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The **MENTARI Programme** (Towards Indonesia's Low Carbon Energy Transition) is a cooperation between the Ministry of Energy and Mineral Resources (KESDM) of the Republic of Indonesia and the British Embassy Jakarta to develop low carbon energy in Indonesia.



Rural Electrification Sustainability through Productive Use of Energy

A Case Study of Mata Redi Village, Sumba, East Nusa Tenggara

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Demonstration Project Strand Lead

Track 4_Session 4.2

Innovative Business Models And Financing Mechanisms For Renewable Energy



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“Gender Equality and Inclusive Economic Development through Small Scale Renewable Energy Project.”

Project Findings as Baseline

1. Daily reserved load is not being utilized for productive use.
2. More than 700 RE-based village energy access organized under Community Group (PokMas), **weak in legal status; which limits business innovations**
3. Data for 2020, 32% of **operators do not receive a salary**, the remaining 68% receive wages below USD 20 / month.*
Additionally, less than 1% operators are women
4. There are two Community RE managed by BUM Desa (Sumber Agung & Muara Enggelam), One of which has managed to increase electricity independently, has a strong PUE business unit, and its unit generate 5 x more income than electricity billing units.
5. BUM Desa is a legal village economic institution since 2015 until the issuance of Indonesian Government Regulation No. 11 of 2021 concerning BUM Desa as an economic institution in a village with legal status

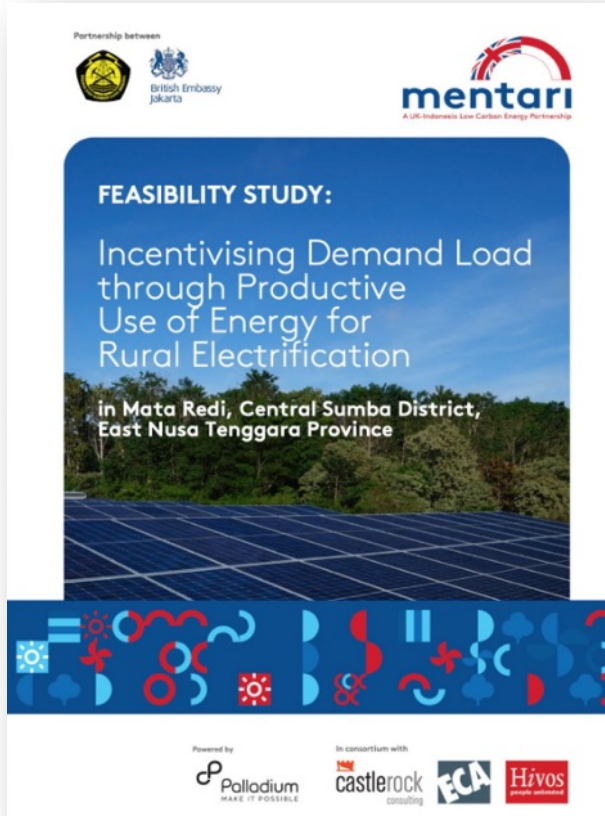
Objectives of the project

1. **Go beyond access to energy;**
2. **Identify local sources that will generate more added value through utilization of electricity**
3. **Promote women-led entrepreneurship and BUM Desa**
4. **Work directly with off-takers ensure quality-fits-to-the-market**
5. **Develop a local capacity development program including renewable energy skills, productive use of energy skills and gender and inclusion trainings**

*M&E Sustainability of Rural Electrification in Indonesia - ELREN GIZ & EBTKE KESDM RI.

02 | Local Agri-Resources Mapping

We have mapped agricultural commodities, plantation products, and potential creative businesses at the village scale that can leverage the process and market if access to electricity is present in the village.



