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Impact of the megacity's growth over the hydrological cycle of the Bogotá basin (Colombia) using distributed model

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According to United Nations, the world population in 2050 will reach 9.7 billion and it is expected that 68% will live in urban centers. An important part of the urban population in Latin America is concentrated in megacities such as Mexico City and Sao Paulo, which currently have more than 20 million inhabitants. Buenos Aires, Rio de Janeiro, Lima and Bogotá are now megacities under development. This accelerated process of urbanization entails effects on the demand of the natural resources and the impulse of the environmental negative effects related to the contamination of soil, air and water.

The megacity of Bogotá and its metropolitan area includes more than 10 million inhabitants being the higher population density of Colombia. Being the country's capital city, it is the core of its economic development and it is currently one of the main business centers of South America.

From an environmental perspective Bogotá basin becomes a territory with high water vulnerability. The accelerated population increase (it has doubled during the last four decades), has caused, among others, high water resources demand. The industrial concentration in this territory has also affected both surface and subsurface water quality, causing an increase in the purification costs.

The objective of this study is to analyze the influence in the water cycle of the urban growth of the city of Bogotá in the last forty years. In this period the Bogotá river basin was modeled for the years 1985, 2005 and 2014, using the TETIS distributed hydrological simulation model. Results allow to identify the alterations in the basin water balance induced by changes in land use during the period of analysis. Por favor inserte su resumen HTML aquí.