

TOOLS/METHODOLOGY IN ACTION FOR SPISS

MISTAKES TO AVOID WHEN DEPLOYING SPIS

FEBRUARY 17 , 2021



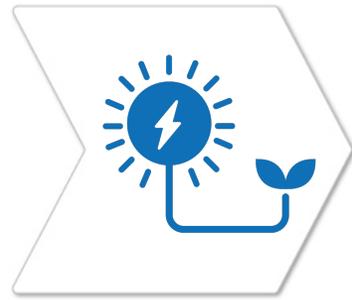
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ITALIAN AGENCY
FOR DEVELOPMENT
COOPERATION

WHAT MISTAKES TO AVOID: STEP 1



Don't make the mistake of buying a pump designed for boreholes if you have a river

Water source and head

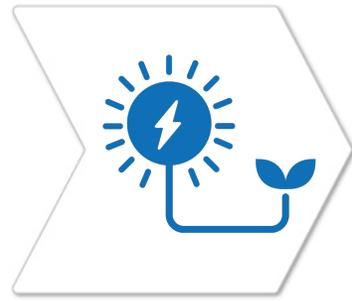
Surface pumps

&

Submersible pumps



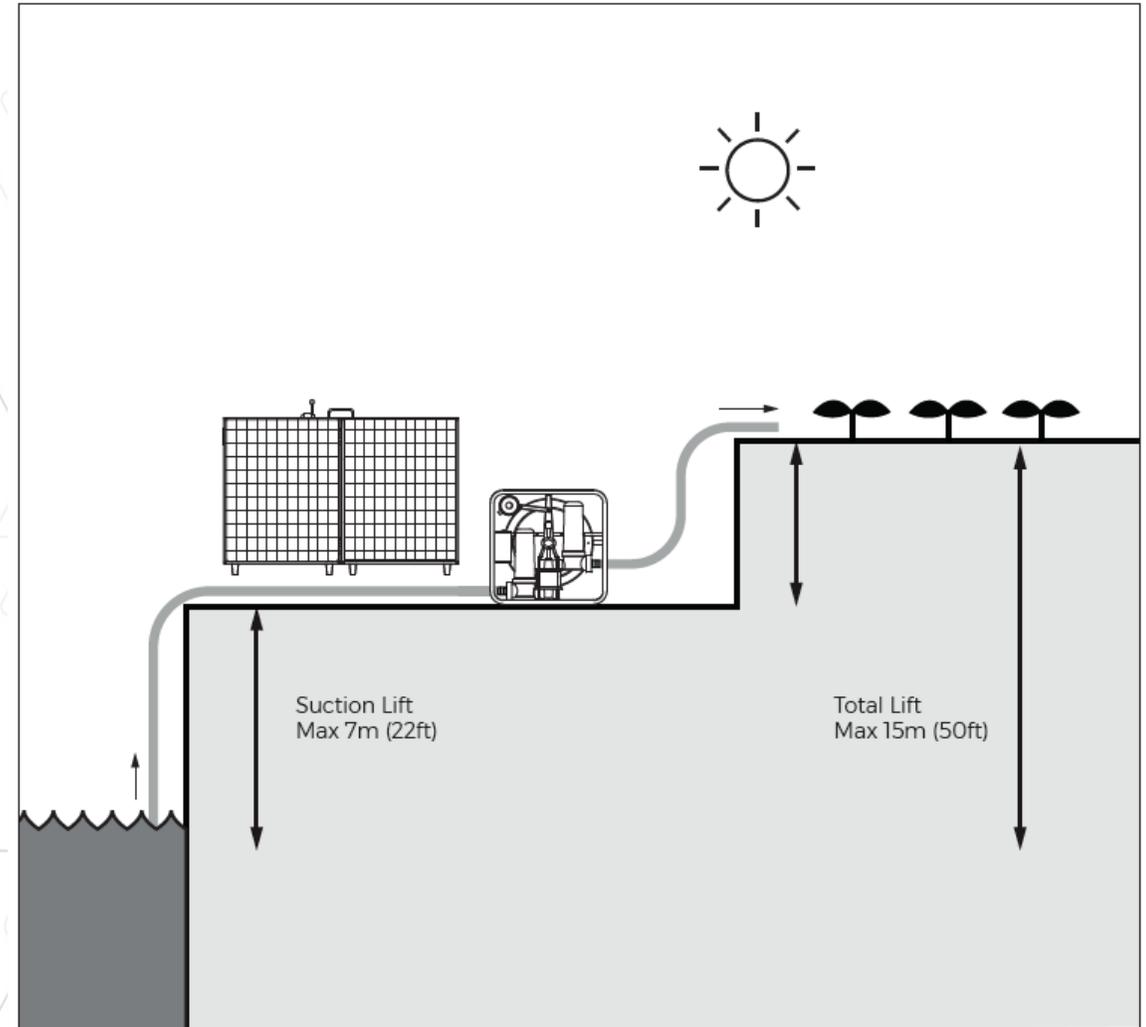
WHAT MISTAKES TO AVOID: STEP 1



Don't make the mistake of buying a pump designed for boreholes if you have a river

Surface pumps have a limited suction head

Submersible pumps only have a discharge head as they are placed into the water source



WHAT MISTAKES TO AVOID: STEP 2

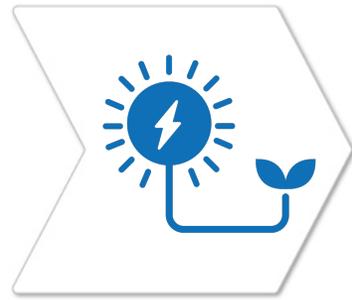


Know what a flow rate means to avoid getting disappointed by a low output

Output reduces with increased pumping head and suppliers usually talk about the maximum output

1 litre/sec	0.5 litres/sec	0.1 litres/sec
