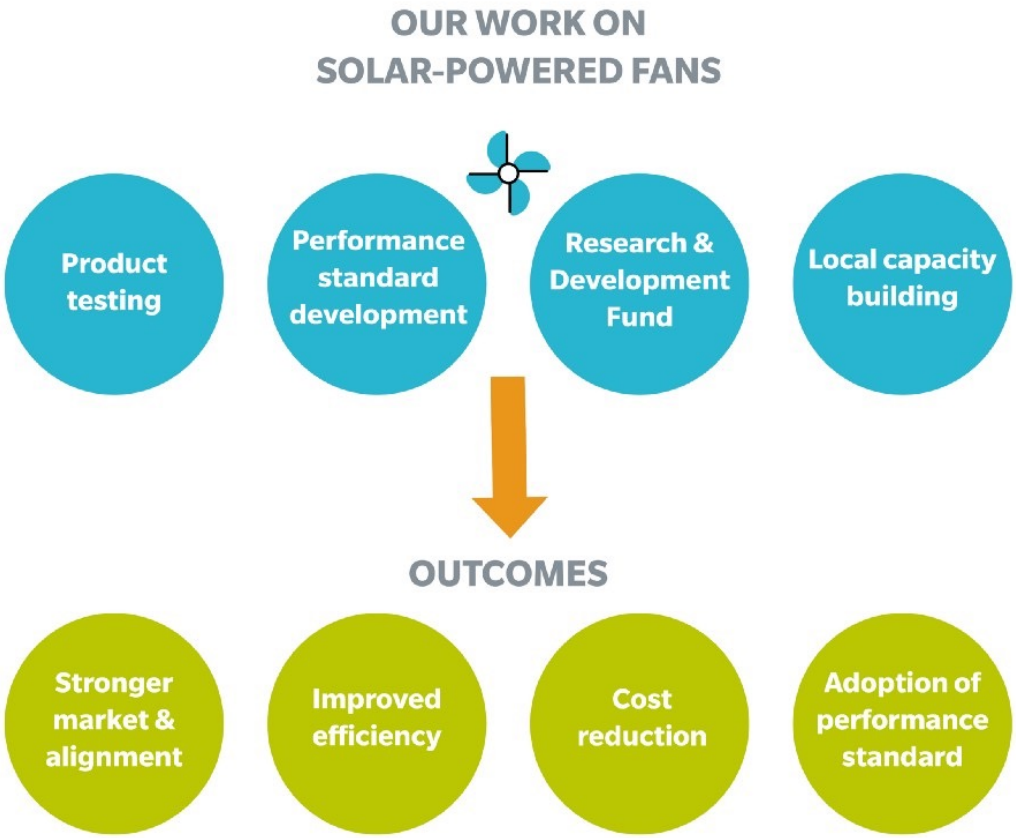
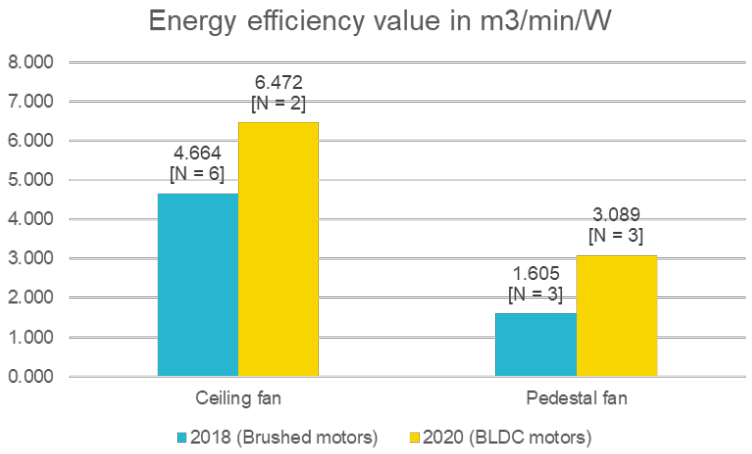
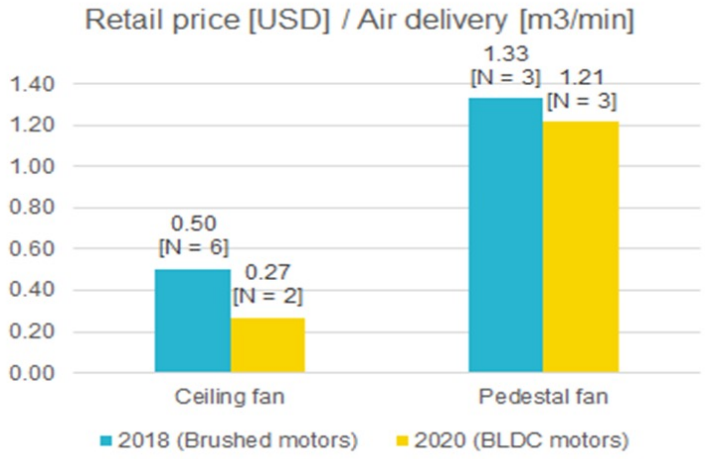
How the LEIA programme supported the off-grid fan market



