

NGO's-Private Sector joining for water: a case study



Local Partner: Proyaka



Goal

- Create joint initiative to create sustainable water/sanitation service
- NGO-Private Sector-Local Partner, co-funded by Flemish Government
- Long Term sustainability based on economical basis: generate sufficient cashflow to cover operation and (partially?) investment costs



Case: Kasongo-Lunda RDC



Cité Kasongo Lunda: 25.000 people, without organized water supply. Red circle: hospital site



Technical system

Production Well

1. Rotary drilling in 'grès tendres' = sandstone formation
2. Expected depth: 150 m
3. Expected static groundwater level: +/- 60 m
4. Expected dynamic groundwater level at 15 m³/h: +/- 100 m

Pump installation (Lorentz Technology)

1. Submersible pump 15 KW, 110 m³/day, head 125 meter
2. Powered by 140 solar panels, 21.000 Wp
3. Online controls

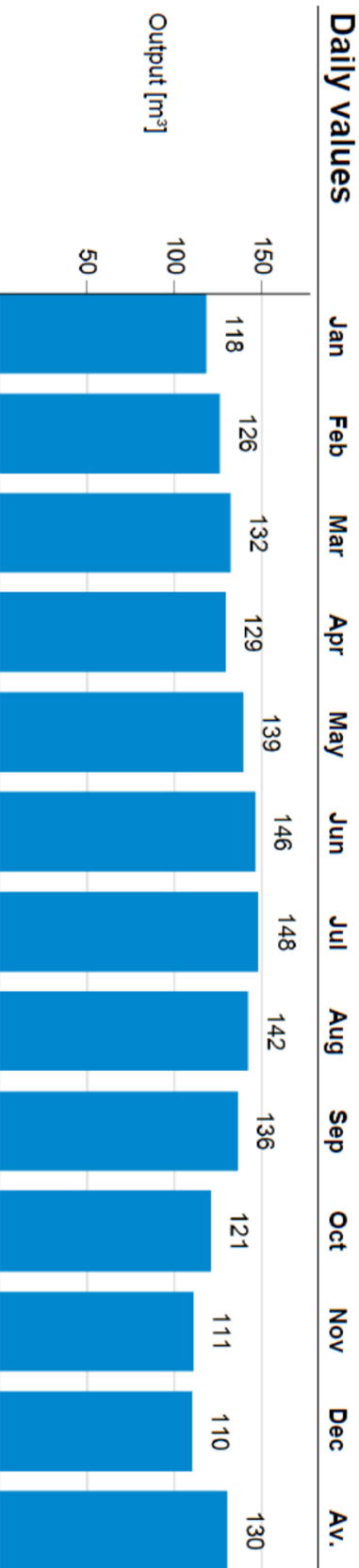


Technical system

Daily output in December

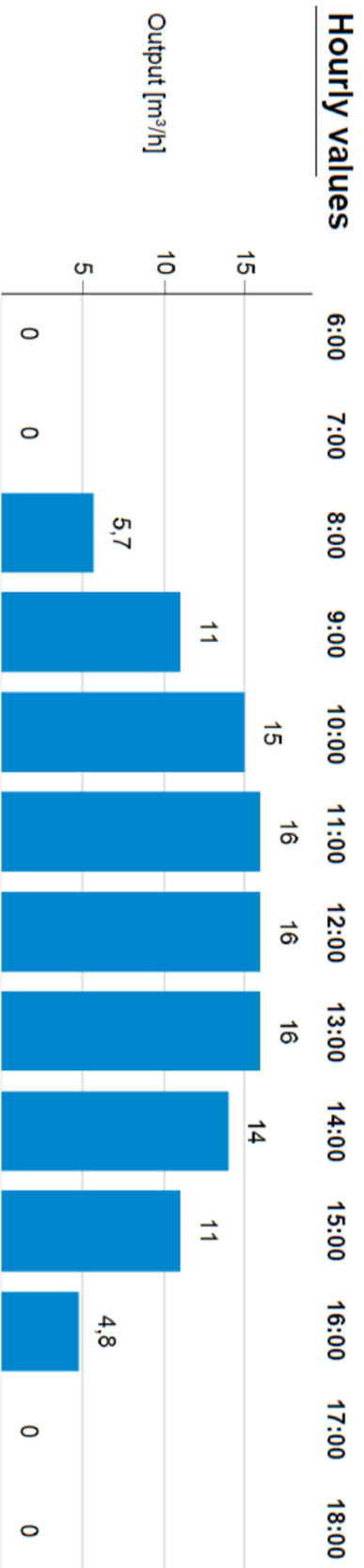
110 m³

Daily values



Energy [kWh]	83	88	93	90	101	112	115	105	96	84	78	77	93
Irradiation [kWh/m²]	4.5	4.8	5.1	4.9	5.5	6.2	6.3	5.8	5.3	4.6	4.2	4.2	5.1
Rainfall [mm]	5.8	5.1	6.0	7.1	3.6	0.47	0.33	1.2	3.6	6.0	7.5	6.7	4.4
Ambient temp. [°C]	24	24	24	24	25	25	25	26	26	24	24	24	25

