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The WRC operates in terms of the Water Research Act (Act 34 of 1971) and its mandate is to support water research and development as well as the building of a sustainable water research capacity in South Africa.

TECHNICAL BRIEF

Food Production in Rural Settlements

For the first time in South Africa, communities' perceptions around the use of human excreta for food production were investigated.

Using Human Excreta as Fertiliser

Household food security

Even though food security is a government priority and South Africa is regarded as self-sufficient in food production, an estimated 1,5 million children suffer from malnutrition and 14 million people are vulnerable to food insecurity. Food security is not only dependent on the ability of agriculture to produce sufficient food at a national level; it also depends on access to sufficient food at the household level.

In South Africa 72% of the poor live in rural areas. Growing their own food would contribute to food security, but both infertile soil and the relatively high cost of chemical fertilisers act as constraints on food production by poor people.

Human excreta – More than a waste product

Ecological sanitation is a sanitation system that turns human excreta into potentially valuable fertiliser, with minimum risk of environmental pollution and no threat to human health. It is a **sustainable, closed-loop system** that treats human excreta as a resource, not as a waste product. Excreta are processed until they are free of disease organisms. The nutrients contained in the excreta are then recycled by using the eco-sanitation products to replenish plant nutrients in the soil.

The acceptability of exploiting human excreta as fertiliser will depend on peoples' perceptions, which influence and guide their behaviour. Overcoming reluctance to use excreta will require an in-depth understanding of the social and mental fabric that condition people's views on the acceptability of this means of recycling plant nutrients. *No research to develop such understanding has been previously been done in South Africa.*

A scoping study was therefore necessary to investigate the use of human urine and faeces, worldwide and in South Africa, and to determine, through primary research, what the attitudes and perceptions of people in rural settlements are regarding the use of human excreta for food production.

A comprehensive literature review showed that, internationally, the use of human urine and faeces for food production, especially in China, is an old and well-known practice. In some countries in Africa this use of human urine and faeces is also accepted. Nevertheless, perceptions about health hazards and attitudes of revulsion towards faeces and urine exist in varying degrees among cultures all over the world. Attitudes towards urine are often different from those towards faeces.

Social attitudes and norms of conduct with regard to excreta vary with age, sex, marital status, education, class, religion, locality, employment and physical capacity. For example, there are those who consider urine to be a spiritual pollutant and minimise contact for this reason. Others might hold the belief that urine has beneficial properties either as a disinfectant, or as an antidote to poison ingestion or even as a pesticide. The literature thus makes it clear that different social groups can have widely different views on the use of human excreta.

Assessing attitudes of South African communities

In South Africa, the handling and use of human excreta for food production are still relatively foreign to peoples' thinking and generally not acceptable. Human excreta have traditionally been seen as waste products, unhealthy, unhygienic and detrimental to humans. Field research was thus included in the scoping study to gain

insight into current views of the people in South Africa concerning these matters, especially in view of recent exposure of some communities to ecological sanitation in the form of the urine diversion toilet. By basing the field research on the KAP (knowledge. attitudes, practices) study developed by the World Health Organisation, the qualitative data obtained would, as closely as possible, reflect the true situation in the community and reveal factors that influence current attitudes and behaviour of people.

Unstructured household interviews were consequently carried out, with responses being validated and cross-checked by physical observation and small focus group discussions.

The questions during the interview prompted discussions around gardening, food production, use of the urine diversion (UD) toilet and people's perceptions and feelings regarding UD toilet products. In many instances where discussion started with only one or two respondents in a household being present, members of surrounding households (sometimes up to ten), ended up joining in the discussion, effectively forming a focus group. Ultimately, the approach proved to be particularly useful for exploring the complex and emotionally loaded topics of sanitation, human excreta, beliefs and opinions.

A 10% random sample of households in various settlements in each of four provinces was achieved. The Northern Cape, Eastern Cape and KwaZulu-Natal were selected for diversity of cultural groupings, as well as exposure to information and/or use of urine diversion sanitation and its human excreta products. Limpopo Province was selected for the fact that urine diversion sanitation is relatively unknown there. The objective was to compare the perceptions and attitudes of people who had not been exposed to urine diversion sanitation with those of people who know it well. A total of 120 interview schedules were completed, covering 124 respondents who represented 704 household members.

Results of the survey showed that the general norm of not physically handling human excreta, perceived to be unhygienic, is still very strong among respondents. Even though respondents stated that they would in future use human excreta in their gardens and eat the food so produced, it remains to be seen whether this will actually happen.

Policy recommendations

It is clear that attaining the benefits of ecological sanitation still requires a change in how people think about and act towards human excreta. People need to be assisted to overcome cultural taboos if they are to accept their faeces and urine as fertiliser for food crops.

Adequate **education and hygiene awareness** campaigns should accompany the provision of ecosan toilets, both for maintaining public health and for enhancing acceptability of ecosan toilets as a hygienic sanitation solution. In this regard demonstration and visual aids are essential, as they create awareness and enhance understanding. In other countries, demonstration toilets, peer education and peer pressure have been successfully in bringing about changes in attitude.

The present scoping study has shown that people are at least open to changing their minds. It should be followed up by **in-depth research** into the factors that are important in changing the perceptions and views of people regarding the use of human excreta for food production.

Attention should be focused on areas where urine diversion sanitation projects have been successfully and **sustainably implemented**, and where the households are actively beginning to use human excreta as fertiliser for vegetable gardens.

Further reading:

Social/Cultural Acceptability of Using Human Excreta (Faeces and Urine) for Food Production in Rural Settlements in South Africa, WRC Report No **TT 310/07**.
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