3,600 litres hour	1,800 litres hour	360 litres hour
3.6 cubic metres of water per hour	1.8 cubic metres of water per hour	0.3 cubic metres of water per hour
20 seconds to fill a 20 litre jerry can	40 seconds to fill a 20 litre jerry can	3 minutes to fill a 20 litre jerry can
83 minutes to fill a 5,000 litre tank	3 hours to fill a 5,000 litre tank	14 hours* to fill a 5,000 litre tank

WHAT MISTAKE TO AVOID: STEP 3

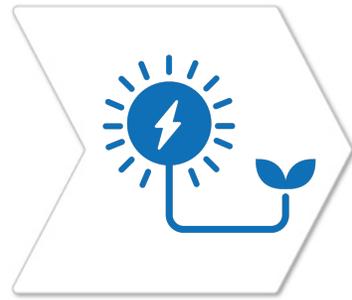


Think about portability

Do you want to be able to carry your pump around to different plots or rent it out to your neighbours?



WHAT MISTAKES TO AVOID: STEP 4



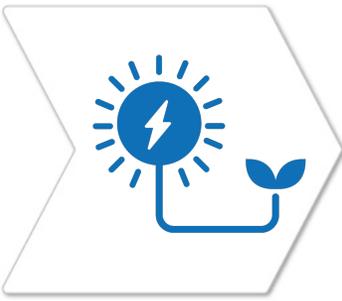
Thousands of pumps lie useless because servicing was not considered.

Make sure your supplier will stand behind their product

Check out what warranty is on offer.



WHAT MISTAKES TO AVOID: STEP 5

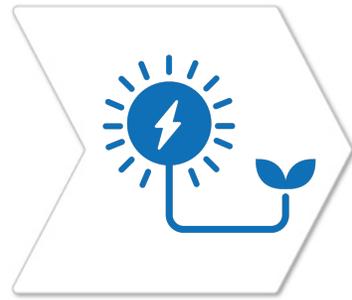


Is your pump designed to handle farm work?

- Resilience to mud and sand
- Is a filter needed or provided?
- Can the pump handle dry running?



