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# UNIDO's ENERGY AND CLIMATE CHANGE PROGRAMME

OFF-GRID RENEWABLE ENERGY SYSTEM DEPLOYMENT:  
REGULATIONS, POLICIES & FINANCING

**Need for Targeted Support. What policies? What  
incentives?**

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**Dr. Pradeep Monga, Director**  
Energy and Climate Change Branch  
UNIDO



# CONTENTS

- UNIDO'S Mandate
- Off-Grid RE Deployment
- Need for Targeted Policies and Incentives
- Relevant UNIDO projects

# UNIDO's Energy and Climate Change Programme

Providing Integrated Energy Solutions and Services  
for promoting the Sustainable Industrial Agenda: **GREEN INDUSTRY**

## STRATEGIC FOCUS

- Enhance access to modern energy services for productive uses
- Increase the competitiveness of industries by reducing their dependence on fossil fuels
- Reduce emissions of industries by promoting energy efficiency and renewable energy





# UNIDO's Energy and Climate Change Programme

## THEMATIC FOCUS

- **Industrial Energy Efficiency (Energy Management Standards, ISO 50001 and Systems Optimization)**
- **Renewable Energy for Productive Uses (mini-grids, Off-grid applications and industrial use)**
- **Low Carbon, Low Emissions Technologies (Hydrogen and CCS)**



# UNIDO's Renewable and Rural Energy Programme

## STRATEGIC FOCUS

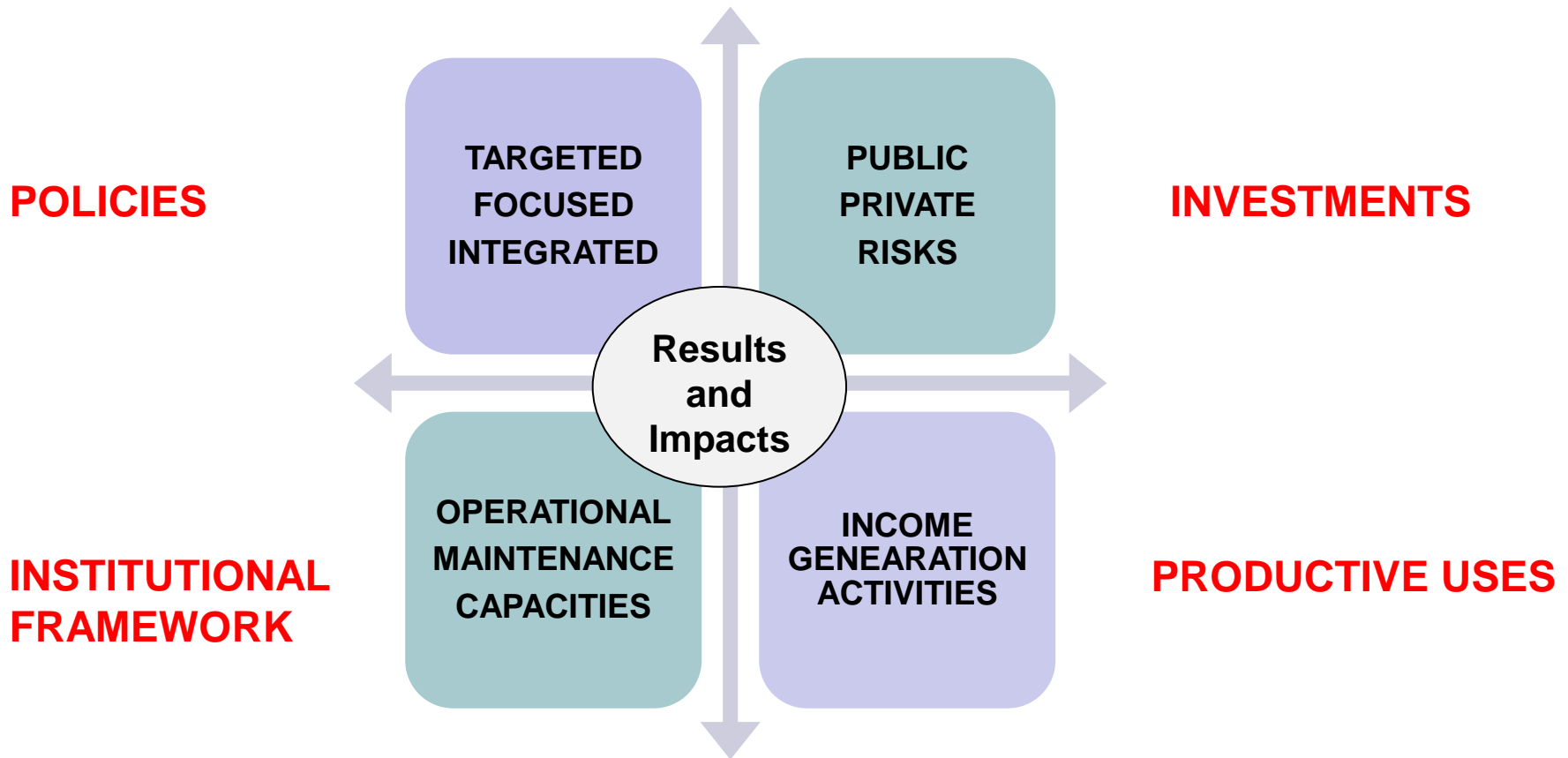
- Scale up Renewable Energy Technologies and Markets – solar, small hydropower, wind, biomass and geothermal
- Promote Renewable Energy in Off-grid for Access - Mini-grids for Productive Uses
- Promote Renewable Energy for Industrial Applications (Heating and Cooling)





