

Department for International Development

Contract Title

*Research Development and Design of a Simple
Solid Waste Incinerator,*

Contract No. CNTR 98 5698

Observations on Study Visit to South Africa

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1. INTRODUCTION

Following the Study Visit to South Africa, a number of points and recommendations have emerged:

- X Guidelines should be developed for incineration in collaboration with the partner country.
- X The Ixopo plant visited performs to what may be considered acceptable emission standards, but a number of cheaper and simpler plants observed do not currently perform to acceptable standards.
- X A plant similar to that in Ixopo could be developed at a total capital cost of around £70,000.
- X Alternatively, a lower cost plant could be developed. However, until the development has progressed to the test-rig stage, no guarantee can be given that it will meet acceptable emission standards such as those at the Ixopo plant.

2. DEMAND

In the need and demand survey, it was assumed that the capital cost of LCI would be no greater than that for engineered landfill. In fact, it appeared that the cost would be appreciably less, if the original target cost of £20,000 could have been adhered to.

With an increase to £70,000, it is necessary to establish whether this is still less than the cost of providing a properly engineered landfill. We have recently acquired data relating to the cost of a newly constructed landfill in Botswana (at Pilane, north of Gaborone). The site complies with standards set out in landfill guidelines recently adopted by Government. This site accepts about 15 tonnes/day and the capital cost, including plant was around £500,000. This figure is now being used a standard in Botswana for the cost of constructing landfills to accept 5-20 tonnes a day. We believe that this figure is somewhat high but, clearly, the cost of engineering a landfill (with leachate protection) will be in excess of the figure of £70,000.

Even if the costs of developing landfill were in a similar range (£70,000), continued development of LCI would provide an alternative strategy for those countries who perceive that landfill lies at the very bottom of the waste management hierarchy (eg. in countries where there is a scarcity of suitable sites for landfill development).

3. AFFORDABILITY

The capital cost of LCI, if the Ixopo model is selected, would not be dissimilar from the cost of purchasing a single compactor type refuse collection vehicle. This is clearly within the range of affordability in some communities – Marondera, Zimbabwe, for example, which purchased one such vehicle recently.

In poorer communities, such costs may not be affordable, but then nor will any significant environmental upgrading of waste disposal techniques.

4. CONCLUSION

It is important to consider the likely attitude of environmental NGOs and other stakeholders to this project at this stage. If a plant is developed which does not comply with a recognised set of acceptable standards, it is likely that it – and DFID as a consequence – will receive adverse criticism which could compromise the success of the project. We therefore believe that it is essential to meet minimum emission criteria – such as those currently being introduced in South Africa. Part of the next phase of work would be to develop a set of such

guidelines incorporating minimum emission criteria. This would be carried out in conjunction with all the key project stakeholders.

The two options for proceeding to the next stage have different implications. A plant based on the Ixopo design can be developed, at a higher capital cost than originally envisaged, but with confidence that emission levels which are environmentally acceptable can be achieved.

Alternatively, a lower cost plant could be developed with agreed minimum emission levels as a starting point. Until the development has progressed to the test-rig stage however, no guarantee could be given that those standards are achievable.

Whilst £70,000 may be a greater cost than was originally envisaged, we believe that it still offers value for money in environmental terms.

Consequently, we recommend that that we use the Ixopo model and proceed with the design and development phase. This will commence with an in-depth study to assess precisely the level of cost reduction that can be achieved whilst ensuring acceptable performance with respect to guidelines as identified above.