

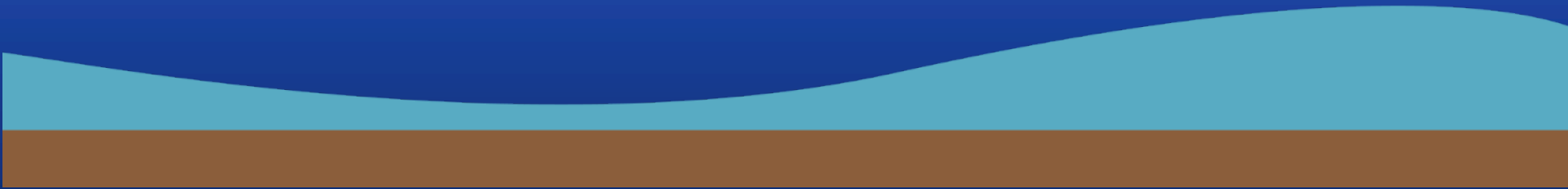
SMARTechs

Simple, Market based, Affordable, Repairable Techs.
Innovative, low cost WASH technologies
that can be produced locally

Wageningen
May 2017
Henk Holtslag
henkholtslag49@gmail.com



Technologies

- Wells, drilling
 - Pumps
 - Storage/ rainwater harvesting
 - Irrigation
 - Household water treatment
 - Sanitation/ hygiene
- 
- A decorative graphic at the bottom of the slide consisting of three horizontal layers. The top layer is a light teal color with a wavy, undulating top edge. The middle layer is a darker teal color, also with a wavy top edge. The bottom layer is a solid brown color, representing the ground.

Hand dug wells

- Small diameter wells. (1.2m 80% less than 0.9 m)
- Fresh air with well ventilator



Well reducer rings

Reducing the top diameter of a well to install a well cover and a pump



Well reducer rings

Reducing the top diameter of a well to install a well cover and a pump



Prefabricated Well cover

Can be placed on a well reducer ring



Underlining

Deepening a Hand dug well from top down
No danger of walls collapsing



Tube bailer

A way to make hand dug wells deeper from the top
No need to go in the well
No danger of collapsing



Manual drilling of Tube wells SHIPO method

Combination of sludging, percussion, jetting
Wells to 50 meters deep .
Cost 500-1500 US\$ incl pump



Manual drilling Mzuzu method

Combination of sludging, percussion, jetting
Wells to 50 meters deep .
Cost 500-1500 US\$ incl pump

