

## 2 Water lifting devices - Hand pumps

### 2.7 EMAS pump



Top photo: EMAS pump installed at a family farm in Nicaragua.

Bottom photo: EMAS pump with a hose on the outlet. It can pump water to tanks up to 20 meters high.

#### Description:

EMAS pump is a small diameter piston pump with a pump rod of a PVC pipe. The water is lifted inside this pipe.

Advantages of the EMAS pump compared to rope pumps:

- 10 to 30 % cheaper than Model 1;
- Simpler in construction;
- Can lift water up to 20 meters high so can fill up elevated water tanks on a stand or a roof;
- Fits in a very small tube well so can be combined with low cost tube wells;
- Can be produced with local materials.

Disadvantages of the EMAS pump compared to rope pumps:

- It has an up and down movement which some people do not like;
- Has 20 - 30 % lower pump capacity;
- Plastic parts becomes brittle in sunlight over time, and needs regular replacement;
- Is not widely known in Malawi so needs training and a critical mass to scale up.

#### Information:

- EMAS pumps are used in Bolivia (30,000 installed).
- EMAS pumps can pump from wells of 1 to 35 meters deep.
- Fits on hand dug wells and tube wells with casings as small as 1.5 inch.
- Pump capacity: 0 - 10 m deep-25 l/min, 10 - 35m deep-5 l/min.
- Cost: **USD 50 - 70** (off workshop).
- Producers: Info SMART Centre Tanzania.