

New CSIR tool produces detailed maps of SA's economic geography

A new digital mapping and geographic analysis platform (GAP) is enabling researchers and decision-makers to estimate the spatial distribution of economic activity in South Africa in greater detail than ever before.

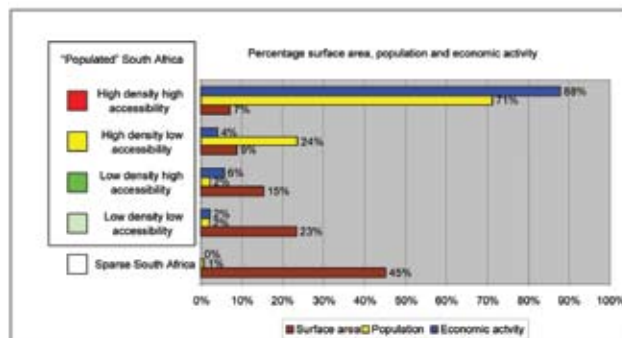
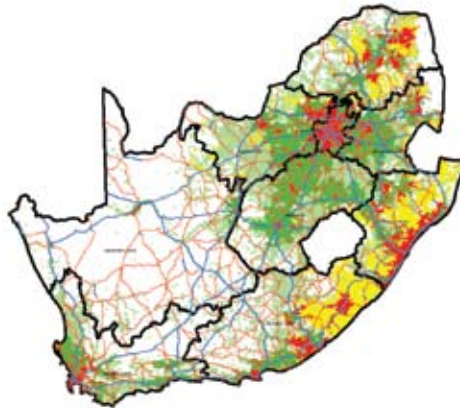
The result of an 18 month collaborative project between the Council for Scientific and Industrial Research (CSIR), the Presidency and the Department of Trade and Industry (dti), the GAP has already been used in updating or developing a number of national strategies and perspectives, including the National Spatial Development Perspective (NSDP).

An analysis of GAP statistics, together with other variables, such as population, relative geographic position and land capability, indicates that 99,8% of South Africa's economic activity and 99,2% of the country's population settlement occur on only 55% of the surface area. This means that the remainder – 45% of the country's territory – has been sustaining only a very marginal level of human activity.

In terms of spatial distribution, the densely populated core economic areas are largely concentrated in the northern and eastern half of the country – the division being the imaginary line that stretches from Kimberley in the north to East London in the south, with some additional concentrations along the Western and Eastern Cape coastlines.

Speaking at the official launch of the GAP in Pretoria early last month, CSIR project manager, Andries Naudé, explained that, until recently, maps and analyses of South Africa's economic geography could only be compiled from "large area statistics" – such as the total GDP per magisterial district or local authority.

"Now, with the use of the GAP -essentially a mesocale demarcation of South Africa into just less than 25 000 so-called mesozones, bundled together with tools for mining and



combining a variety of census, satellite imagery and other data sources – it is possible to produce much more detailed estimates of the spatial distribution of economic activity," Naudé said.

Since the GAP also contains a digital road network and a new geo-referenced dataset of South Africa's towns, it can be used to produce a variety of distance, travel time or transport cost maps.

One example is an urban accessibility/remoteness map, compiled by calculating the weighted travel time from all places to the nearest village, small town, medium-sized town, large town and metropolitan area. Another is a logistics cost map of South Africa, published in the CSIR's 2006 State of Logistics Survey (see csir.co.za/sol/).

Map and the bar-charted statistics show the results of applying the GAP to identify those parts of South Africa with very sparse levels of population and economic activity ("Sparse South Africa") and then classifying the rest of the country in terms of two criteria, namely accessibility to urban services and population density.

A selection of underlying maps, data and accompanying descriptions has been compiled on a CD-based map viewer, structured in such a way that users can systematically explore the spatial pattern and contribution of primary, secondary and tertiary economic activities.

Apart from the CSIR's research-related investment, the development of the GAP has benefited from co-investment and application by the dti, the Presidency and German-based development agency GTZ. As the GAP facilitates robust and comparative regional analysis, it can be utilised to support development planning and infrastructure investment at local and regional level, by government and the private sector.

According to CSIR researcher Elsona van Huyssteen, the GAP contribution has been recognised by various role-players and has already been used as input for the NSDP District and Metro Application Project, launched by the Presidency in 13 district municipalities throughout South Africa earlier this year.

"The GAP space economy analysis contributed to regional and local comparisons and the establishment of a platform for strategic dialogue on resource allocation and investment priorities in shared areas of jurisdiction between the different spheres and sectors of government," van Huyssteen explains. ■