



Gender-Specific Climate Information Services for Agricultural Decision-Making in South African Smallholder Farming Communities: A Policy Analysis

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Abstract

Climate change impacts disproportionately affect smallholder farmers in South Africa, particularly women who play a significant role in agricultural decision-making but often lack adequate climate information. A mixed-methods approach combining quantitative surveys with qualitative interviews was employed to gather data from 150 smallholder farmers across three regions in South Africa. Statistical models were used to analyse the relationship between climate information access and agricultural outcomes. Women reported a significant preference for receiving climate information tailored to their needs, with over 60% indicating that such services would lead to increased crop yields, as evidenced by an average yield increase of 15% in regions where women had better access to gender-specific climate information. Gender-specific climate information services can enhance agricultural decision-making and improve yield variability for smallholder farmers in South Africa. However, further research is needed on scalability and cost-effectiveness of such initiatives. Implementing gender-sensitive climate information programmes should be a priority to address the unique needs of women farmers. Policymakers are encouraged to integrate these services into existing agricultural support systems. The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African Geography, Gender Equity, Climate Change Adaptation, Participatory Research, Livelihoods Enhancement, Decision Support Systems, Community Empowerment*

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