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The evolution of large technical systems in the Waterberg coalfield of South Africa: from apartheid to democracy

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Abstract

This thesis follows the development of a particular set of large technical systems in South Africa from the late apartheid era into the age of democracy. During apartheid technological prowess, upheld by the network of state corporations or parastatals, bolstered the authoritarian rule of the white minority government in South Africa. The economic and political liberalisation of the late 1980s challenged the power of the parastatals and altered the underlying rationale of infrastructure development. In particular I describe the transformation of Iscor and Eskom, two of the country's major parastatals, and their activities in the Waterberg coalfields, an isolated region on the country's north-western border. While Eskom's activities in the region began in the 1980s they gained public notoriety with the construction of the Medupi power station two decades later. The obstacles that Eskom faced at Medupi represent the main challenge of developing large technological infrastructures in the democratic, post-colonial order, where the fruits of infrastructure development demand to be spread beyond the bounds of an elite minority. But the eventual completion of some power generating units in 2015 at Medupi demonstrates that failure is not inevitable. I argue that this success is due to the fact that the autonomous parastatal network negotiated the political and economic liberalisation of the early 1990 by incorporating the changing socio-political conditions into its operations. The parastatal network retained a momentum, in the sense first described by the historian of technology Thomas Hughes, which was also a product of the "locked-in" nature of investment in the infrastructure project. Because of the large capital investment required for the infrastructure development, proceeding tenaciously against the odds to see the project to completion was cheaper than retreat for those involved.