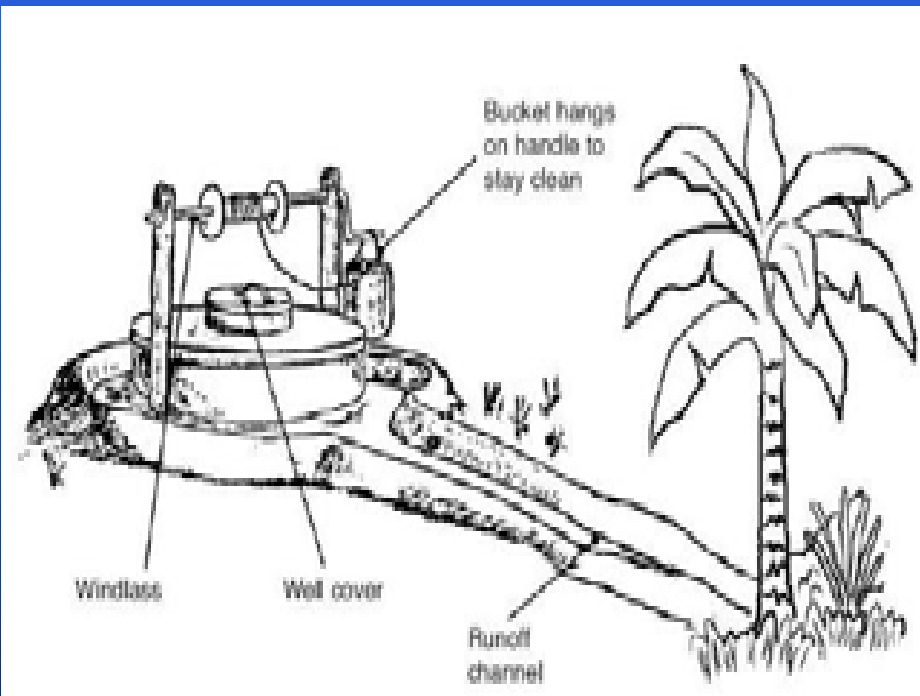


Lifting devices

Windlass

Avoid the bucket touching the ground

Close well



Rope pump

SHIPO model 1

For dug and tube wells 5 to 35 m deep

Cost 90-130 US\$ off workldshop



Rope pump

SHIPO model 2 , 3

For dug and tube wells 5 to 35 m deep

Cost 50-130 US\$ off workshop



Rope pump

SHIPO model 4

For tube wells 5 to 35 m deep

Cost 40-80 US\$, off workshop



Canzee pump

EMAS pump

Emas can pump up to 20 m high

For open and tube wells 5 to 35 m deep

Cost 40-60 US\$ off workshop



Treadle pump

Moneymaker

Suction pump, max depth 7 metre

Mainly for irrigation



Solar Rope pump

Wind pump

pump



Engine pumps

Max. suction depth 7 metres
Increased with a canal



Water storage tanks

Wire-brick cement tanks

Materials bricks, wire, cement

Volumes of 1 to 50 cubic metres

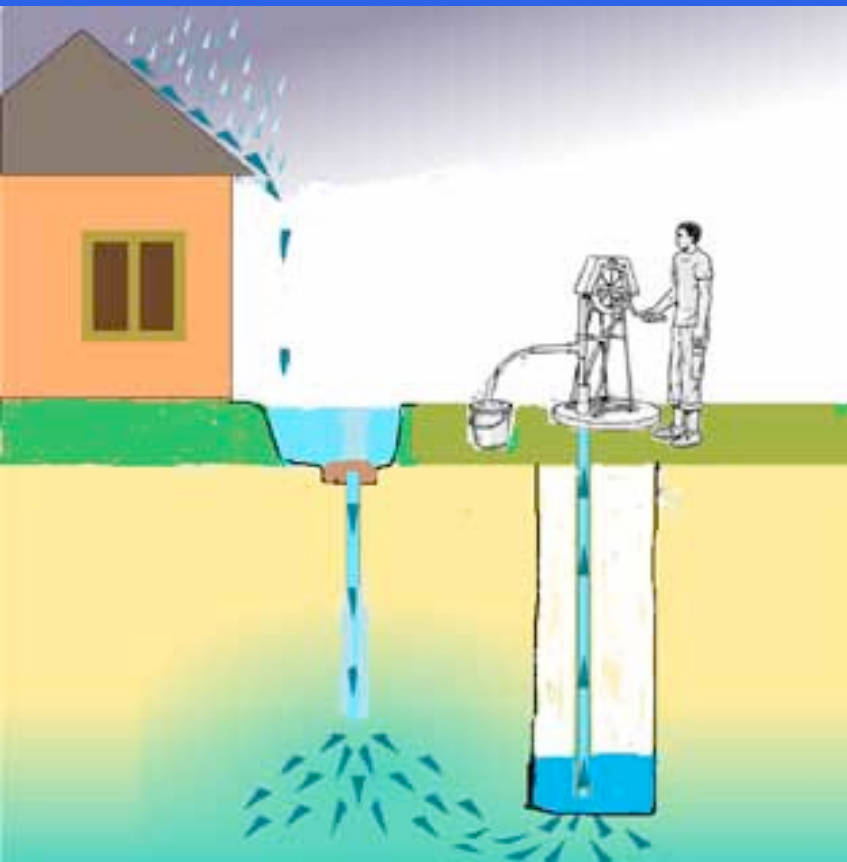
Cost, 20-30US\$ per cubic metre



Rainwater harvesting in the ground

Tube recharge

Storing from roof or ground
infiltration near dry wells



Irrigation

Reducing the top diameter of a well to install a well cover and a pump



Household water treatment

Reducing the top diameter of a well
to install a well cover and a pump



Well reducer rings

Reducing the top diameter of a well to install a well cover and a pump



Sanitation

Corbelled latrines

Zero cement, only bricks



Sanitation. Latrine slabs

SaTopan seat

Plastic bowl with a valve

Flush with 0.5 litre water



Information

www.smartcentregroup.com

henkholtslag49@gmail.com