Outcomes – more efficient fans and reduced costs

- Local fan manufacturers improved the efficiency of fans by incorporating PM motors
- The average cost per service delivery has fallen
- Fan manufacturers are able to provide longer warranties to consumers





Impacts: increased sales and benefits for beneficiaries

Increased sales of highly efficient fans

- Tamoor Fans reported that, since the launch of their new BLDC pedestal fan in early 2020, fan sales have surpassed 5,000 units within six – seven months.
- The Sindh Solar Energy Project will finance 200,000 fan-based SHSs over three years in Pakistan.

Health and productivity benefits

- Increased energy access for households that purchase the fan with a PV system.
- Increased business productivity

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LEIA resources

- Promoting High-Performing Off-Grid Appliances
- Promoting High-Performing Appliances: Advisory Services for Governments

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THANK YOU

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UNIDO SACREEE SADC CENTRE FOR RENEWABLE ENERGY & ENERGY EFFICIENCY EACREEE Building a Sustainable Energy Future Sweden Sverige


ENERGY
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Q&A

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EELA Project activities on PUE

Mr. Readlay Makaliki, Lead Technical Expert, EELA Project, SACREEE

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Presentation Outline

1. EELA Approach to Change
2. EELA Interventions
   - ➢ Private Sector Support
   - ➢ Policy Framework
   - ➢ Capacity Building

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Energy Efficient Lighting and Appliances in East and Southern Africa - EELA

EELA has a transformational approach towards the development of vibrant markets where suppliers are delivering high-quality services and products for energy efficient lighting and appliances to increase awareness for households, businesses and public facilities across East and Southern Africa. EELA stimulates local manufacturing and private sector investments.

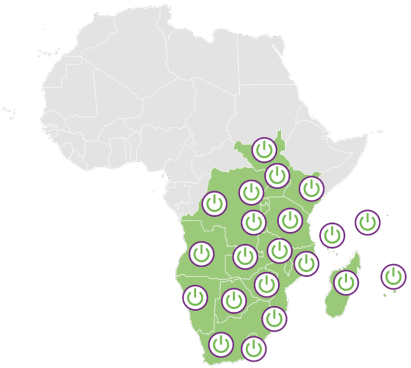
The EELA approach to change

Market incentives for the private sector to deliver efficient and high quality energy services

Minimum Energy Performance Standards (MEPS) for appliances which are harmonized in the region

Capacity building on policy and regulatory framework development, appliances testing and regulatory enforcement

Awareness raising on the benefits of adopting efficient technologies across all stakeholders



A coordinated regional effort through RECS and regional sustainable energy centres

EACREEE Building a Sustainable Energy Future

SACREEE SADC CENTRE FOR RENEWABLE ENERGY & ENERGY EFFICIENCY

Implemented by UNIDO with financial support from the government of Sweden

UNIDO Sverige Swedish Energy Agency clasp

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Policy Framework

- Developed Regional MEPS for Lighting
  - ✓ Adopted by SADCSTAN as regional harmonised text with reference SADC HT109:2021
  - ✓ Soon to be voted as adopted standard in EAC region

- Collaboration with UNEP's U4E on co-sponsoring development of MEPS for cooling appliances (Refrigerators & Air Conditioners)
  - ✓ Draft MEPS for refrigerators and Air conditioners shared with Member States for comments
  - ✓ Expected to be finalised end 2022

