



Greening Africa Together



Democratic Republic of Congo

Technische Universität Berlin

WS 2019/2020



Our brilliant team

TU Berlin/HTW Students



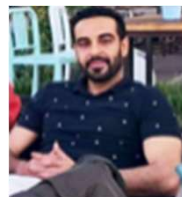
Osia SIMAKALA



Ao YANG



Bernardo PECHIR



Hamdi MSADAK



Mauricio OCAMPO

Experts



Alain TEMGOUA

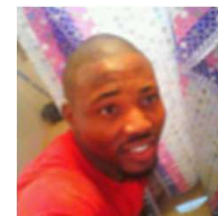


Jean-Marie BEYA

Congo Students (UNIKIN, ISPT & UCI):



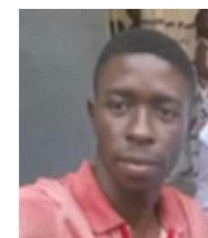
Charles



Edgard NGUIMTSING



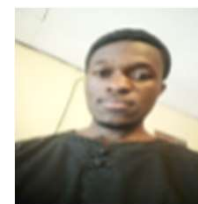
Jonathan KISEMBO



Kevin KIANGEBENI



Pierre SEDI



Gloire MULOMB



Samira YALA



David OMOKOKO



Fabrice SANGWA



Divine PEMBELE



Glodie MBOMBO

Our Partners



Project Overview

- **Problem:** Lack of energy infrastructure in a Orphanage for abandoned children in Kinsenso/Kinshasa
- **Solution:** Rooftop Photovoltaic Standalone (Offgrid) System



Project Overview: Location

- **Name of Orphanage:** Centre d'hebergement bomoyi I
- **City:** Kinseso/Kinshasa, Democratic Republic of Congo
- **Number of beneficiaries:** 26 girls and 3 keepers
- **Coordinates:** 4.41°S/15.35°E



Project Overview: Specific Needs

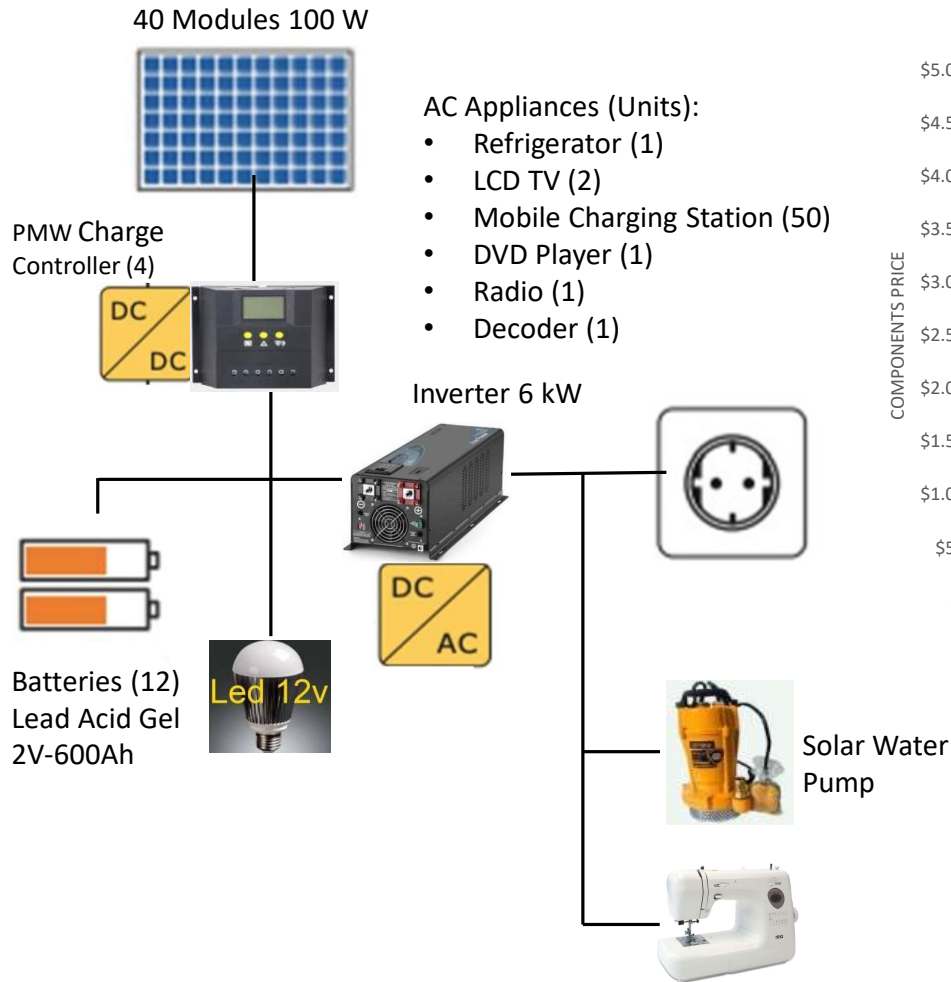
- Basic lighting
- Connection of other possible AC appliances
- Charging station for mobile phones to allow sustainability
- Water pump installation
- Increase of general life quality
- Allow Jobs in a sewing workshop with 5 machines



