WATER RESEARCH COMMISSION

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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.

POLICY BRIEF

Sanitation

Sustainable service delivery

A new model developed with funding from the WRC is assisting municipalities to determine affordable and sustainable sanitation demand in dense settlements.

Assessing demand: A precondition for effective and sustainable service delivery

It is government policy to upgrade and integrate the informal settlements of South Africa into its urban fabric as soon as possible. One implication is that the provision of services to millions of people currently residing in dense settlements needs to be accelerated considerably. In this connection it is necessary to determine, as a matter of urgency, the demand among dense settlement residents for all services, but especially for the various sanitation options.

A potentially useful tool for assessing sanitation demand

A potential means of determining the effective sanitation demand is to take a modelling approach. The new interactive computer model, developed through WRC funding, is able to establish the demand for sanitation within the context of the integrated affordability of all services provided to dense settlement residents. The model was named the Sanitation and Housing Applied Priorities Enquiry (SHAPE) model.

Sanitation demand surveys and case studies

In order to gather basic information needed for sanitation demand management assessment, 263 households were surveyed in three selected dense settlement areas of South Africa, namely 81 at Schmidtsdrif in the Siyancuma Local Municipal area, 50 at eThekwini (Durban) and 132 at Ekurhuleni (East Rand area near Springs). These areas can be regarded as representative of both urban and rural dense settlement areas in South Africa.

The surveys were done by means of questionnaires which were completed by the residents while being given a detailed briefing on all the sanitation and other services options. Colourful posters were used to demonstrate the different sanitation and other service options and how they operated.

After having completed the surveys, two case studies were carried out to confirm the findings of the surveys. The case studies were done at Soshanguve and Temba/Hammanskraal in the jurisdiction of the City of Tshwane Metropolitan Municipality. During the case studies the same questions were posed to participants as during the surveys, but the answers were entered directly into the Shape model on a laptop computer.

Thus, together with the 12 households involved in the case studies, a total of 275 households participated in the investigation.

Findings

First and foremost, the investigation revealed that the integrated affordability approach followed when the SHAPE model is applied, yields considerably more accurate demand figures for all services than do the conventional non-integrated methods. Before application of the model, all respondents surveyed eagerly expressed a preference for waterborne sewerage systems. However, once the consideration of integrated affordability started making an impact, about 30% of respondents were prepared to accept on-site sanitation options. The overall sanitation demand patterns revealed by both the surveys and the case studies were for all practical purposes the same, confirming the integrity of the results. These were:

- Just over a quarter of the participants chose ventilated improved pit latrines (VIPs);

- Very few participants (only about 3%) showed any interest in the composting toilet;
- Roughly 70% of the participants were very adamant about waterborne toilets. About 60% chose the shallow waterborne system and roughly 10% opted for the conventional full-bore waterborne system.

An important advantage of applying the SHAPE model for sanitation demand assessment is the simultaneous establishment, in a single exercise, of the demands for housing and all other infrastructure services. This is of enormous benefit to government and other authorities responsible for delivering services to the residents of dense settlements.

Thus, by applying the SHAPE model, it could also be established that many of the dense settlement residents were willing to accept smaller houses in exchange for immediate provision of higher levels of water and sanitation services in their homes. Future expansion of homes was seen to be more easily manageable than the future upgrading of services.

Electricity supply in the homes was regarded of paramount importance – even more so than water supply or waterborne toilets. In fact, a clear cascade of values emerged, namely preference for an electricity service, followed by preference for water supply and sanitation and then a demand for elementary housing and lastly roads and street lighting.

Significantly, the investigation also revealed that local authorities often take policy decisions which exclude on-site sanitation systems for new housing schemes. If these decisions are not dictated by physical conditions, like high water tables of specific soil conditions, they in fact negate central government policy and the Batho Pele ('people first') principles.

Poor coordination and contact that was seen to exist between local authority officials, councillors, ward committee members and dense settlement residents could lead to considerable service delivery delays. In fact, this places a question mark over the reality of the effectiveness of community involvement as currently practised.

The application of the SHAPE model during the investigation revealed that it has the potential to greatly enhance community involvement and realism among the inhabitants of dense settlements with regard to service delivery. Households were enabled to make far more appropriate, realistic and affordable choices – not only as far as sanitation was concerned, but also with regard to housing and all the other infrastructure services.

Policy implications

Future application of the SHAPE model

Taking the findings of the study into consideration, it is recommended that, as a matter of policy, the integrated affordability approach, as embodied in the SHAPE model, henceforth be followed in establishing sanitation and other service demands of residents in dense settlement areas of South Africa. This will rule out erroneous demand patterns such as those established in the past when using non-integrated methods which do not consider the affordability of all services in an integrated manner.

Future policy-related research

The following are some of the issues that require further investigation in order to inform policy related to the demand for services:

- The inability of residents to afford services such as housing and all other infrastructure services, sanitation included, may lead to non-payment, boycotts, demonstrations and even violence. To help circumvent such protest action, it would be advisable, in future, to monitor how frequently, and by what means, consideration is given to the integrated affordability of the services being offered to the residents of dense settlements.
- There is a need to familiarise residents of dense settlements with the different sanitation options available. In this regard, consideration should be given to institution sanitation technology demonstration centres, especially in urban environments.
- Investigations are needed to determine whether authorities still adhere to the Batho Pele principle when water and sanitation services are supplied to the residents of dense settlements in South Africa.

Further reading:
To obtain the reports, *Development of a Model for Determining Affordable and Sustainable Sanitation Demand in Dense Settlements of South Africa* (**Report No: 1664/1/09**) and *User Manual and Guidelines for the SHAPE Model* (**Report No: TT 379/08**) contact Publications at Tel: (012) 330-0340; Fax: (012) 331-2565; E-mail: orders@wrc.org.za; or Visit: www.wrc.org.za to download a free copy. The SHAPE Model software can also be downloaded from the WRC website.