

# COMPLEXITIES AROUND PUBLIC PRIVATE PARTNERSHIPS WITHIN THE CIRCULAR ECONOMY - CASE STUDY DURBAN, SOUTH AFRICA

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## SUMMARY

“Circular economy” is currently a popular concept promoted by national governments and businesses around the world. Within the sanitation sector the costly and environmentally unfriendly linear model of ‘make-use-dispose’ established during the Victorian era can no longer be sustained. According to Cheryl Hicks, chair of the World Toilet Board, the conversation needs to be changed from talking about **human waste** to talking about **toilet resources**. The circular economy approach thus aims to close industrial loops by deriving value from waste streams that are cost recovering and resource efficient. Circular economy is not a new concept, but entails taking up a holistic perspective that considers different waste streams, contexts and technologies, overcoming silos and achieving cross sectoral cooperation.

## BACKGROUND, OBJECTIVE, PROCESS, CHALLENGES, COSTS AND SUSTAINABILITY

### Background

Following a commitment by the eThekweni Municipality to empty over 80 000 UDTs, an opportunity to implement a circular economy through the processing of faecal waste removed from the UDTs into valuable products that would ultimately reduce the sanitation operational costs for the Municipality. There have been clear successes achieved with the approach but there have also been complexities requiring research, analysis and process adaptations. The initiative has revealed that an iterative approach together with long term commitment of the stakeholders is required to achieve sustainability.

The project needed to address a number of elements of the sanitation value chain; namely emptying, transit and disposal or recycling.

Implementation was by means of two partnerships using the existing regulatory framework; (i) a tender based contract with a private contractor to remove and transport faecal waste from UDTs using local enterprises; and (ii) a Service Level Agreement (SLA) with a specialist private operator to develop and manage a faecal processing plant to produce beneficial products

The tender document provided detailed specifications for the emptying of the toilets and transit of the waste including health, safety and environmental compliance. It also provided details for the contracting and mentoring of local businesses to undertake the work. The SLA defined the responsibilities of the partners, identified and apportioned risk and established the business model. The ultimate aim of the SLA was to reduce the municipal operational costs.

A multi stakeholder approach was utilised. In addition to the municipality and the private contractors, a business development specialist and the University of KwaZulu-Natal (UKZN) played critical roles in the project. The Bill & Melinda Gates Foundation de-risked the initiative through the provision of CAPEX for the establishment of the processing facility.

The emptying contractor and the plant operator have been implementing the project since early 2017. However, the plant has not reached profitability due to a number of challenges.

### Challenges

- Delays in awarding the emptying contract and signing the SLA. There was a need to build relationships with city management and to encourage them to make the paradigm shift away from the normal linear approach to sanitation and to embrace a new business model
- Appointing two contractors for different elements of the sanitation value chain. The emptying contractor did not have an incentive to separate detritus from the faecal waste which caused operational challenges for the processing plant operator

- Untested equipment and nutrient value of faecal waste. Although the selected operator had a track record in the BSF technology field, untested equipment and processes as well as environmental conditions and lower than expected nutrient value of the faecal waste have delayed the finalisation of products streams
- Market acceptance and validation of products. This has caused delays to product rollout and sustainability of the business model

## RECOMMENDATIONS

- ❖ Establish regulatory frameworks to allow utilisation of tender processes and public private contracts
- ❖ Include targeted incentives and penalties in the contracts and agreements
- ❖ Provide site supervision to ensure a smooth transition between private contractors managing different elements of the sanitation value chain
- ❖ Address social issues through education and regulatory enforcement in communities in order to reduce the disposal of detritus in UDTs
- ❖ Public and private sector funding needs to be blended to de-risk the initiative and give ownership to the partners
- ❖ Ensure city management are aware of the project and its achievements so that new circular economy initiatives are more readily accepted
- ❖ In the initial testing phase the processing operator should first achieve a saleable production line before investing in other high technology product streams
- ❖ The stakeholders will need to allow time for testing, research and new iterations of the process and products before sustainability is achieved
- ❖ There is a need to start engaging with potential markets in parallel to production finalisation and validation

This project has illustrated that a circular economy approach requires patience as the stakeholder's work together using an iterative approach to achieve a sustainable sanitation model.

## REFERENCES

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