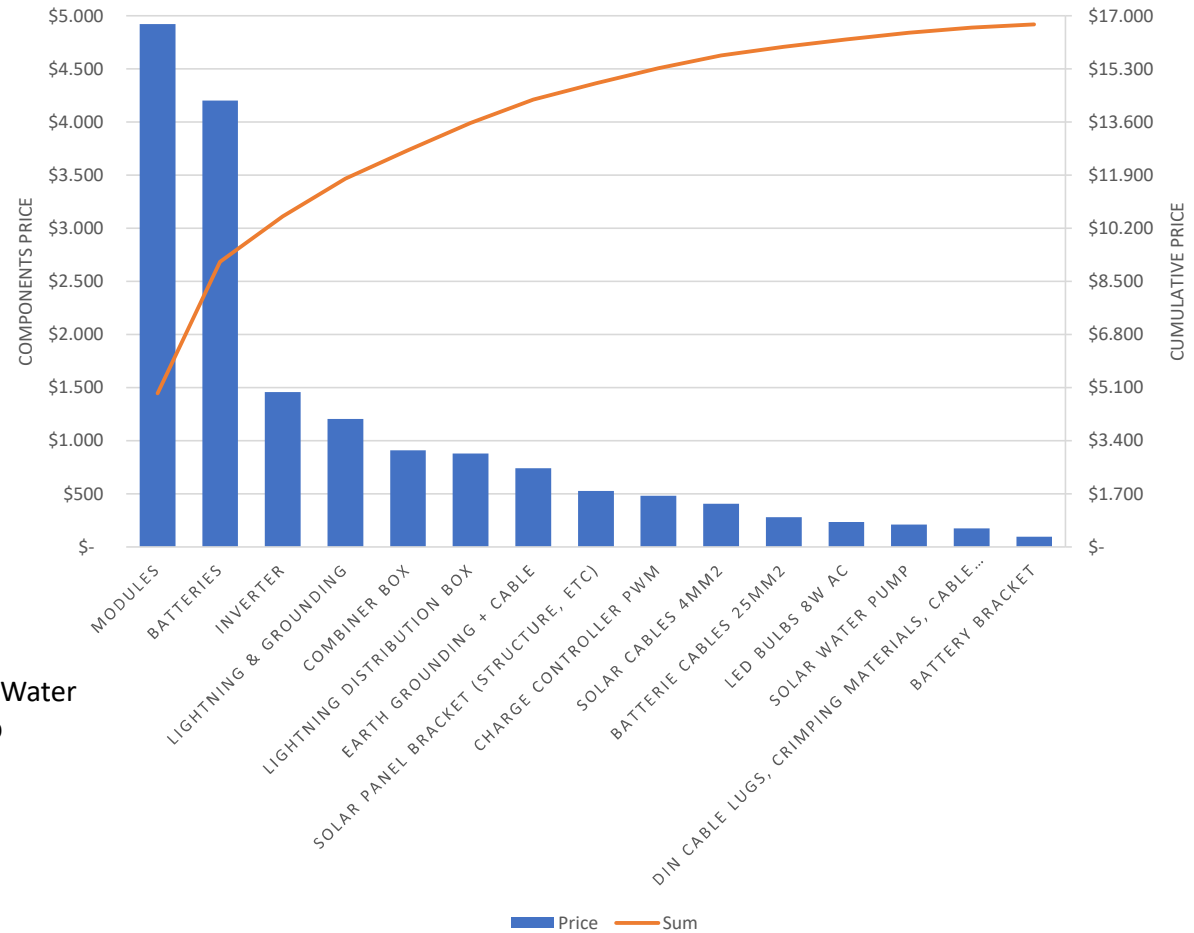
REPUBLIQUE DEMOCRATIQUE DU CONGO RDC
MINISTERE DES AFFAIRES SOCIALES
HOSPICE DES ENFANTS ABANDONNES
ONG H.E.A - ASBL
ARRETE MINIST. N° 011 / CAB / MIN / J&D / 2011
SIEGE : AV. BETI N° 10, KISENSO GARE C / KISENSO, KINSHASA
CENTRE D'HEBERGEMENT BOMOYI I
CONTACTS: 0998868961, 0998484011, 0998249591.