SADC Regional TC Meeting

EAC Regional TC Meeting

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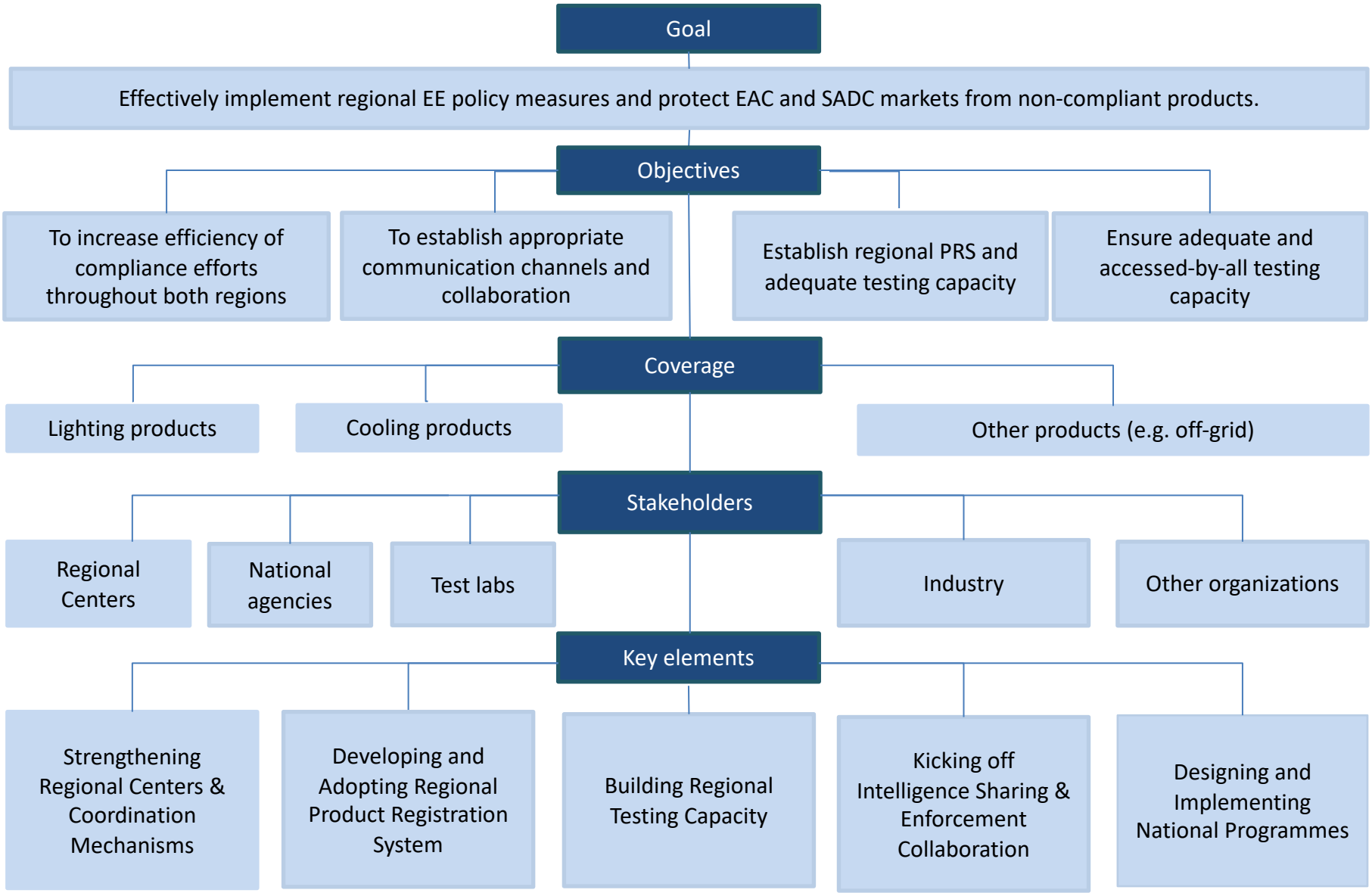
Regional Compliance Framework