Accessible through mentari.info



After screening ideas and polling the community and considering involving women-led entrepreneurs, 4 main PUE activities were selected to be carried out in Mata Redi Village.



production of
peeled
candlenut &
pressed oil

Production
of ginger and
turmeric
simplicia.

production
of citronella
oil

production
of wood
products

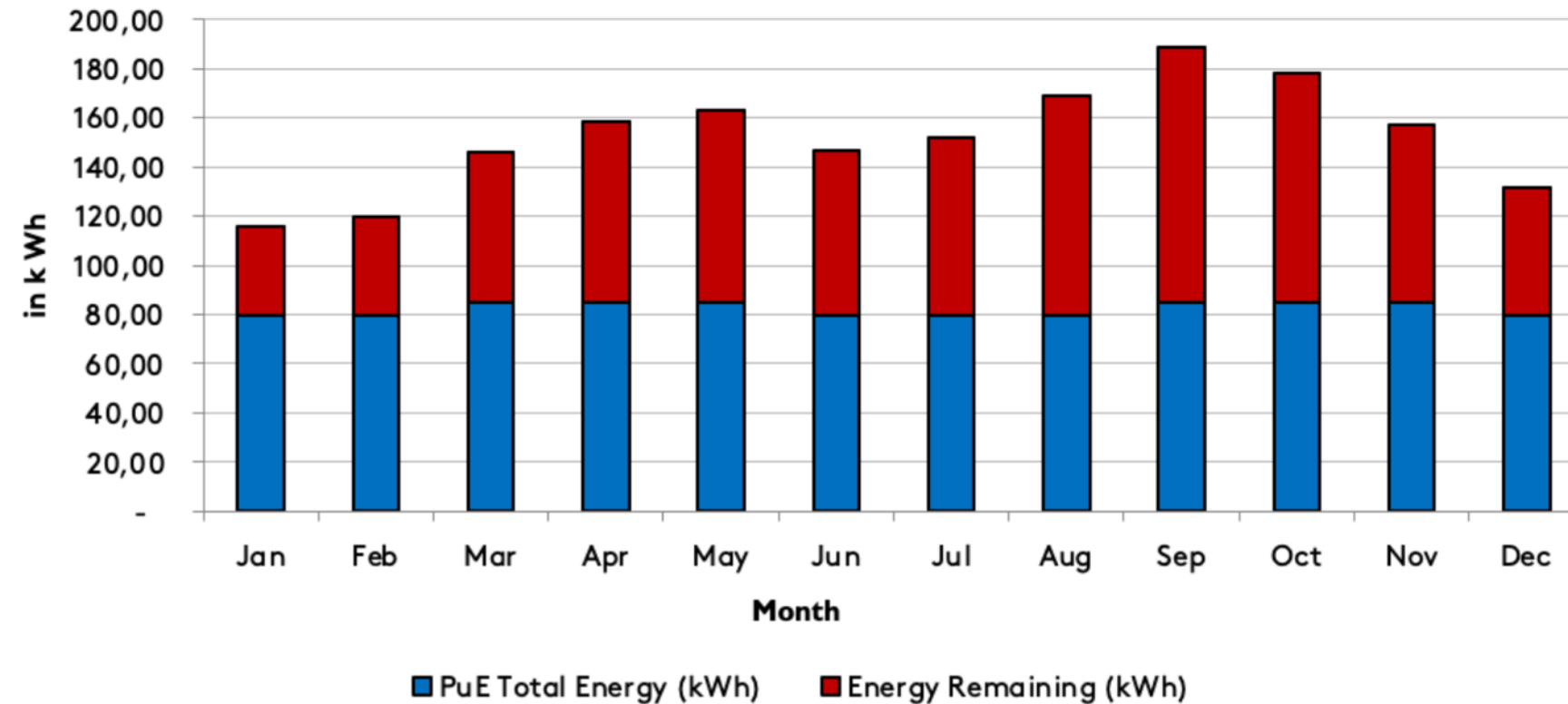


November 2020

03 | Load Demand Target

Average daily usage of excess energy from chose productive use of energy activities

TOTAL AVERAGE DAILY EXCESS ENERGY USAGE



This excess energy usage is reasonable at this stage because:

- **54 %** of the excess energy is used for the **newly-introduced productive use of energy** equipment;
- **30 %** of the excess energy is reserved for **future expansion of household energy usage** – increases in the electricity subscriptions;
- **16 %** of the excess energy can be used for **future productive use of energy activities** after further study and review of the currently chosen equipment.





