COUNTRY:
KENYA

SOLAR POWERED IRRIGATION SYSTEMS – COUNTRY CASE STUDY HOLGOJO FARM

Geographical Location:

- Garissa-County
- Latitude: 0°27'25" N
- Longitude: 39°39'30" E
- Altitude: 151 m

Specific Site Conditions:

- Climatic condition: Arid
- Conversion of community land to farm land in order to settle nomads
- Remote location, not connected to public grid
- Water is pumped out of nearby Tana River
- Good water quality and no seasonal shortage

Salient Features of Solar-powered Irrigation System:

- New site development using PV (operational since 10/2014)
- 19 kW_p PV generator on Lorentz tracking system
- Surface pump is installed on a float
- Daily mean water output: 2,035 m^3/day
- Pumping Head: 10 m
- Primary water conveyance by lined open canal, secondary and tertiary level distribution by earthen canal
- Traditional surface irrigation system (basin irrigation) in place

System Costs / Financing:

- Floating raft: 8,794 EUR
- PV pumping system: 56,952 EUR
- Irrigation system: 48,158 EUR
- System cost were 100% subsidised, no farmer contribution

Farming System / Cropping Patterns:

- Group farming (41 farmers with 0.4 ha each = 16.4 ha)
- Farmers used to be nomads (no agricultural experience)
- Banana was selected by agricultural extension workers as main product, because it is easy to handle and allows for parallel camel-breeding
- First banana harvest expected after 9 months
- Side products: Melon, Tomato
- Production is based on low-input practices, no fertilisation despite sensitive demand of banana crop in N and P fertiliser and pH-management of the soil (problem of insufficient agricultural extension)
- Farmer group finances operational expenses (incl. pump operator) and fixed annual water tax

Experiences / Lessons Learnt:

- Demo-site at Holgojo Farm has proven that PV technology works
- Foundation of multi-user groups and cooperatives could be a promising model to provide smallholders access to SPIS technology
- Neighboring famers still operating diesel-driven pumps would like to switch to PV as well (funding required)
- Concept of settling nomads by turning them into part-time farmers is promising
- Especially women are trained by extension workers to produce and market cash crops, such as tomato and water melon to generate additional income

Promoting and Planning Bodies:

- Project sponsored by Swedish International Development Agency Agency (SIDA) – Total project cost 35 Million KSH (290,000 EUR)
- Project supported by Ministry of Agriculture and University of Nairobi
- System integrator: Centre for Alternative Technologies (CAT), Kenya