# EXECUTIVE SUMMARY

# Background

'Backyard shacks' are informal dwelling structures erected on legally established and serviced residential stands which also have a formal house on the stand. The extent to which they occur has been estimated by the De Loor Commission into housing policy. In mid-1990 there were an estimated 1 225 827 formal housing units in 'Black' townships with an associated 345 670 backyard shacks (De Loor, 1992, 81).

Despite increasing numbers, backyard shacks have attracted relatively little comment, systematic research and official response. This lack of information has meant that studies on access to water and sanitation or stormwater run-off quality had to rely on crude estimates regarding on-site conditions in the denser, older townships.

For example, a report by Van Ryneveld (1991) for Water and Sanitation 2000 workshops in 1991 assumed that 80% of urban backyard shack populations have access to a yard tap, with the remaining 20% having minimal provision ("slight" or limited provision). Very few (10% or less) were assumed to have access to on-site sanitation.

A national survey of urban domestic water supply coverage by Palmer Development Group in 1992 assumed that all backyard shack dwellers have access to a yard tap, whereas an earlier 1991 survey of access to sanitation defined people living in backyard shacks to have nominal access to sanitation on site. Although there was a lack of information regarding onsite conditions, this was considered an adequate level of access to sanitation.

# Aims

The aim of the project was to evaluate conditions affecting water and waste services on sites where backyard shacks have been constructed. More specifically, the project aimed to determine:

• to what extent people in the informal dwellings get access to water on site. How free is their use of it and how are they charged by the main household?

• to what extent people in dwellings which do not have a toilet get access to the toilet in dwellings which have one. What do people do as an alternative?

• the situation with regard to solid waste storage and disposal on sites in order to gather information which may be used to assess the implication this may have on stormwater run-off quality.

### Overview of the townships studied

A case study approach was followed and 315 sites were surveyed in six different townships across South Africa in the period December 1992 to May 1993. This broad geographic spread was important as conditions in townships and regions differ widely. The townships surveyed were Nyanga (Cape Town), Alexandra (Johannesburg), Mamelodi (Pretoria), Clermont (Durban), Kwa-Thema (Springs) and Thabong (Welkom).

Sites to be interviewed were selected from the parts of formal townships where 'backyard living' was most prevalent. The survey results are therefore representative of local areas in which most sites have at least one backyard shack. The survey is not representative of these townships as a whole, since backyard shacks are generally confined to specific parts of a township (typically the older, more centrally-located sections).

Separate interviews were conducted with the main women or siteholder in the main house and a similar person from one of the backyard shacks. A total of 4 882 people lived on the 315 sites interviewed. The site populations, number of backyard shacks and of shack-dwellers for each of the townships surveyed are shown below.

Town	No of sites eurveyed	No of people living on sites interviewed	Persons per site	Backyard shacks per site (A)	No of ehack- dwellers per site (B)	No of people per shack (B/A)
Alexandra	56	2 089	37.3	3.9	11.1	2.8
Clermont	64	890	16.5	2.8	8,1	2.9
Kwa-Thema	54	487	9.0	1.8	2.9	1.6
Mamelodi	52	634	10.3	1.5	4.1	2.7
Nyanga	50	378	7.6	1.3	2.4	1.8
Thebong	49	606	10.3	2	5.2	2.6
TOTAL	315	4 682	15.5	2.2	5.7	2.6

# Patterns of 'backyard living'

Across the six townships surveyed there appeared to be no direct relationship between how central the township is located (in terms of access to concentrations of employment) and population density. The intensity of backyard sites on formal sites seems to be related to a number of factors, including past and present attitudes of authorities and local civic structures, backyard shack rentals relative to other informal housing options, the availability of alternatives and general income levels.

As could be expected, the more people who live on a site, the larger was the proportion of backyard shack residents who were not related to the main household and who had to pay monthly rentals. Of the total number of shack-dwellers on sites interviewed, 69% were not relatives of the main household.