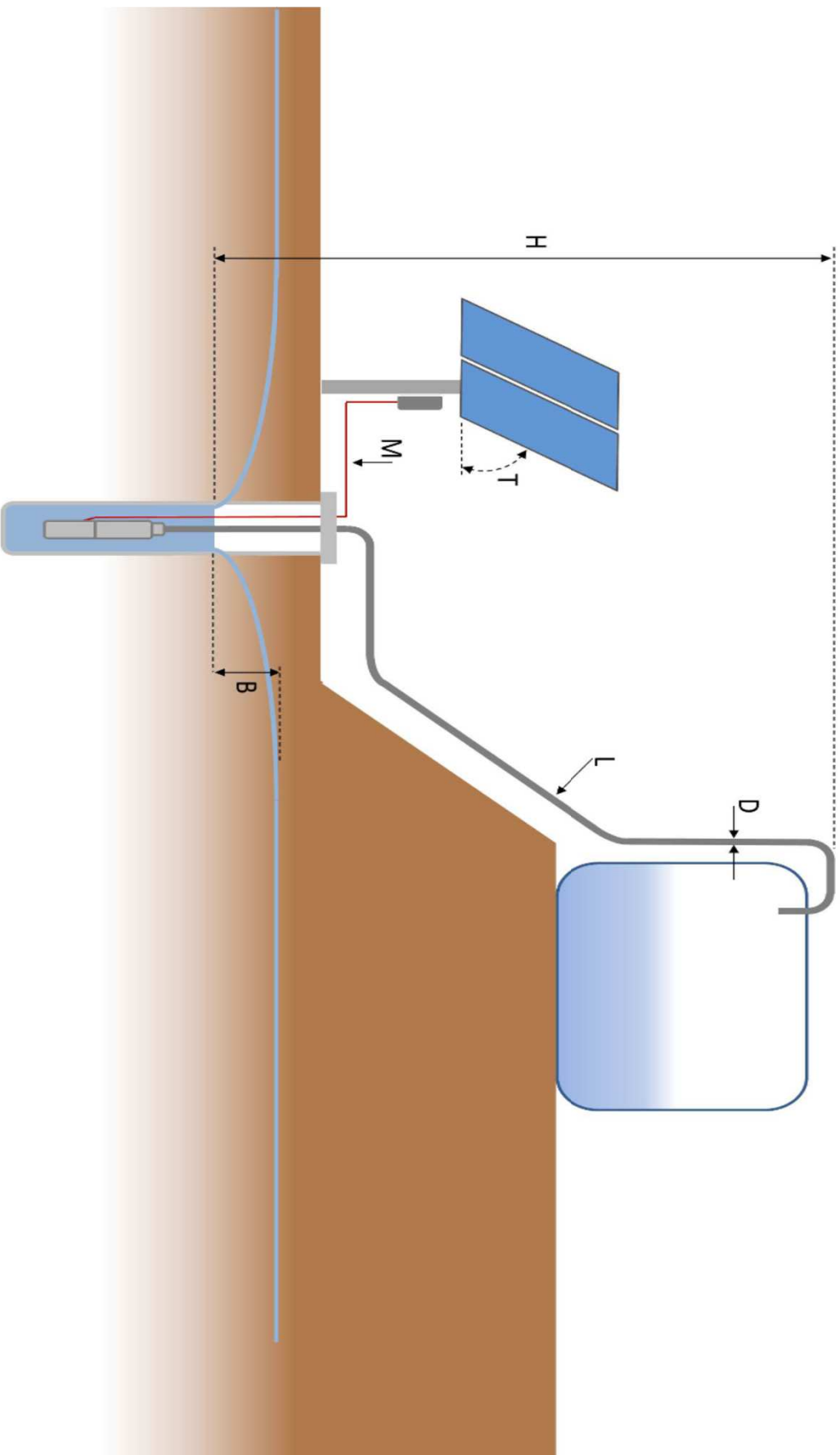
Hourly values



Energy [kWh]	0.19	2.4	5.0	7.3	9.0	10	10	9.9	8.8	7.1	4.8	2.3	0.19
Irradiation [kWh/m²]	0.010	0.12	0.26	0.38	0.49	0.55	0.57	0.55	0.49	0.38	0.26	0.12	0.010
Ambient temp. [°C]	19	19	20	22	24	26	28	29	29	29	29	28	28



Technical system



Technical system

Distribution

1. Elevated water storage
2. Double automatic standpipes
3. Prepaid electronic keys ('credit cards')
4. 110 m³/day distributed at 6 double standpipes, at ca. 500 m distance



Costs

1. Investment costs: 380.000 €, subsidy by VPWvO: 150.000 €
2. Operational costs: 32.000 €/year
3. Amortization: 44.000 €/year
4. Total technical cost (without any taxes): 2,4 €/m³
5. Actual exchange rate 2.000 FC/€
6. Total technical cost per litre: 4,8 FC/L
7. Actual selling prices: 5-7 FC/L (Kinshasa, Gemena, Ituri)



SWOT

Strengths

1. Electronic credit keys: avoid direct cash payments



2. Keys used by women for cash savings: easy acceptance
3. Solar technology: mature and affordable
4. Involvement of private sector: financial, technical, management contribution
5. Mixed ownership: mutual control by partners
6. Involvement of local NGO partner
7. Successful consortium can develop the same activity elsewhere, in another juridical entity, by changing only the local NGO partner (in this case Proyaka, the local NGO partner of Congodorpen)



SWOT

Weaknesses

1. In the particular case of Kasongo Lunda, because of deep drilling in sandstone and low dynamic water table: high investment costs in drilling and solar power installation
2. Democratic Republic of Congo: very negative environment for investment (main reason why subsidies are necessary)
3. No local references with prepaid systems

Opportunities

1. In the particular case of Kasongo Lunda: drilling planned by central hospital: is also 'test drilling' for water project in the town
2. Prices of solar energy are going down, accessibility of technology grows everywhere
3. Positive experience with prepaid systems in Kinshasa
4. Potential partners for 'Ondernemers voor Ondernemers' in B2B approach



SWOT

Threats

1. Very difficult socio-economic context: affordability and willingness to pay
2. Political instability
3. Accessibility: bad roads at 400 Km from capital Kinshasa

Legal structure

1. Non profit organisation: asbl = association sans but lucratif
2. Interest of private partner(s):
 - Building social responsibility
 - Involvement employees
 - Supply of goods and services: market conformity to be checked by other partners