**Demonstration
projects
implemented
2021-2023**

**PLTS I
60 kWp**

**PLTS 2
35
kWp**



The workstation is built and operates right next to the PLTSI to maximize excess energy, reduce cable investment and maintain safety and security in terms of electrical management.



WORKSTATION
for BUMDesa &
KWT (Women's
Farmer Group)

- QC & packing area of dried ginger, citronella oil and peeled candelnuts
- Woodworking tools storage warehouse



What we do for

Gender Equality and Inclusive Economic Development

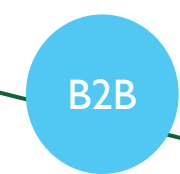
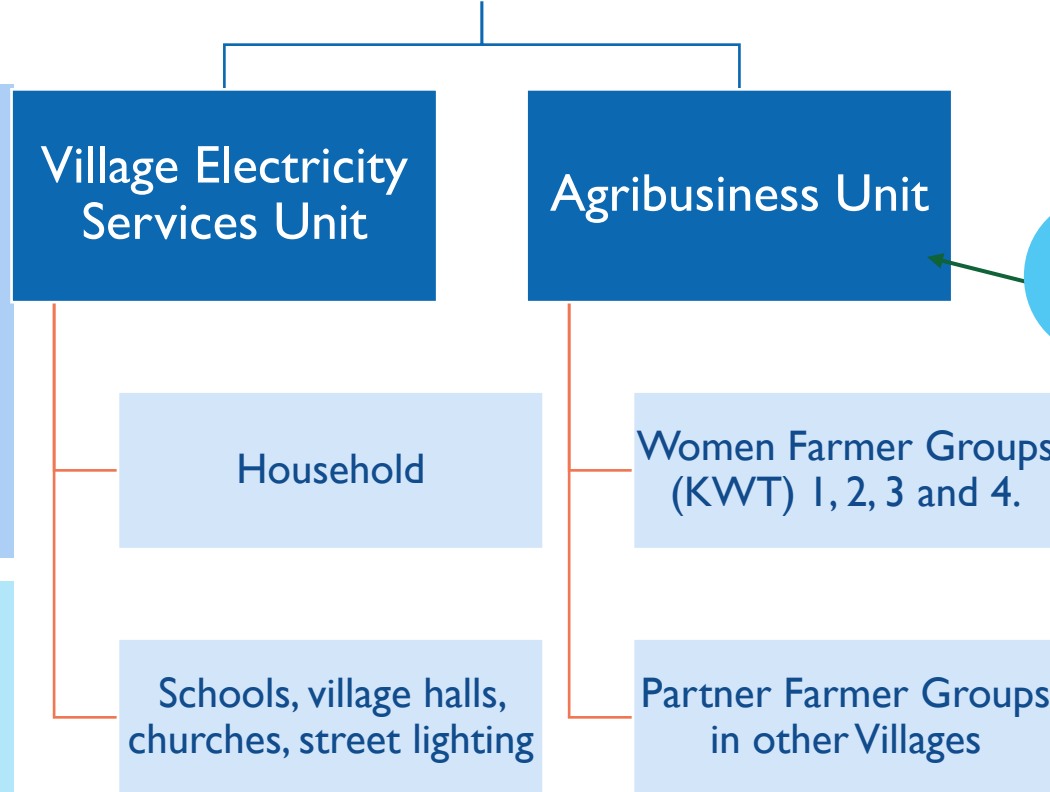
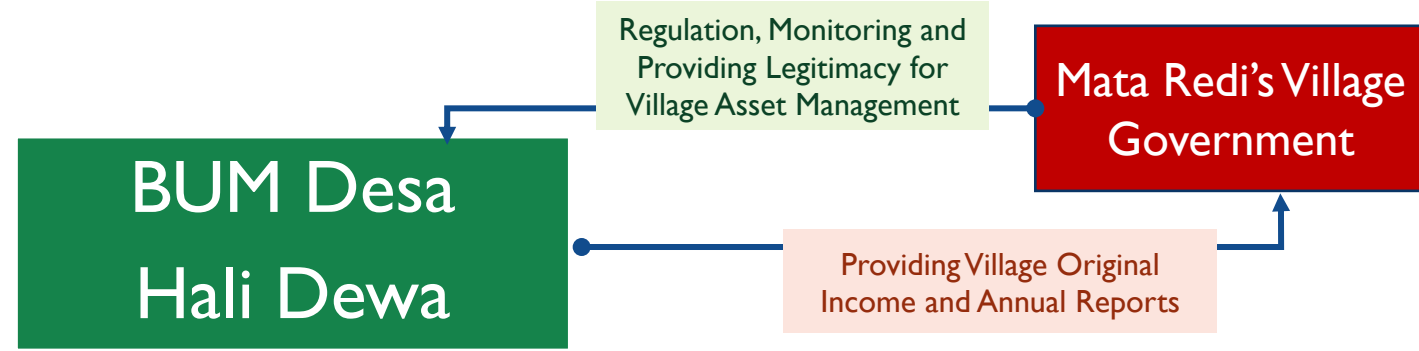
- Equip G&I-based entrepreneurial mindset since 2020 with GALS and the Green Business Model Canvas for Mata Redi's Communities.
- Preparing 10 village youths to be involved in PLTS installation with a nationally certified electricity course.
- The village carried out the establishment of BUMDesa in an open, participatory, and was attended by more than 45% of women and young people in the village.
- Engage and linkage with several social enterprises to invite business with the Mata Redi village community.
- Ensure that the market is ready before further intervention on production assets and village BUM business plans managing electricity and village businesses.



