



# Livelihood vulnerability assessment to climate change and variability: the case of farm households in South-East Tunisia

Fatma Aribi<sup>1,2</sup> · Mongi Sghaier<sup>1</sup>

Received: 24 December 2019 / Accepted: 16 December 2020

© The Author(s), under exclusive licence to Springer Nature B.V. part of Springer Nature 2021

## Abstract

Climate change is adversely affecting communities of the developing countries because their livelihoods rely mainly on climate-dependent activities. In Tunisia, farm households are facing several climate-driven risks including drought, which ends up with a decrease in their farm productivity and therefore threatens their livelihood subsistence. However, there is a knowledge gap on how household livelihoods are vulnerable and how this vulnerability varies among them. The main purpose of the paper was to assess the households' livelihood vulnerability to climate change in Medenine province of South-East Tunisia using the Livelihood Vulnerability Index (LVI). Data were gathered using a monitoring system with 39 reference farms identified by a typology carried out with the data of 2185 farm households from the last survey of farm structures in Medenine-Tunisia. The typological approach identified four farm households' types: T1: livestock farming with family labor, T2: livestock farming with waged labor, T3: plant production with family labor, and T4: plant production with waged labor. Using the LVI method, results suggest that T1 and T3 are more vulnerable, particularly about knowledge and skills, farm capital, finances, institutional aspects, social network, and water. The findings of the study could help policy-makers in designing specific adaptation measures to reduce the household's vulnerability. The government should give specific attention to T1 and T3 households through: (i) establishing a mechanism that distribute aids to the most affected households, (ii) sustaining the households' livelihoods by improving water supply and encouraging crop diversification and seed production, and (iii) developing an early warning system for climate extremes.

**Keywords** Medenine province · Livelihood vulnerability index · Reference farms · Typology · Adaptation measures

---

✉ Fatma Aribi  
fatmaribi@gmail.com

<sup>1</sup> Laboratory of Economy and Rural Societies, Arid Regions Institute of Medenine (IRA), Gabes University, Medenine, Tunisia

<sup>2</sup> Department of Agricultural and Agri-Food Economy, National Agronomic Institute of Tunisia (INAT), University of Carthage, Tunis, Tunisia