% of shack Owellers	Alexandra	Clermont	Kwa-Thema	Mamelodi	Nyanga	Thebong	All
who are tenants	60	90	69	46	33	88	69

On most of the sites visited there was evidence of overcrowding, lack of maintenance and repair and the general effects of poverty on the living environment. The general concerns of respondents were a lack of roads, high rentals, the condition of the house and the availability of electricity. One particular concern on nearly half the sites interviewed were problems with rainwater drainage.

On 98 (or 31%) of sites some form of business was conducted from the site. On 32 of these sites businesses were conducted from the shack-dwelling which was surveyed. The most common type of businesses were shebeens, soft drinks and ice cream vendors, fruit and vegetable stalls, spaza shops and sewing and tailoring services.

#### Access to water and waste services

The survey found that the earlier assumptions by Van Ryneveld (1991) regarding levels of access for backyard shack-dwellers may have been too pessimistic. On only 4% of the sites did the shack-dwellers not have access to water on site. This affected a total of 43 people, or 2% of the 'backyard shack' population included in the survey. Access to on-site toilets was constrained on 10% of the surveyed sites, affecting 182 people.

% OF SITES WITH CONSTRAINED ACCESS TO ON-SITE	Alexandra	Clermont	Kwa-Thema	Mamelodi	Nyanga	Thabong	AII
top(¢)	9	4	4	0	0	4	4
toilet(e)	9	4	7	12	18	10	10

Conditions varied greatly between the six townships surveyed. Alexandra was worst off in terms of access to water due, amongst other related factors, to particularly high numbers of

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persons per tap on the sites. A shortage of outside toilets contributed to problems with access to sanitation on 18% of sites in Nyanga, the highest for the surveyed areas.

Solid waste emerged as the most problematic of the three services investigated. On 183 (or 58%) of the 315 sites interviewed refuse piled up in the yard and created a nuisance or health problem. This affected a total of 2 876 people, or 67% of the 4 266 persons included in the survey. The worst situation was at Thabong where, due to a collapse of regular refuse removal services, refuse was creating health and pollution problems on 82% of the sites surveyed.

REFUSE PILES UP AND MAKES A MESS	Alexandra	Clermont	Kwa-Thema	Memeiodi	Nyanga	Thabong	AU
% house respondents	71	83	41	64	8	78	68
% ehack respondents	75	87	32	62	10	82	58

Although the access to services situation was better than expected, overcrowding of facilities was creating tension and social problems on sites. On 23% of the sites were there arguments over access to taps, whereas 29% of sites reported arguments over access to toilets.

% of sites with Arguments over Access to	Aloxandro	Clermont	Kwa-Thema	Mamelodi	Nyanga	Thebong	Alt
wate?	57	48	4	0	16	6	23
sanitation	68	28	11	2	50	12	29

#### Causes of constrained access, conflict and problems

In relation to water and sanitation services, four aspects which determine levels of access were examined: (a) standard of services, (b) intensity of use of the services, (c) the cost of the services, and (d) social relations on the site.

(a) With regard to standard of services, the operation and maintenance of water distribution systems in the townships was not adequate at the time of the survey except for Mamelodi and possibly Clermont. Similarly, with the exception of Mamelodi, operation and maintenance of sanitation was inadequate.

The fewer the number of taps and toilets, the greater was the probability that shack-dwellers did not have access to these facilities. Surprisingly then, the survey found that the decision

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by the main household on the extent of 'backyard living' on the site was not significantly based on the number of taps or toilets available on site.

(b) Intensity of use relates to the number of people living on the site and visiting the site on a regular basis (e.g. to do business).

% SITES WITH > 10 PERSONS	Alexandra	Clermont	Kwa-Thema	Mamelodi	Nyenga	Thebong	AN
per tap	60	48	7	34	2	27	31
per toilot	73	67	28	44	14	37	37

The survey found, as was expected, that the more people there were per tap on a site, the greater the likelihood that were arguments over access to the taps, or, in an extreme situation, that shack-dwellers had no access to the taps. But, surprisingly, there was no apparent linkage between the number of persons per toilet and arguments over toilet use. Furthermore, the presence of businesses on the site requiring use of the tap or toilet use by the patrons did not necessarily mean that there would be arguments on the site over such usage.

