

2 Water lifting devices - Hand pumps

2.3 Rope pump Model 1



Top photo: Rope pump on the hand drilled tube well of 25 meters deep, including an apron and soak away.

Bottom photo: Rope pump Model 1 on a hand dug well. Note the 4 inch pipe is high to avoid water entering the well in case of flooding. All maintenance can be done via this pipe.

Description:

Rope pumps have a wheel, a rope and washers to lift the water.

Advantages rope pumps compared to Afridev pumps:

- 3 to 5 times cheaper;
- Simpler in construction;
- Easier to install and repair;
- Local production so low cost spares are available;
- Fit for small communities;
- Can be an option where Afridev pumps are too expensive.

Disadvantages rope pumps compared to Afridev pumps:

- Is not fit for large communities, max. number of users 150;
- Requires more frequent maintenance;
- Has less “hi-tech” look;
- Is a semi open pump so water in the well could be contaminated by the rope.

Studies indicate that in similar wells and good quality pump and installation, the water quality from a rope pump is hardly less than water quality from piston pumps like an Afridev pump.

Information:

- Rope pumps can pump from wells of 1 to 35 meters deep.
- Fits on any size hand dug well and tube wells with casings of 2 to 6 inch.
- Pump capacity; 0 - 10 m deep-35 l/min, 10 - 20 m deep-18 l/min, 20- 35 m deep-9 l/min.
- Cost: **USD 100 - 130** (off workshop. Well cover ca. USD 40).
- Producers: Info at all SMART Centres.

2 Water lifting devices - Hand pumps

2.4 Rope pump Model 2



Description:

Rope pump Model 2 is an economic version of Model 1.

Advantages Model 2 compared to Model 1:

- 30 % cheaper;
- The pump can be bought in steps. The wheel cover is optional and can be bought later on when the family has funds;
- All parts are galvanised pipes;
- All parts are welded, no bolts;
- Is easier, faster to produce.

Disadvantages Model 2 compared to Model 1:

- When bushings are worn out the whole pump has to be taken to the workshop;
- If handle is $\frac{1}{2}$ " pipe, it is less sturdy than a handle of $\frac{3}{4}$ ".

Information:

- Rope pump Model 2 has the same features as Model 1.
- Cost : **USD 70 - 90** (off workshop. Metal wheel cover ca USD 15).
- Producers: Info at all SMART Centres.



Top photo: Rope pump Model 2 installed at a family farm in Mzuzu.

Middle photo: Rope pump Model 2.

Bottom photo: A wheel cover is optional.

2 Water lifting devices - Hand pumps

2.5 Rope pump Model 3



Description:

Rope pump Model 3 is mounted on poles and is the most economic version rope pump.

Advantages Model 3 compared to Model 2:

- 15 % cheaper;
- Does not have a wheel cover (the wheel cover is optional);
- Can be mounted on any size of well;
- Can be installed without a well cover;
- Is easier to produce, install;
- Handle can be mounted at 1 meter or higher to fill up a water tank.

Disadvantages Model 3 compared to Model 2:

- Requires wood poles;
- The wood poles need to be good quality and/or treated against termites or rotting;
- In loose soil, the poles start moving if not set in concrete;
- Looks less “hi-tech”.

Information:

- Rope pump Model 3 has the same features as other rope pump models.
- It is a first step model and can be installed without a well cover.
- If money is available a well and/or wheel cover can be bought.
- Fits on any hand dug well and tube well with casings of 2 to 6 inch.
- Cost: **USD 50 - 70** (off workshop, excl. well cover)
- Producers: Info at all SMART Centres.

Top photo: Rope pump Model 3 installed on a hand dug well.

Middle photo: Model 3 installed without a well cover.

Bottom photo: Model 3, handle mounted 1.3 meter high to fill up a water tank of 0.9 meter high. Note the platform.