



Towards a sustainable pit latrine management strategy through LaDePa technology

Dave Wilson and John Harrison

The eThekweni Municipality, Department of Water and Sanitation, Durban, South Africa

e-mail: davewi@dmws.durban.gov.za; johnha@dmws.durban.gov.za



Introduction

Disposal of pit latrine sludge is a major health and environmental problem in the Third World. Further the sludge contains phosphates (a critical but diminishing resource) and other nutrients, which are generally wasted in current disposal methods.

LaDePa (Latrine Dehydration and Pasteurisation) is a machine that provides a containerised method of processing sludge in order

to produce a nutrient rich soil conditioner that is workable and improves sustainability on a number of fronts. The technology removes the detritus, pasteurising and drying the sludge to beyond the sticky phase. Due to its low technology LaDePa relates well to the social environment where pit latrines are usually encountered in the developing world urban environment, in that it provides both business and work opportunities for the poorly skilled.

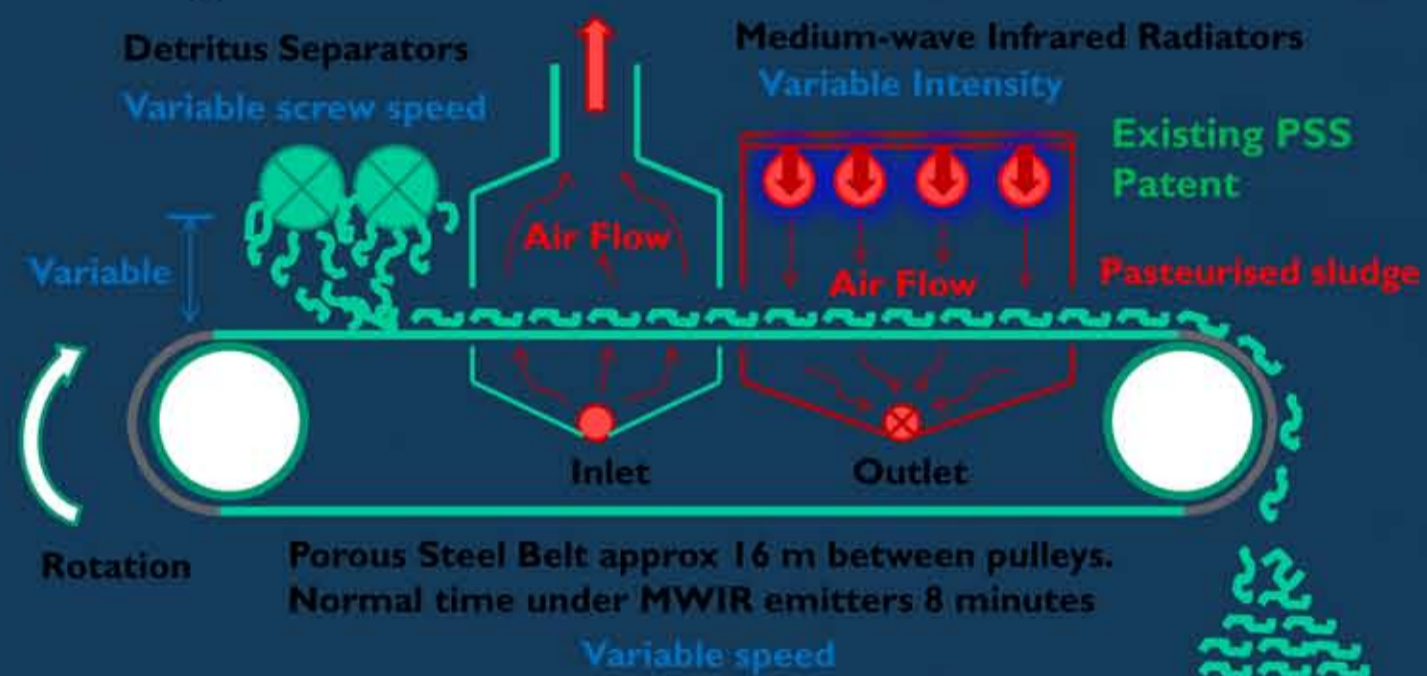
Results and Discussions



Operation of LaDePa

Sludge and detritus are separated by means of a screw compactor with lateral ports

The sludge falls onto a continuous porous steel belt



The steel belt conveys the material into the Parcep dryer where it is dried and pasteurised

The dryer uses medium wave Infrared radiation and a vacuum to draw air through a porous material or one with an open matrix

Addressing challenges

Disposal of sludge at Treatment Works is not viable due to nitrification challenges and overload of the digesters

LaDePa addresses social challenges in addition to technical and environmental challenges.

Sludge disposal methods wastes valuable phosphates from urine deposited in sludge

Sludge takes up valuable space in landfill sites

Social, economic and sustainable benefits

The emptying of pits through the sustainable pit management programme ensures a healthy environment for residents

Disposal costs are reduced substantially

Local contractors gain skills, provide employment and enhance local economic development

Food security is improved through the distribution of sludge pellets which are rich in nitrates and phosphates (i.e. an organic fertiliser is provided to farmers)

Conclusion

The deployment of the pioneering pilot LaDePa plant to treat the sludge produced from the Durban pit latrine emptying project has been remarkably successful at producing a potentially marketable product from a waste. The uninterrupted long production runs and the consistency of the product produced under working conditions

bodes well for full commercialisation. It is the intention of the Municipality to implement a franchised continuous pit emptying programme anchored around LaDePa, starting when the next pit latrine emptying cycle is due, late in 2011. An environmentally safe sludge disposal technology is a critical component to the well being of the environment. The LaDePa Technology addresses this.