# OFF GRID RE DEPLOYMENT – MINI GRIDS

## Building Blocks

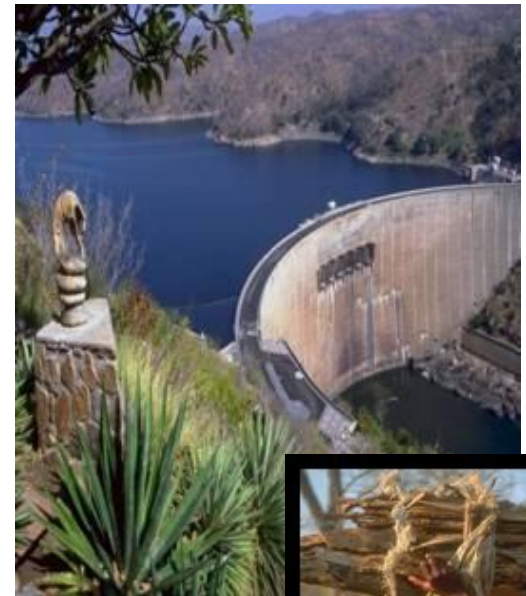






## TARGETED POLICIES FOR OFF-GRID RE DEPLOYMENT

- **ENSURING A LEVEL PLAYING FIELD**
- **MITIGATING INVESTMENT RISKS**
- **PROMOTING INNOVATIONS**
- **BUSINESS MODEL APPROACH**
- **LINKING TO PRODUCTIVE USES**
- **PRICING / TARIFF SIGNALS**





## RIGHT INCENTIVES – FEW EXAMPLES

- **GRANTS (to mitigate risks)**
- **TAX INCENTIVES**
- **SMART SUBSIDIES**
- **REVOLVING FUNDS**
- **NON GRANTS INSTRUMENTS**








