

# Timeline

## Rural water supply - hand pumps

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The  
**SMART**  
Centre  
Group



# Timeline on website

Developments 1970 to 2020

Click on cirkels to read



# 1970s Improved pumps

## Improvements, standardization

### Examples

**Bandung pump**  
Indonesia

**Buba pump**  
Guinee Bissau

**SWN pump**  
Tanzania



1970

**Improved water pumps 70's**



1974

**India Mark 2 (MK2)**



1979

**Volanta pump**



1979

**Bandung pump**



1979

**Buba pump**



# 1980's Public domain pumps

Drought in India. Need for deep wells. Drilling with "down the hole" hammer.  
New deepwell pumps

India Mark 2  
public domain



Afridev  
public domain



# 1980's VLOM concept

## Village Level Operation and Maintenance

- ❑ Borehole & pump paid by NGOs, Governments Maintenance & repairs paid by users
- ❑ Repairs by trained community members

India MK 2 not VLOM!

Afridev partly VLOM



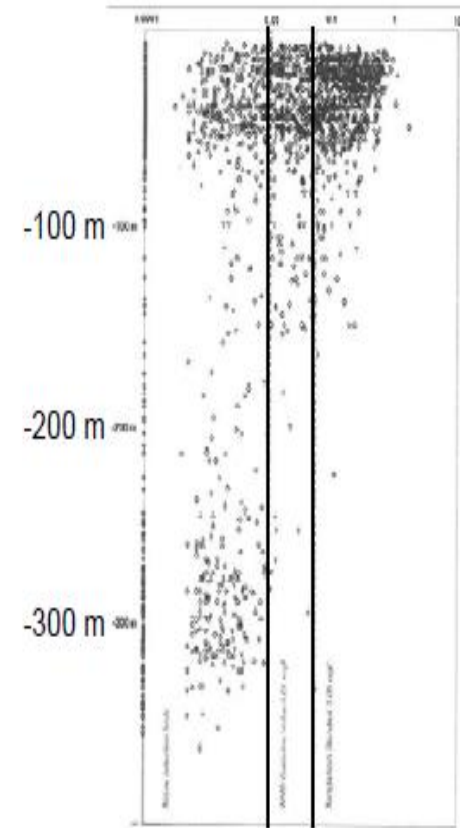
# 1980's. Shallow to deep wells

## Example Bangladesh

- ❑ Surface water sources = contamination, E-coli
- ❑ Drilling deep wells (80 m); arsenic
- ❑ Boreholes 100 – 150 m
- ❑ solved problem

See timeline; Groundwater resources

<https://www.canonvannederland.nl/page/130553/introduction-of-iwrm>



# 1983 “The Hand pump option”

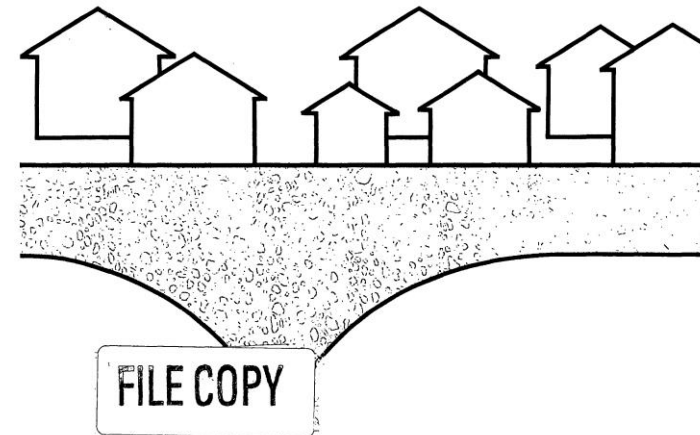
## Publication Worldbank / UNDP

- ❑ Test 40 hand pump models
- ❑ 6 “best” pumps selected  
Afridev, Blair, Tara,  
Volanta, Indian M 2,..
- ❑ 37 years old study
- ❑ Need for update!!!

## COMMUNITY WATER SUPPLY

### THE HANDPUMP OPTION

11807



Saul Ariasoff, Gerhard Tschannerl,  
David Gray, William Journey, Andrew Karp,  
Otto Langeneller, and Robert Roche





# 1990's

## Disasters can boost development

### The Rope pump example Nicaragua

- ❑ After Hurricane Mitch, 200 Rope pumps installed as emergency aid
  - ❑ After 2 years 80% functioning!
  - ❑ Aid funds for training private sector in production
- Now 70.000 Rope pumps



1987

Worldbank studies on hand pumps



1990

Rope pump



1990s

Disasters can boost development



1990

New Delhi Conference



1990

Further improved hand pumps





[click for video](#)



1987

**Worldbank studies on hand pumps**



1990

**Rope pump**



1990

**Disasters can boost development**



1990

**New Delhi Conference**



1990

**Further improved hand pumps**

# 1990 New Delhi Conference

## Water has an economic and social value

- ❑ Users must pay
- ❑ Start; Water user associations

## 1992 Start Handpump Technology Network

In 2006 taken over by RWSN in 2006



1987

**Worldbank studies on hand pumps**



1990

**Rope pump**



1990

**Disasters can boost development**



1990

**New Delhi Conference**



1990

**Further improved hand pumps**



# 1990-2010. Developments

## Better quality, pumps for deep wells

Vergnet, Volanta, Blue pump, Village pump, ..



