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Modelling urban land change processes and patterns for climate change planning in the Durban metropolitan area, South Africa

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**ABSTRACT:**

Urbanization is one of the most significant and irreversible forms of land change, but we lack empirical evidence of these changes in the Global South. This is the first study to quantify past and explore future land change for the Durban metropolitan, using Land Change Modeler (LCM) software. Results show between 1994–2016, the total changed area was 118,403 ha (47% of landscape) and eleven transition categories were responsible for these changes. Three scenarios were explored: Scenario 1: business as usual (BAU), Scenario 2: green space protection (GSP), and Scenario 3: integrated rapid public transport network (IRPTN), up to the year 2076. BAU and IRPTN show similar projected spatial change concentrated in the west and north. GSP shares temporal change trends with BAU, but projects spatial change concentrated in the north and south. We discuss the utility of this modelling approach to understand land change processes useful for climate change planning.