This learning documentation can be downloaded at
<https://ebtke.esdm.go.id/e-library>



05| Strategy Market Linkage





Agradaya

Agradaya incubated and bought 1000 kg of white ginger worth IDR 150 mio/year



Pemalang Agrowangi supported the planting of 40,000 Citronella in 4 hectares of land and ordered 400 kg of oil worth IDR 60 mio/year

Operation and maintenance of PuE assets are under BUMDES, Farmer Groups and Women Farmers who are business partners can use a rental or profit sharing system in the production process where processed products can also be sold to BUMDEsa.

PuE Agribusiness Business Unit Planning under BUM Desa, Farmers will get a price agreement following market fluctuations, increased knowledge and fixed income.





06 | Result (working in progress)



1. The target income from the Village electricity unit from residents' monthly bills is IDR 18 Million / USD 1,200 (IDR 90,000 × 200), but the risk of default is 50%, so the potential income is only IDR 9 million (USD 600) from this unit/month or **USD 7,200/year**. while expenses for operator salaries are USD 260/month and long-term spare parts and maintenance savings are USD 660/month, so that in a year it costs **USD 11,000** to ensure PLTS operates properly and optimally.
2. Potential income from the Agribusiness Unit from B2B is **10 tons of candlenut/year** (USD 20,000/y), sales of **white ginger's simplicia** are 1 ton/year (USD 10,000/y), and sales of **citronella oil** are 400 kg/year (USD 4,100/y). accumulated potential annual income of **USD 34,100/year**.
3. Conclusion, focusing on PUE during the day will significantly help **subsidized BUMDesa's electricity service units for O&M** and more than that the Village Government will **receive annual additional income**.
4. Through interventions on access to energy and skills development based on G&I, this Village currently has **15 new women entrepreneurs, 4 KWTs** and more than **10 small-shops created**.