

## Characterizing 40-years of inter-regional migration in Southern Mauritania as a result of environmental changes

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Formerly a country of nomadism par excellence, Mauritania has experienced since its independence in 1960 a spectacular sedentarisation of its nomadic population. In fact, nomads have decreased from 75% of the total population in 1965 to 12 % in 1988, and just 6% in 2000. This rapid and unprecedented sedentarisation, particularly in Southern Mauritania, can be explained by several factors, including the devastating droughts in the 1970s and 1980s, as well as the turbulent transformation of Mauritania's political economy. Together, these factors have destabilized rural livelihoods and accelerated land degradation, livestock loss, urbanization, and conflict between farmers and herders over natural resources and water access across the area, resulting in unprecedented inter-regional migration. The aim of this 40- years study is not to review in detail all the factors driving inter-regional migration in Southern Mauritania, but instead to scrutinize at the relationship between vegetation productivity, land cover changes, rainfall trends, and dynamic spatial demographic shifts from 1971 to 2015. In this regard, we propose an advanced assessment approach that integrates demographic information, climatological data, and multi-sensor Normalized Difference Vegetation Index (NDVI) time series data from 1981 to 2015 at 5.6 km to characterize the inter-regional migration movements in Southern Mauritania. A multi-linear regression analysis was conducted to examine to which extent the inter-regional migration movements are controlled by both climate and environmental changes. The demographic data show that Southern Mauritania's population grew less rapidly at an annual rate between 1977 and 1988 than between 1988 and 2000. The annual growth rate recorded in 2000 was 2.9%, compared to 2.5% in 1988 and 2.29% in 1960. Moreover, the population sedentarized dramatically at a rate of 95.2% in 2000 compared to 84.4% in 1988. The results also show distinctive interactions between vegetation dynamics, rainfall variations, and inter-regional migration during the last four decades: between 1977 and 1988, changes in rainfall bore the greatest impact on migration.

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