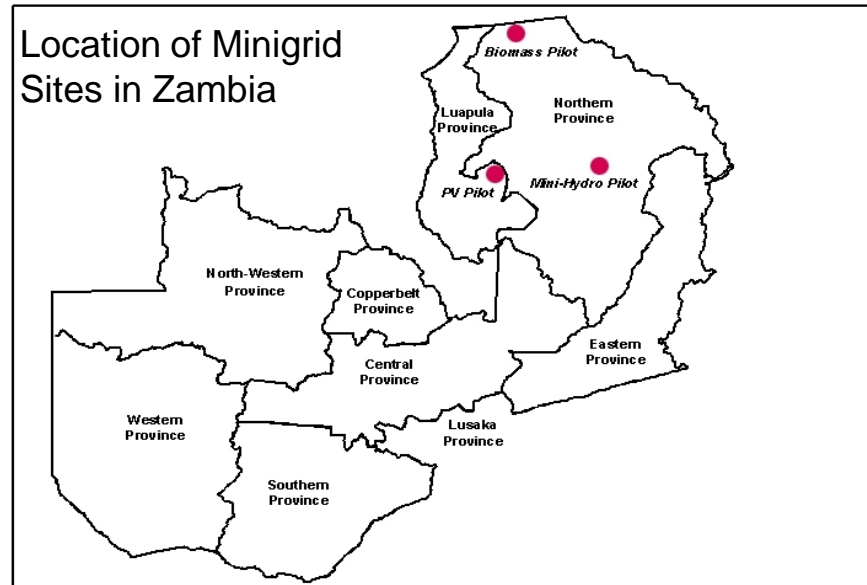


# Case Study: Renewable Energy based electricity generation for isolated mini-grids in Zambia

## The project aims at promoting Off-Grid RE Deployment:

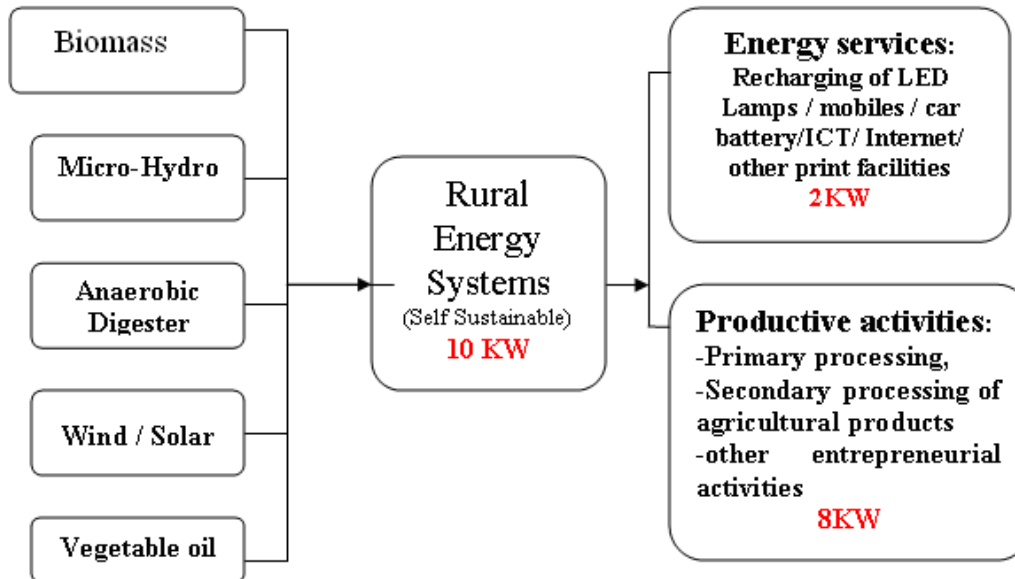
-  Biomass gasifier power plant for 500 kW of electricity generation
-  Small hydropower station to generate 1 MW of electricity
-  Solar energy mini-grid with an output of 36 kW