## Pumps for shallow wells, households, irrigation

- Bush pump, Tara, Canzee, Mark 5, ..
- Rope, EMAS, Treadle pump, ..



2010

Sustainable clause  
DGIS



2009

Sustainable thinking



2007

1/3 hand pumps in  
Africa do not  
function



2006

Hand Pump  
Technology network



2002

Blue pump



# From MDGs to SDGs

## 2000, MDGs

- ❑ Indicator; Improved water sources

## 2015, SDGs

- ❑ Indicator; Safely managed at premises



# 2007 1-in-3 handpumps in Africa are not working

## Discussion on sustainability

- Start programs like triple S (IRC).
- Water as a product – water as service
- Agenda for change

## Sustainability clause DGIS

- FIETS criteria
- Only DGIS funds if there is “guarantee” of 15 yrs functionality



# 2010's Management concepts

- ❑ **PPP. Public Private Partnership**

Revenue model with operators & payment for water service.

- ❑ **Business models for O&M**

Fundifix, Uduma, Blue zones, ..

- ❑ **Monitoring. Waterpoint mapping**

AKVO, Mwater, ..



2010  
**PPP Management concepts**



2010  
**Water point mapping 2010's**



2012  
**Solar Pump**



2013  
**UPGro Hidden Crisis research project**



2015  
**Start of SDGs.**



# 2015 Start SDGs

- ❑ New indicators. **2.1 Billion people without safely managed water supply at premises!!**
- ❑ More focus on Point of Use treatment as most cost-effective intermediate solution
- ❑ Of all PoU treatment options, filters most effective



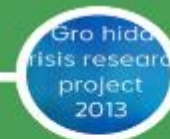
2010  
PPP Management concepts



2010  
Water point mapping 2010's



2012  
Solar Pump



2013  
UPGro Hidden Crisis research project



2015  
Start of SDGs.

# 2015 Self-supply

Families pay their own water supply

## Potential of Ss. Example Nicaragua.

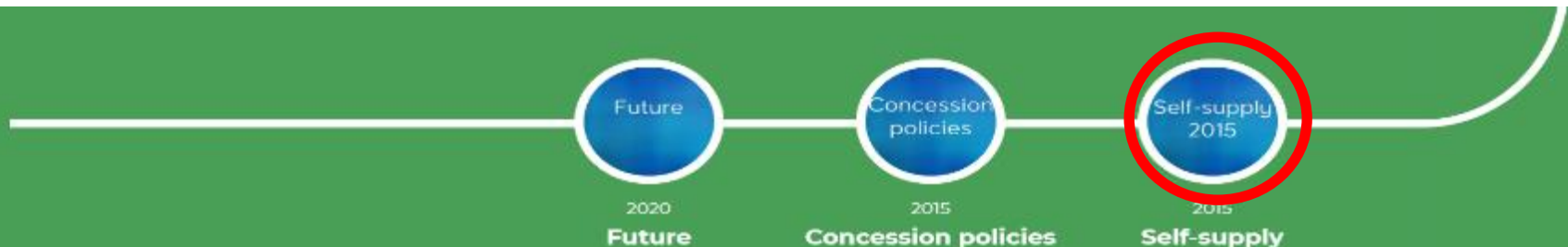
- ❑ 70.000 Rope pumps, 70% (co)funded by families
- ❑ Family incomes increased \$225/yr
- ❑ In 20 yrs total **increased incomes \$ 200 million**

Ss = SDG6 + SDG 1, 2, 3 and 8

**So Ss = water and..... rural development**

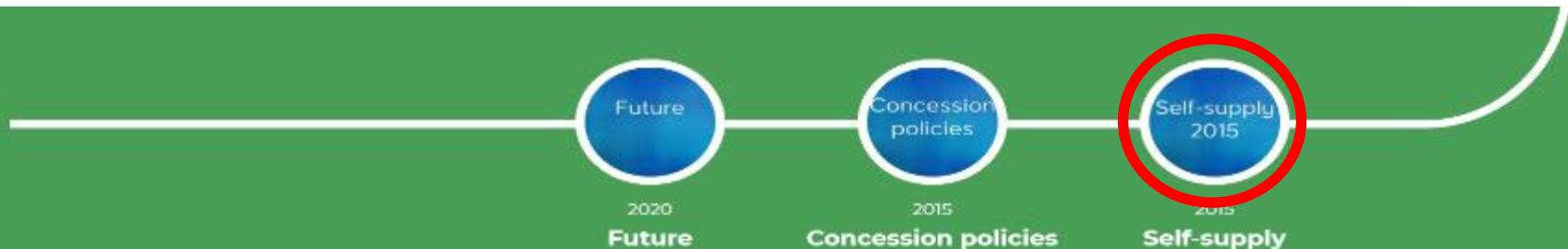
## Discussion now

Can Ss get more support by NGOs, Governments?



# Future rural water supply?

- ❑ **From hand pumps to solar pumps?**  
Solar for larger communities, piped systems.  
Problems: theft, complicated,..  
Hand pumps for smaller communities, households
- ❑ **Management by private operators?**  
Piped systems, Water kiosk, ATMs
- ❑ **CBM and FBM?**  
Besides **C**ommunity **B**ased **M**anagement also  
**F**amily **B**ased **M**anagement





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The full timeline can be found at

[www.stichtingnicc.nl](http://www.stichtingnicc.nl)

Time lines



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