Climatic shifts and household water security in northern Nicaragua

Abstract

Recent climatic shifts and their impact on household water security in Central America are not well understood due to sparse observations on both the analysis of these shifts and the impacts on the ground. We analyze and compare the experiences of drought and climatic shifts by smallholder communities in northern Nicaragua with changes observed from physical data. On the ground experiences on household water security were obtained through surveys and focus groups with members of community water committees. Climatic shifts were determined from the CHIRPS/CHIRTS data sets. Our analysis of the climate and survey data indicates that northern Nicaragua is an already water-limited region, important for rain-fed agriculture and particularly vulnerable to further drying, where climate adaptation measures may be most urgent. We document trends towards summer drying, increases in drought and aridity driven by precipitation declines, and a lengthening of the winter dry season. We then compare the experiences in water security and adaptation measures to climatic shifts for different communities. The primary water sources for drinking, cooking, bathing, and cleaning in the region are small streams, at times shared between communities. Experiences of water insecurity are common towards the end of the dry season and are exacerbated during drought periods. Households employ diversified adaptation strategies to supplement or replace primary water sources during extended times of scarcity.