**Total project budget:  
US\$ 10 MILLION**

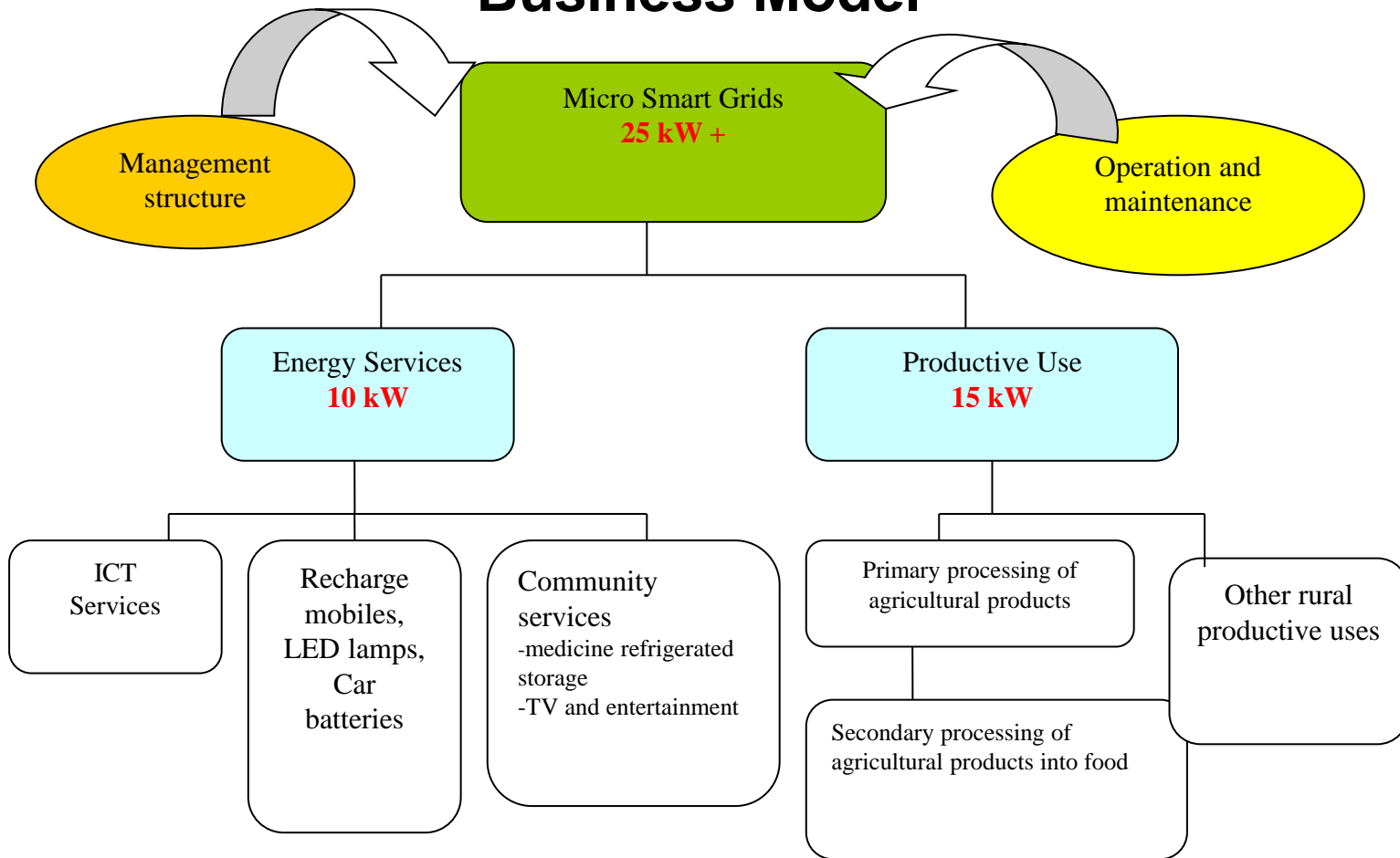




# Smart Micro Grid linking to Productive Uses in Kenya



# Design and Structure of Smart Micro Grid Business Model





## **UNIDO's Off Grid Renewable Energy Projects in West Africa**

- **7 Off-grid renewable energy projects (under implementation)**
- **RE Mini-grids linking to Productive Uses**
- **Countries – Sierra Leone, Liberia, Nigeria, The Gambia, Guinea, Chad, Cote d'Ivoire**
- **Targeted RE Policies and Incentives (under design / strengthening)**

## **UNIDO's Off Grid Renewable Energy Projects in West Africa- Regional RE Policy**

### **Key Features**

- **Share of renewable energy (incl. large hydro) in the total electricity to be increased from 32% in 2010 to 35% in 2020 and 48% by 2030.**
- **Share of new renewable energy such as wind, solar, small scale hydro and bioelectricity (excl. large hydro) from non existence in 2010 will increase to around 10% in 2020 and 19% by 2030. These targets translate into an additional 2.425 MW renewable electricity capacity by 2020 and 7.606 MW by 2030.**
- **Around 75% of the rural population to be served through grid extensions and around 25% by renewable energy powered by mini-grids and stand-alone hybrid RE systems by 2030.**





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**THANK YOU!**

**Pradeep Monga**

*Director*

*Energy and Climate Change*

*[p.monga@unido.org](mailto:p.monga@unido.org)*

*[www.unido.org/energy](http://www.unido.org/energy)*