Mapping **communications** **access** in South Africa

Access to landlines and cellular phones is regarded as an important development goal for South Africa. In their study, ANDREW PATERSON, JOAN ROODT and GINA WEIR-SMITH found that the Limpopo Province has the lowest access to telephone communication in the country, whereas Gauteng and the Western Province have the highest.

A SIGNIFICANT PROPORTION of the population does not have equitable access to information and communication technology (ICT). Therefore, the pattern according to which ICT access – and usage – is distributed between different areas (rural–urban), and demographically between different socio-economic classes (rich–poor) is of critical importance to development.

ICT, which includes telecommunications, computers, the internet and other electronic devices, is also important to the Accelerated and Shared Growth Initiative of South Africa (ASGI-SA), launched by government in 2006. President Mbeki identified a group of key factors which affect the goal of achieving 6% economic growth and halving unemployment and poverty in South Africa by 2014. One of these factors is the cost of telecommunications.

To develop appropriate strategies and policies to achieve the above, there must be a clear understanding of where we are now and what we need to do. Achievements must be measured against defined aims for generating ICT access, where access refers to 'the ability to use a communication network at a reasonable distance and at an affordable price, which provides relevant information and has the necessary capacity'.

We aimed to establish how many people have access to landlines and cellular phones by calculating the proportions of households that have access to telecommunications per municipal area, based on data derived from the South African Census of 2001 and the South African Social Attitudes Survey (SASAS) conducted by the HSRC in 2003. Using Geographical Information Systems (GIS), a form of computer software that describes data in map form, we can show what proportions of the population resident in a particular municipality have access to telecommunications. From this, we can

Table 1: *Comparison of household access to telephone communications by province*

Province	Percentage households with cell phone	Percentage households with landline	Difference in percentage
Gauteng	48.7	28.5	20.2
Western Cape	46.7	55.3	-8.6
North West	35.3	15.0	20.3
KwaZulu-Natal	35.2	31.7	3.5
Free State	33.9	21.8	12.1
Mpumalanga	26.3	17.6	8.7
Limpopo	26.1	7.1	19.0
Eastern Cape	25.7	15.9	9.8
Northern Cape	20.1	20.0	0.1
National average	33.1	23.6	9.5

Source: Calculated from SASAS 2003

develop a picture of the relative difference in access to telecommunications across the 262 local municipalities in South Africa which enables us to make an important contribution to public understanding of the spatial dimensions of telecommunication access between South African urban, peri-urban and rural areas.

The maps shown here indicate how particular local authorities are placed in respect to telecommunication access for resident populations.

ACCESS TO LANDLINES

In the Western Cape, KwaZulu-Natal and Gauteng, the percentage of households with access to fixed lines is higher than the national average. Limpopo has an exceptionally low average access, compared to the other provinces (Table 1).

Population size, population density and income levels can strongly influence access to landline infrastructure. Within provinces, landline access is unevenly distributed, with higher concentrations of access in the

metropolitan areas and major cities with good infrastructure and higher household income levels, such as Cape Town, Port Elizabeth, Durban, Pietermaritzburg, Kimberley, Johannesburg and Pretoria. In these cities, between 25.01% and 59.96% of households have access to landlines (Figure 1). Provinces where higher proportions of the population reside in urban or metropolitan areas, such as Gauteng, may have higher average levels of access to telephone communications.

The overwhelming majority of municipalities have landline access ranging between 3.5% and 25% with a large group located between 3.5% and 8.5%.

In municipalities located in rural areas, where the majority of people are black and have low household income, only 0.03% to 3.50% of households have access to landlines. Examples of these municipalities include: Kagiso municipality and Moshaweng municipality in the North West, Umhlabuya-lingana municipality in KwaZulu-Natal, Maruleng municipality in Limpopo, and Bushbuckridge municipality in Mpumalanga (Figure 1).

ACCESS TO CELL PHONES

Data on provincial access indicates that mobile phone technologies enable services to be provided to both densely populated areas and rural areas. The provinces are ranked in Table 1 in order of level of household cell-phone access: Gauteng, the Western Cape, North West, KwaZulu-Natal and the Free State have a higher average household access to cell phones than the national average. Mpumalanga, Limpopo, the Eastern Cape and the Northern Cape are below the national household average. The Eastern Cape was the only province where only one in five households had access to cell phones.

Average household access to cell phones is higher than the average access to landlines in all the provinces, except in the Western Cape where landline access is around eight percentage points higher than cell phone access (Table 1).

Both high cell phone and landline usage in Gauteng could possibly be attributed to a higher income level in the province than in other provinces. The high cell phone uptake in the North West and Limpopo could possibly be attributed to relatively low fixed line availability in these provinces.

Further analysis would be required to establish the conditions that give rise to these patterns. However, they were probably influenced by household income, availability of landlines, population density, market size, or a combination of these and other factors.

In the majority of municipalities, between 20% and 30% of the resident population have access to cellular phones. Furthermore, in a relatively large number of municipalities, access to cellular phones is between 30% and 40%. This reveals that municipalities generally have higher levels of cellular phone access than landline access, which corroborates the national averages shown in Table 1.

There was a set of municipalities where relatively high levels of household cellular phone access of between 40.01–60.72% of households were evident in 2003. These municipalities show high levels of urban economic activity, or are located in tourism intensive areas (Figure 2), namely, the Johannesburg, Cape Town and Tshwane metropolitan areas, and the Kopanong, Emnambithi-Ladysmith, Mossel Bay and Oudtshoorn municipalities.

