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# Climate and Population changes in the Brazilian Semiarid: a spatial approach.

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Water is critical to life in a semi-arid environment. In the Brazilian Semiarid region, access to a reliable clean water supply for agriculture and domestic use is limited by the nature of the unreliable rainfall and the lack of groundwater. Under these conditions, agriculture production is limited which contributes to high levels poverty. With climate change and increasing population pressure, it is critical to understand the effects of those changes on land use, watershed hydrology, and the future water supply. This paper shows a a spatial model that can be used to identify and map those areas of the Brazilian Semiarid that are most vulnerable to the impact of climate change and population pressure. In a GIS environmental climate data and census data are analyzed integrated and some future vulnerable scenarios are simulated. The results from this analysis shows that the combined effects of climate change and population pressure are greatest in the central and northern parts of the Brazilian Semiarid. The results also suggest that the land use in the semi-arid region of Brazil is very dynamic with the potential to change very rapidly over time.