Scenario: PV System with Solar Water Pump all components bought in the DRC

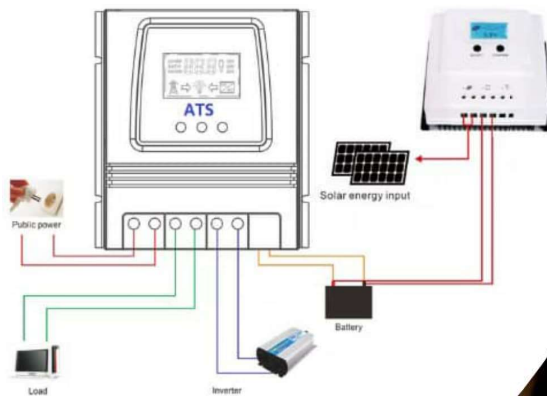


Total estimated price: **US\$ 16,718**

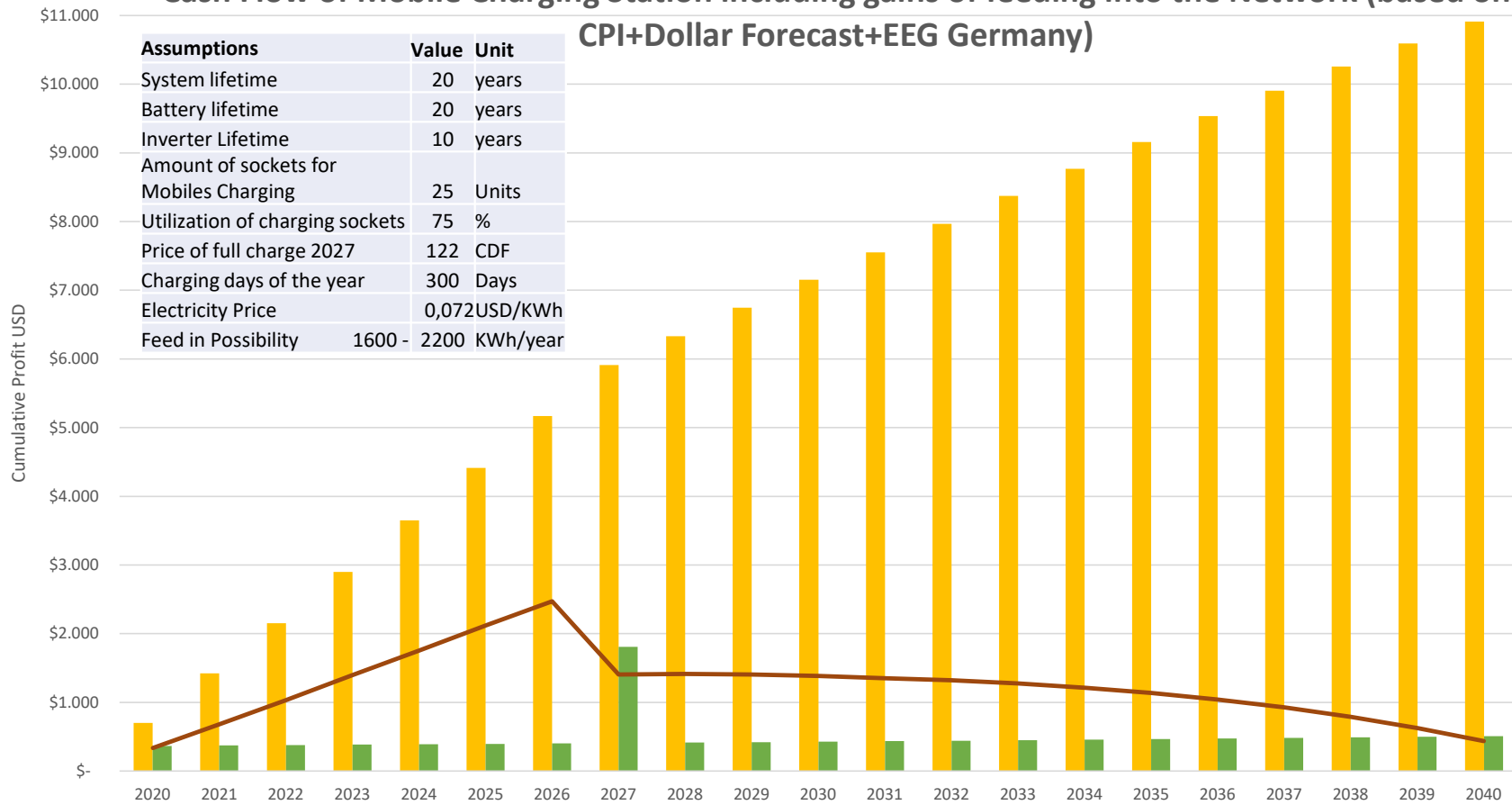


Sustainability

- Workshops onsite: Maintenance and cleaning of the components.
- Educational approach: Turn off the lights!, Posters with facts and steps and procedure manuals and financial management of the incomes.
- Mobile Charging Station
- Possible future implementation of an Source control device



Cash Flow of Mobile Charging Station including gains of feeding into the Network (based on CPI+Dollar Forecast+EEG Germany)



Assumptions	Value	Unit
System lifetime	20	years
Battery lifetime	20	years
Inverter Lifetime	10	years
Amount of sockets for Mobiles Charging	25	Units
Utilization of charging sockets	75	%
Price of full charge 2027	122	CDF
Charging days of the year	300	Days
Electricity Price	0,072	USD/kWh
Feed in Possibility	1600 - 2200	KWh/year

price scale for Charging 1 phone with gray electricity	1
price scale for Charging 1 phone with PV	1,7

