

# BEST PRACTICE

*Sludge management enhances health and environmental protection in low-income communities*

**PROJECT:**  
WOP Kenya

**TOPIC:**  
Sludge management

**COP:**  
Urban Sanitation

MORE INFORMATION:



## CHALLENGE

Sanitation stewards (pit emptiers) collect waste from onsite sanitation facilities (traditional or lined pits, septic tanks and containment chambers) in densely populated low-income areas. The challenge is how to do it. A compact PuPu pump (compressor, reservoir with automatic duck bill non-return valve, and a manually operated pressure valve) can reach out to these pits to remove septic sludge. The PuPu pump works on a mechanical push and pull (Pu-Pu) technology. It sucks the septage and pumps it in a storage tank or truck for further transportation, processing and treatment, and/or final reuse/disposal.

## APPROACH

City wide pit emptiers are to be recruited and be trained for five days on the relevance of the job, its health risks, safety & protection measures, and on the assembly and use of the PuPu pump. Practica foundation developed a ready-made curriculum for this training including field testing. The pit emptiers (or sanitation stewards) are either in public or private context paid for the services they offer, while the disposal of the collected sludge needs to be taken care of by municipal intake and/or processing plants. These can in some cases be run by water utilities as these have the human skills to effectively operate and maintain systems.





## IMPACT

Sanitation stewards are used to work at night due to the beliefs associated with pit emptying but now accept and appreciate the benefits of this technology and prefer it over manual emptying: there is hardly direct contact with the human waste.

The success rate is in terms of public health benefits as well as logistics. There is a steep increase in septage collection efficiency: many more pits/tanks can be successfully emptied. Although the pump still faces challenges (because of trash, sludge thickness, and sludge variability), the trend is to further develop the low-cost PuPu pump. Financing these services is a major issue as people may tend to prefer illegal septage dumping into scarce (surface) water resources

## SUCCESS FACTORS

Geographic information and areal surveys (by drones?) on the low-income areas provides valuable insights in accessibility and location of sanitation systems. Having these well plotted in GIS creates oversight to offer regular pit emptying services. mWater software can be used to collect data and plot/map sanitation systems. In Kenya septage collection is often outsourced to private operators while performance is monitored. Replication of the PuPu technology in densely populated low-income areas can definitely be most rewarding, and raise public health and environmental caretaking.

## DOCUMENTATION

Major organisations engaged:

NAWASSCO:

[ZaituniRehema@yahoo.com](mailto:ZaituniRehema@yahoo.com)

[Myrko.Webers@vei.nl](mailto:Myrko.Webers@vei.nl)

WASTE/FINISH Mondial:

[hasfaw@waste.nl](mailto:hasfaw@waste.nl)

[pkananu@gmail.com](mailto:pkananu@gmail.com)

FSM Alliance:

[www.FSM.org](http://www.FSM.org)

SuSanA:

[www.susana.org](http://www.susana.org)

## OTHER

The Global Water Operators' Partnerships Alliance (GWOPA) helps water operators help one another to provide quality services to all. GWOPA is an international network alliance supporting water operators to engage in WOPs. WOPs are peer support exchanges between two or more water operators, carried out on a not-for-profit basis with the objective of strengthening operators' capacity and performance to provide better services to more people ([www.gwopa.org](http://www.gwopa.org)).

WaterworX is a major Dutch WOP program engaging over 50 water operators in their joint effort to capacitate peers, strengthen their work processes, and ultimately improve operational performance ([www.waterworxprogramme.org](http://www.waterworxprogramme.org)).