The use of cell phones in South Africa has enabled the servicing of large parts of rural areas at a lower cost than that of installing
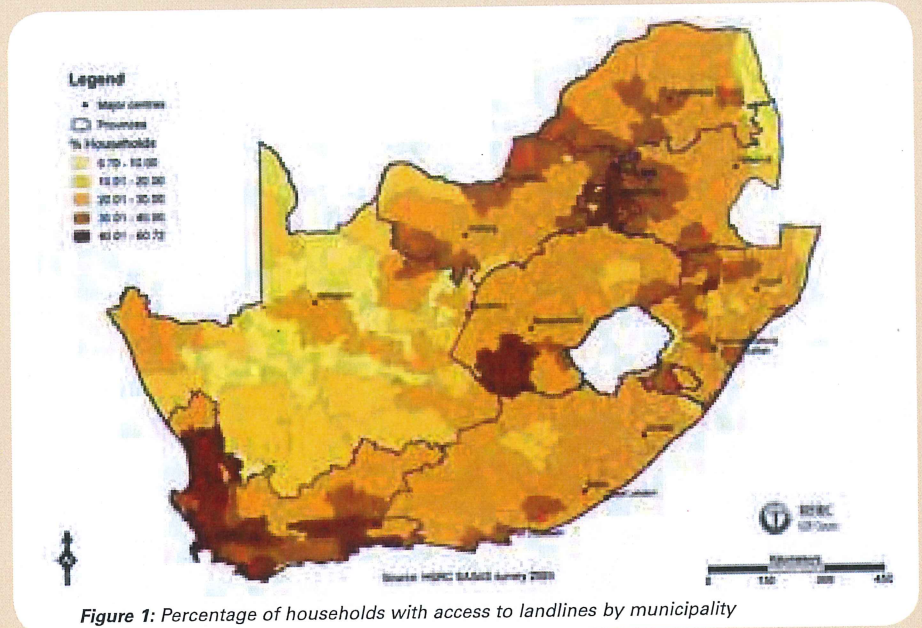

Figure 1: *Percentage of households with access to landlines by municipality*
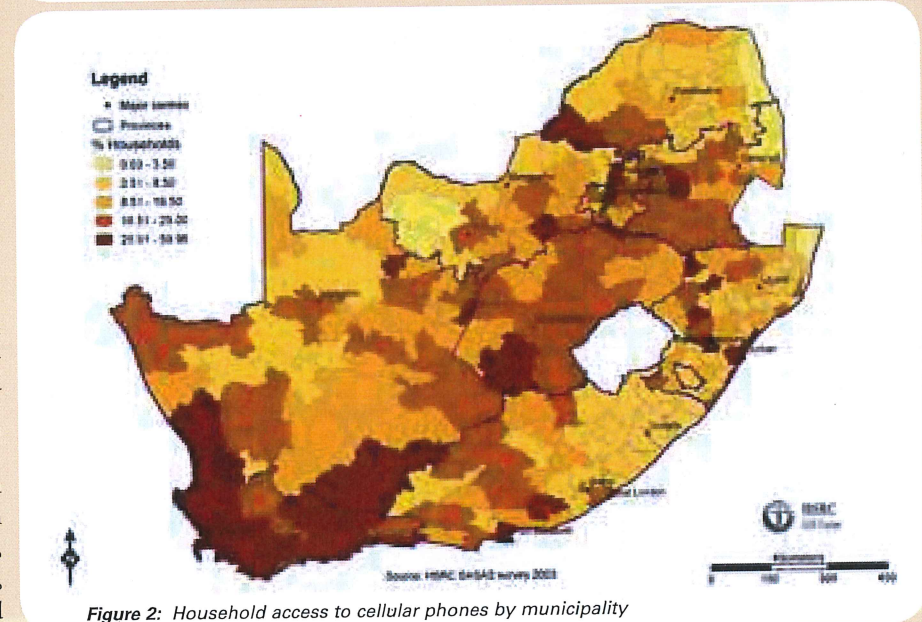

Figure 2: *Household access to cellular phones by municipality*

fixed lines. Because densely populated black South African townships are relatively easier to market services in and are more profitable to cover than rural areas, operators have focused most of their efforts in these areas.

In contrast, there are a number of municipalities which have relatively low levels of household access to cell phones. In the following municipalities, an average of between 5–15% of households – or at best one in five – had access to cell phones. These municipalities also tend to be poorer:

- The Tsolwana and Inkwanca municipalities are situated in the Eastern Cape in the Oliver Tambo district municipality where 81.5% of the population lives in poverty;

- The Mbizana municipality is in the Chris Hani district municipality of the Eastern Cape where 75.7% of the population lives in poverty.

A critical access factor is the affordability of telecommunications. It is important to look into average household income in relation to fixed-line and mobile telecommunication costs in order to address telecommunication accessibility. ●

Dr Andrew Paterson is a research director, and Ms Joan Roodt a chief researcher in the Education, Science and Skills Development (ESSD) research programme. Ms Gina Weir- Smith is a chief GIS specialist in Knowledge Systems.

HARVESTING CHILDHOOD:
Causes, nature and impact
of child agricultural labour

HSRC
Human Sciences
Research Council