Union centenary Kevin Wall

Opinion & Analysis

SA stands on the shoulders of 100 years of innovation

WE FEEL out of touch when we mislay a gadget that didn't exist 20 years ago, so essential to our daily living is ... a cellphone. So — as we pocket our cellphones, climb into our cars, switch on the radio or CD, and head, through sets of traffic lights, on a tarred road for the airport, do we reflect on the engineering infrastructure we take for granted — but which wasn't available in 1910?

My father grew up in a home with a bucket toilet in the "uithuisie" — I remember him telling me of the "night soil" cart calling. My mother, also in a town, experienced a "long drop". Neither had a telephone in the home until they were 30-something.

The infrastructure investment in SA in terms of sheer numbers over the century since Union is staggering. Partly because of population increase (in 1910: 6-million; 2010 estimate 49-million); partly because of rural-to-urban migration; partly because of smaller family sizes (and hence more dwellings, water connections and so on per thousand population); and partly thanks to concern for social equity, coupled with demand for each household to have its own facility.

Combine this with increasing consumption per capita of engineering infrastructure services (such as water — taps inside homes, whereas previously a shared standpipe in the street or, for the rural poor, a distant well or natural source such as a spring). Combine it, too, with higher levels of hygiene (more washing), flush sanitation and more water-using devices in the home — also higher industrial and commercial usage — and, to illustrate:

- Cape Town in 1910: 155 000 people served; average 129*l* per capita per day.
- Cape Town in 2010: population a little over 3,5-million; 255*l* per capita per day.
- Over the 100 years, that is almost a doubling of consumption per capita.

More or less the same story could be told with respect to ownership of telephones, personal computers and motor vehicles. Not to mention television and the use of air travel, electricity, e-mail, GPS and the internet.

Care for more evidence of the effect of infrastructure?

- Slow-moving horse-drawn traffic compacted the small stones that were part of road surfaces in 1910. Motor cars, with their faster speeds and rubber tyres, kicked these stones out of place, gradually eroding the road surface. For this and other reasons, a programme to tar roads, starting with city centre streets, had by 1910 only just begun.
- Cities were much more densely settled in 1910 than they are now, thereby facilitating public transport. Car ownership was negligible. Commuters walked to work and school, or caught a bus, tram or train. Even the highest in the land took the train — when, in the 1920s, a commuter train left the rails at Salt River Station, among the dead was the judge president of the Cape. It wasn't until the 1950s that a majority of middle-class white families owned cars. Interestingly, from the 1960s onwards, black people often purchased their first cars at a lower income threshold than white first-time purchasers would — this was at the time ascribed to their wish to avoid having to travel on the hated segregated public transport.
- More recent decades have seen rise of the minibus-taxi industry to meet the needs of commuters for a convenient and affordable service. This, too, has roots in the segregated townships.
- Inter-city passenger travel, in 1910 almost exclusively by rail, has long been overtaken by road and air.
- Rail has also lost its position as the preferred mode of freight transport, thanks to fall in relative cost of road transport and the decline in quality of rail.
- Inter-city motor travel was undertaken only by the daring — and the patient! A traveller between Bloemfontein and Winburg in the 1920s complained that, over a distance of 100 miles, 73 farm gates had to be negotiated. That same decade saw "motor aces" trying to beat the Union Express on its 30-hour journey between Cape Town and Johannesburg. After several failed attempts, this was achieved only in 1925. And, whereas the programme to link major centres with all-weather roads had commenced before the Second World War, it didn't really get moving until the 1950s. In a National Roads Board report of the immediate post-war era, the chairman boasted of progress made. For instance, a third of the N3 national road had been tarred. Only a few farm gates across the N1 to the Cape were left.
- Information and communication technology (ICT) landmarks include the first overseas radio telegraph message received (from London in 1924), the first overseas telephone call (between Cape Town and London in 1932), and TV (1976). The world wide web was launched in 1989, and, in SA, mobile telephony cellular networks arrived in 1994. Today, many ICT components are converging into smaller mobile devices, transforming the way that we work, transact and play.
- It is interesting, given current campaigns to reduce electricity consumption, to recall that from the 1930s to the 1950s many municipalities encouraged increased consumption — for example by opening showrooms, weaning householders from town gas and coal. From the late 1970s, rising concern for social equity led to the electrification of many homes in specific townships.

Significant race-based differences still very much exist, though much less than before. Given the dispersed nature of many rural communities, and sheer cost of providing them with infrastructure, this is to a very large extent inevitable. For example:

- In 1970, and measuring water consumption only in urban areas, "white" consumption per capita was seven times that of "coloureds and Asians", and 11 times that of black people. By 1980, the first ratio had changed to six, and the second to nine. Which the researcher of the time suggested was "ascribable to improved water reticulation systems and higher living standards" for black people.
- In 1995, before the new government's infrastructure service reforms had taken significant effect, a white urban household was nearly twice as likely as a black urban household to have a house connection.
- In 1977 a white person was four times more likely to own a car than an Asian person, nine times more likely than a coloured person, and 40 times more likely than a black person.
- In 1980, in Cape Town, 30% of white people used public transport to get to work, or walked, whereas the equivalent for "coloureds and blacks" was 64%.

While rolling out so much infrastructure over the past century, we have made far too little provision for maintenance. Neglect has rendered a substantial proportion of these assets unreliable or even unusable. Maintenance has to be addressed with more vigour, or we will find ourselves increasingly using public funds, that should be used for extending coverage to those who have never enjoyed services, to instead fix what we are building today. On a more positive note: it is as well to remember that not many countries can boast, as we can, that the tap water supplied to a large proportion of our population is of drinking water quality.

Unreliability of infrastructure would undermine the economy and quality of life.

If there is a word that could be used to excess in this article, it is "revolutionised". Aircraft and the motor car, with improved roads, have revolutionised inter-city travel; the internet has revolutionised how learners prepare assignments; computers have revolutionised data sorting and analysis; aerial photography and satellite imagery have revolutionised map-making. The list goes on.

Truly, we live a life different from our forebears in 1910.

Do we appreciate how much we owe to engineering infrastructure?

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