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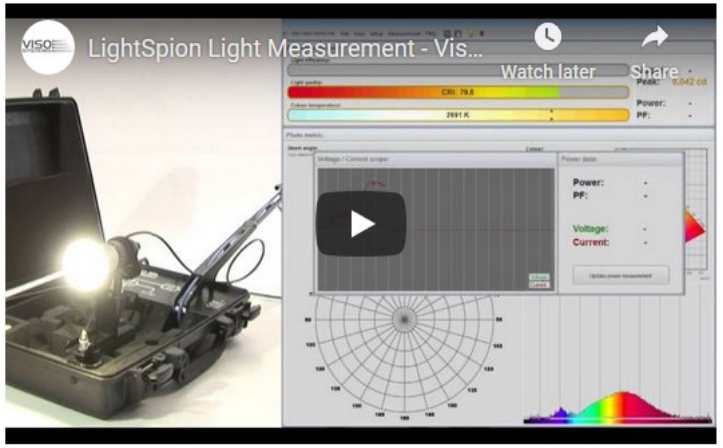
Capacity Building of key Stakeholders

- Lack of ability by MS to carry out market surveillance
- Test equipment key to market surveillance and standards enforcement
- EELA Project to capacitate 2 Regional Labs
- Portable Lighting Test Equipment procured for 21 Member States
- For use in Market surveillance and conformity checks

MEASURE IN 30 SECONDS

- Lumen
- Peak candela value
- Color temperature, CCT
- Spectrum, CRI, TM30, CQS
- Beam angle
- Detailed light distribution
- Power and power factor
- Lumen per Watt



Measure any type of Light Source

Measures a variety of parameters
No expert Knowledge required to use the equipment

Private Sector Support

Technical Assistance and Co-Financing Facility Summary

	Window 1	Window 2	Window 3
Applicants	Energy users	Energy service providers	Manufacturers
Support offered	Technical assistance to design an Energy Efficiency project applying an energy service business model	Non- repayable grant to cover upfront costs for equipment **Max. 200,000 EUR**	Non- repayable grant to support technology upgrade **Max. 100,000 EUR**
Required own contribution	Demonstrated commitment to implement the project	Signed contract with a client. At least 25% demonstrated co-financing	Demonstrated need for upgrade of manufacturing At least 25% demonstrated co-financing

Open Call for Expression of Interest launched April to December 2021

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Capacity Building of key Stakeholders - EELA Online Training

- e-Learning platform developed
- Advantages include wider reach, more content and can be done at participants convenience
- Course open to all stakeholders with guided training for change agents

Module 1
General Introduction

Block 1: Introduction to energy efficient appliances

Block 2: Policy and Regulations

Block 3: Market Surveillance

Block 4: Market Systems Development Introduction

Block 5:Webinars and Assignments for Core Group

Module 2
Lighting

Module 3
Clean Cooling

Module 4
Productive Use

Module 5
Market Development

Introductory → *Specialised/ based on interest*

REGISTER! https://training.eela-project.org

EELA Activities Supporting PUE Activities

- Through the EOI for the Private Sector Co-financing Facility we have identified projects demonstrating business models supporting PUE under the following initiatives
  - ✓ Street lighting to support off-grid markets
  - ✓ Commercial offshore fishing activities
  - ✓ Solar water pumping for agriculture
  - ✓ Cold storage for agricultural output
  - ✓ Efficient grain milling equipment

- Conducted a Webinar in May 2021 on Pathways to Repair of global off grid appliances – essentially focusing on life extension for PUE

- The Market Assessment on PUE will inform development of module 4 on the E-learning Platform and the recommendations will help develop future activities of the EELA project

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Country Experiences on PUE

Moderated by: Mr. Denis Ariho, EACREEE – EELA

Breakout session

Breakout Session

- **Participants will be assigned in 1 of 4 breakout rooms**
- **30 minutes discussion**
- **French and Portuguese interpretation available in Group 1 only!**
- **Questions:**
  1. How does the EELA focus on productive use speak to the needs of your country?
  2. What are your countries' key activities with respect to promoting the uptake of EELA for PUE?
  3. What are the barriers and what support is required to implement EELA for productive use, on-grid, and off-grid in your countries (incl. capacity building needs)?
  4. Which appliances do you think is there an opportunity to improve energy efficiency in?

Closing Remarks

Mr. Kuda Ndhlukula, UNIDO - EELA

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in East and Southern Africa

THANK YOU

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