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Assessing Adaptive Capacity to Climate Change and Agricultural Productivity of Farming Households of Makueni County in Kenya

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Abstract : Climate change is inevitable and a global challenge with long term implications to the sustainable development of many countries today. The negative impacts of climate change are creating far reaching social, economic and environmental problems threatening lives and livelihoods of millions of people in the world. Developing countries especially sub-Saharan countries are more vulnerable to climate change due to their weak ecosystem, low adaptive capacity and high dependency on rain fed agriculture. Countries in Sub-Saharan Africa are more vulnerable to climate change impacts due to their weak adaptive capacity and over-reliance on rain fed agriculture. In Kenya, 78% of the rural communities are poor farmers who heavily rely on rain fed agriculture thus are directly affected by climate change impacts.Currently, many parts of Kenya are experiencing successive droughts which are contributing to persistently unstable and declining agricultural productivity especially in semi arid eastern Kenya. As a result, thousands of rural communities repeatedly experience food insecurity which plunge them to an ever over-reliance on relief food from the government and Non-Governmental Organization In addition, they have adopted poverty coping strategies to diversify their income, for instance, deforestation to burn charcoal, sand harvesting and overgrazing which instead contribute to environmental degradation.This research was conducted in Makueni County which is classified as one of the most food insecure counties in Kenya and experiencing acute environmental degradation. The study aimed at analyzing the adaptive capacity to climate change across farming households of Makueni County in Kenya by, 1) analyzing adaptive capacity to climate change and agricultural productivity across farming households, 2) identifying factors that contribute to differences in adaptive capacity across farming households, and 3) understanding the relationship between climate change, agricultural productivity and adaptive capacity. Analytical Hierarchy Process (AHP) was applied to determine adaptive capacity and Total Factor Productivity (TFP) to determine Agricultural productivity per household. Increase in frequency of prolonged droughts and scanty rainfall. Preliminary findings indicate a magnanimous decline in agricultural production in the last 10 years in Makueni County. In addition, there is an over reliance of households on indigenous knowledge which is no longer reliable because of the unpredictability nature of climate change impacts. These findings on adaptive capacity across farming households provide the first step of developing and implementing action-oriented climate change policies in Makueni County and Kenya.

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