

# Quality Aspects in Kenya

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## 1. Context in Kenya

- 85% of the households are not electrified (about 5 millions of hh).
- 150.000 grid-connections are planned annually.
- Total SHS installed in Kenya is more than 200.000 (5 MWp). Potential demand is estimated at 25 MWp.
- Today the sales exceeds 20.000 SHS per year.
- 80% of SHS are between 10 and 20 Wp and most uses a-Si and car/local batteries.
- A dozen PV companies supply the market through a score of agents and retailers.
- Low retail prices (e.g. 5.5 USD/Wp for a-Si module) lead to major quality problems and dissatisfactions.



## 2. PV Sector Description (1/3)

### a) Distribution Mode

#### a) Commercial Sales vs. Project approach

The country PV market is dominated by an intensive commercial activity thanks to an expanded network of dealers and retailers (Supply chain).

#### b) Component market vs. System market

As a result, the market is characterised by the sales of PV components instead of complete systems.



## 2. PV Sector Description (2/3)

### b) Institutional Scheme

- Contrary to projects, commercial sales of SHS doesn't require complicate organisational schemes.
- Key actors are mainly private companies looking for profit with "simple" relations.
- Government has no driving role! It intervenes basically to control and to regulate the market (importation, duties, standards) through the Kenyan Bureau of Standards (KEBS).
- An industrial association (KEREAA) has been created to act as an intermediary between the 3 parties (Public-Private-Consumer) and to promote quality of PV products and services.



## 2. PV Sector Description (3/3)

### c) Financial Scheme

#### a) Cash Sales

- Very widespread in Kenya but PV components or systems are usually undersized and of poor quality due to limited affordability of rural consumers.
- Most of the sales occurs in cities for rural relatives or secondary houses.

#### b) Credit Sales

- Offered by retailers in several « solar shops » in rural cities (interest rate > 40% / yr).
- Offered by SACCOs (PVMTI project) : only ... SHS in ... yrs.
- Offered by other banking institutions (BBK, EBS, KCB, ...)



### 3. Quality Assurance Status (1/3)

#### a) QA Procedures

Kenya is a worthwhile case because QA procedures have been formulated and implemented.

- a) Documents : KEBS has set National Standards for all PV components. Most are enforced.
- b) Procedures : there are national testing procedures (+ measurements) and a Code of Practices (not yet enforced) for SA Systems and PV Services.
- c) Infrastructures : KEBS has its own testing facility (lack of equipment for module testing) and work jointly with KERA.



### 3. Quality Assurance Status (2/3)

#### b) Hardware Quality

Different motivations from suppliers to develop PV business : short-term (multi-activities) and long-term (warranties).

- a) Modules : majority are a-Si; frequently low quality problems (substandard) or over-rating or even fakes.
- b) Batteries :
  - i. Two local manufacturers offering flat plate car and solar batteries, with variable performances but committed to improve quality (to get Diamond mark from KEBS). Warranties = troubles.
  - ii. Imported solar batteries generate complains (misuse, ...) and difficulty to enforce warranties.
- c) BCR : not often used in SHS; different imported brand names; many substandard products from Asia (India, China).
- d) Lamps : one imported brand name is leading the market (most efficient) but is facing imitation problems. Overrating of other products is also common.
- e) Systems : usually very poor design; no assistance from retailers.



### 3. Quality Assurance Status (3/3)

#### c) Service Quality

- Usually PV services as Design, Installation, Operating & Maintenance, Training, ... are rarely offered by the supplier to the consumer.
- The competency exists in several places in the country but most of retailers at the end of the supply chain have no expertise in PV technology.
- There is an urgent need to improve the quality of PV services in Kenya that should be provided by private sector.



### 4. Stakeholder Satisfaction

In Kenya today, most of the PV actors are concerned by quality issues.

- KEBS and KERA : officially designed to deal with quality issues but there are some controversies due to conflicts of interest and corruption practices.
- Government : not considering seriously SHS as a least cost option for Rural Electrification.
- Private sector : fraudulent practices still remain to "develop" their business. Not aware about Quality issues.
- Credit institutions : enormous efforts are needed to convince local banks to support SHS. Shy initiatives.
- End-users/consumers : look for the cheapest; misuses; many complains; no after-sales services. But mentalities change slowly (more quality concerned).



## 5. Lesson Learnt

What is needed to deal with quality?

- All levels should be considered, from top (control of manufacturing and importation) to bottom (end-user education).
- Implementation of a real independent body (KERE?) to promote quality:
  - a) Watchdog role (importation control, standard enforcement, ...)
  - b) Quality control through independent testing facility
  - c) Awareness campaigns for all (manufacturers/ importers/ dealers/ service providers/ consumers)
  - d) Training centre for service providers (accreditation)
  - e) Private sector support and promotion.
- Training and Awareness Campaigns should be the major interest of project implementers and government.



Thank you for your attention !