DESCRIPTION OF THE ENERGY INTERVENTION



Example from the field – Japheth in Kenya

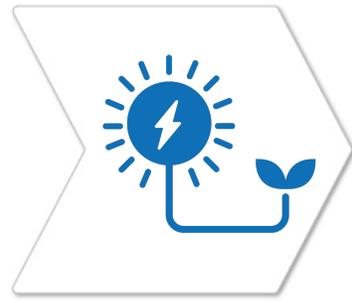
‘I used to irrigate with buckets, but I could not do much because the bucket capacity is very small. I tried a MoneyMaker pump, but it was so labour intensive, I ended up spending a lot of money hiring people just to help me pump the water. I also tried petrol, but I would use 1000 shillings (\$10) a day - this cost is too high.

He now grows kales, tomatoes, spinach, beans and local vegetables in the dry season and his success is impressive. From just one harvest he has brought in 113,600 KES (\$1,136).’



- Shallow well of 3m deep
- About 1 acre of flat land
- Rice grown in the rainy season
- Vegetables in the dry season
- 80W solar pump, maximum output at 3m of 2000 L/h

IMPACT SEEN IN KENYA



Yield – increase up to 40%

Productivity – up to 0.16 ha added

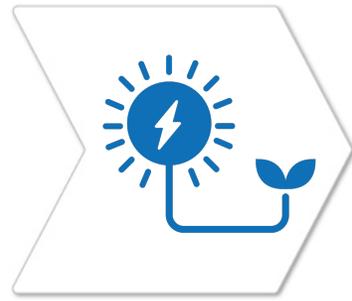
Income – up to \$300 per season

Cost – average reduction of \$40 a month

Effort – 1 to 2 fewer people needed to irrigate for a previous manual irrigator

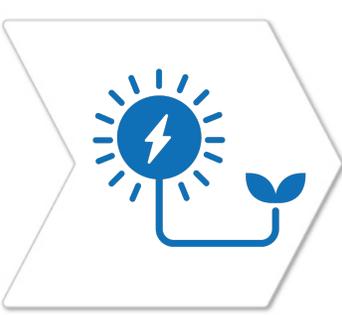


FACTORS THAT AFFECT FUNCTIONALITY



- **Bad location selection; solar panels shaded. Any form of shade during the day will diminish the output of the system**
- **Bad solar panel positioning. If the panels are not correctly angled towards the sun, the output of the system reduces**
- **Unnecessary back pressure caused by small hosepipes, kinks or 90degree bends in the hosepipe, can greatly diminish the output of the system and cause extra strain and wear of the pump unit**
- **Not replacing worn out parts, worn seals or belts can cause a reduction of functionality. If not replaced, these can lead to reduced efficiency of the system**
- **Installation error, a submersible pump or suction hose not lowered far enough into a well or not taking water level fluctuations into account can lead to a lower output of the system**

FACTORS THAT IMPROVE FUNCTIONALITY



PREVENTATIVE MAINTENANCE

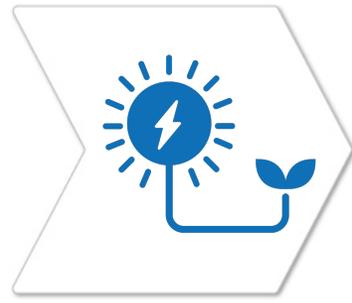
- Regular cleaning of the solar panel
- Check for wear and tear of key parts

REDUCING MAINTENANCE NEEDS

- Always use the pump within its designed limits
- Store the pump in a covered location when not in use (surface pumps)



THEY WAY FORWARD: CHALLENGES & OPPORTUNITIES



CHALLENGES

- Upfront costs
- SPIS often need behaviour changes
- Lack of knowledge and awareness of SPIS

OPPORTUNITIES

- Large number of smallholder farmers with irrigation potential
- Market education encouraging greater efficiency in irrigation and income increases
- Building trust in the market