(c) Regarding the charges for services to backyard shack dwellers, no practice of sales of water per unit volume used or per visit charges for toilet use for tenants were reported. Furthermore, water charges to tenants generally were in line with the official water tariff of the township.

(d) Social relations on site influenced the degree of access to services. It was found that, during the night, tenants usually can not obtain access to the taps and toilets inside the house. The survey therefore found that shack-dwellers who are not relatives usually have constrained access to services on site if there were no outside taps or toilets. Also there is a situation in Nyanga where the presence of large informal settlements leads site-holders to restrict access to outside taps and toilets during the day.

	Alexandra	Clermont	Kwa-Thema	Mamelodi	Nyenga	Thebong	AN
tap(s) outside which the shack-dwallers may use	89	98	100	100	70	96	92
toilet(s) outside which the sheck-dwellers may use	69	96	72	98	62	73	77

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The main contributing factors for problems with solid waste storage and removal were a shortage of refuse bins and bags for storing waste until collection, and the inadequate refuse removal services operated in five of the surveyed townships.

% OF SITEHOLDERS	Alexandre	Clermont	Kwa-Thema	Mamelodi	Nyanga	Thabong	All
who feel that refuse is not collected often shough	79	78	30	60	12	77	56
who feel that more bins or bage are needed	27	15	4	9	2	0	8

# Consequences of 'backyard living'

A more positive side to backyard shacks is that it was found to be an important source of income to the main household (albeit often at the expense of shack-dwellers, whose rents were found to be higher than the total site rental in many cases). Shack-dwellers, on the other hand, are generally able to save on transport costs by living closer to places of employment than would otherwise be possible.

In addition, most backyard shack-dwellers enjoy far better levels of access to services than the populations of informal and squatter settlements with no dedicated or only rudimentary services. For these and other reasons (such as supporting relatives) 'backyard living' is very unlikely to disappear in future. In certain areas it may become less intense with time as serviced plots and housing become available nearby.

However, there are consequences for both environment and services provision. For example, the survey found the growth of informal housing on formal sites creates potential health and stormwater run-off quality problems. The two main problem areas were found to be uncontrolled solid waste export from sites and the overtaxing of bulk sanitation systems, leading to discharges into receiving water bodies through overflows and breakage.

It follows that where population densities are higher than planned on formal sites, considerable problems could be created particularly for waste services. However, such problems mostly related to an already weak maintenance and operating situation in the townships surveyed. It follows that the presence of backyard shacks made an already bad situation worse, but was not the major cause to such operating problems.

### **Recommendations**

- a. The information relating to on-site conditions in denser, inner city townships should be used as inputs into other Water Research Commission studies on access to water and sanitation, water usage and stormwater run-off quality. In addition it should also be made available as basic information to research workers and planners working in the field of housing and services provision generally.
- b. The survey has shown that planners, urban managers and housing policy-makers have to obtain a better understanding of the dynamics and patterns of 'backyard living'. The role and impact of this important form of spontaneous informal housing will have to be carefully considered in:
  - the design of houses and sites;
  - in the design of reticulation and bulk infrastructure;
  - setting up solid waste removal systems;
  - in structuring housing finance and subsidies;
  - in setting services tariffs and site rentals; and
  - controlling land-use in developing urban areas.

More systematic research to produce policy guidelines - taking the findings of this survey into account - are needed in all the above fields.

- c. 'Backyard living' has a number of design implications. In planning serviced sites and housing the need for outside access to taps and toilets should be considered, particularly if sub-tenancy is to play a major role in making formal housing and services affordable to developing urban communities. In addition to toilets and taps, the provision of robust containers for refuse storage should be considered as basic service requirements.
- d. Solid waste is emerging as possibly the major problem area for densely occupied environments. Refuse storage and removal should be considered and provided for in plot layout designs. Waste management should not be left for the Town Council to provide as an afterthought, but must be part of an integrated water and waste systems planning exercise with physical, operational and financial implications.

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