■ Sum Profit
 ■ OP Costs
 — Total Cumulative

EARNINGS FORECAST

DR Congo electricity price
2019: 0,072 USD/KWh

115 -158 USD

1.600 -2200
kWh/year

5.500 - 6100 kWh/year

solar power
generation

Feed in

3.900 kWh/year

ownconsumption

0 kWh

Reststrom

f _s Safety bonus	50%
PR Performance Ratio	75%

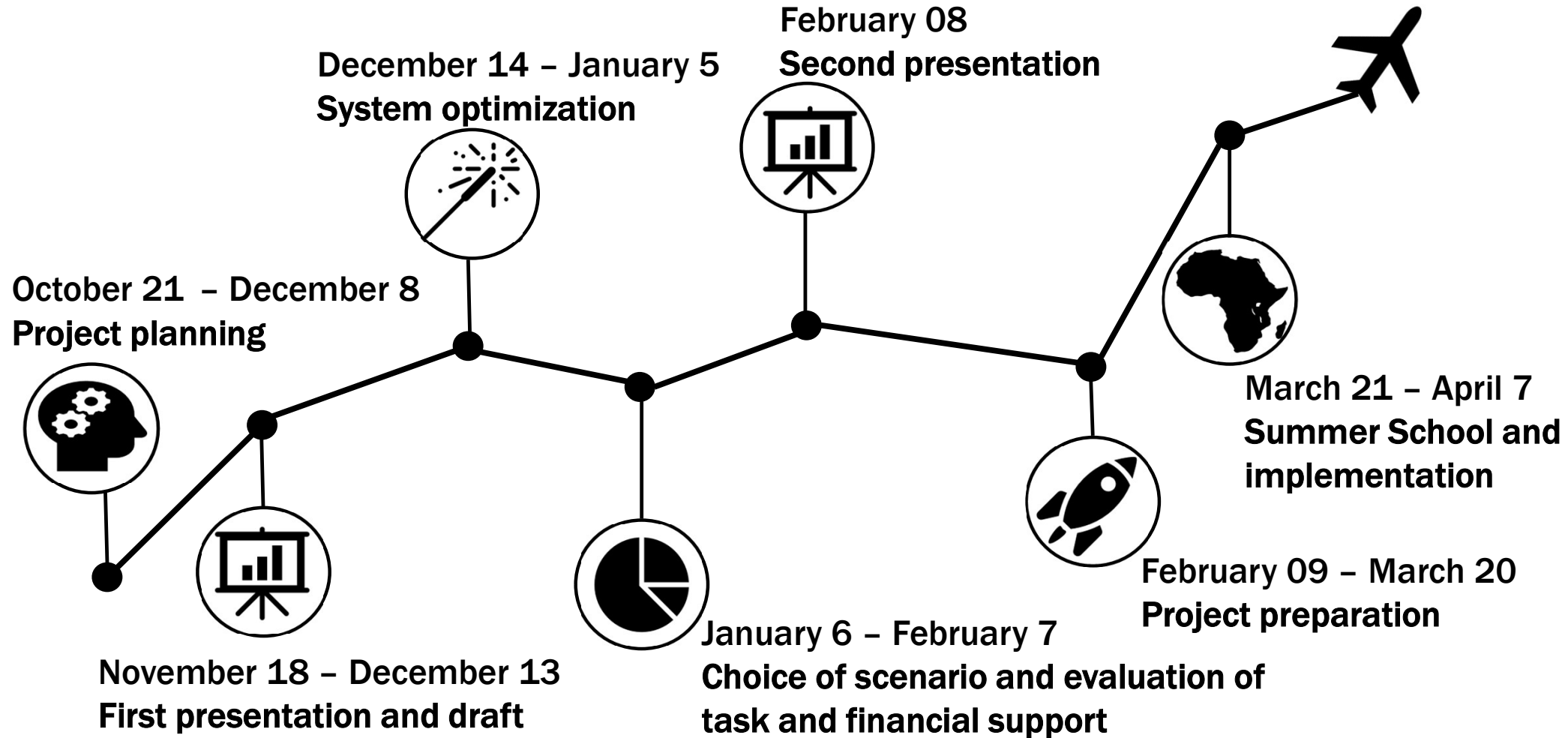


Potential risks

- Financial (Management)
- Security
- Natural disasters
- Supply chain
- Implementation
- Operation & Maintenance



Project Overview: Timeline





Matondo!

Feedback? Questions?

