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Abstract

Climate Change Impacts, Adaptation and Mitigation for Tropical Agriculture †

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As climate change gains pace globally, many of the first and most severe impacts are falling on tropical regions. In particular these impacts are occurring in tropical agriculture and food systems with assessments of falling crop yields, decreases in the productivity of livestock and fisheries and increased climatic disruptions. This is likely to have already increased stresses in relation to food security and natural resource management, both on land and in the adjacent oceans. Unfortunately, increasingly negative changes appear to be likely, with projections of widespread and substantial negative future impacts of climate change on tropical agriculture. There are many potential adaptations to climate change, covering options ranging from incremental to transformational change each with different risk vs return profiles. Limits to adaptation and barriers to action are increasingly being seen as critical issues that will need a focus over the next decade. Similarly, integration of practices that reduce greenhouse gas emissions, enable effective adaptation to a variable and changing climate, and that enhance sustainable and stable agricultural production will likely become more important as climate change progresses. Furthermore, there will be a need to re-frame the science we do and the way we generate and deliver it. For example, science that is (1) demand-driven rather than supply driven, (2) that aligns with the values, needs or capability of users, and 3) that is not presented as suitable for operational use when it is not. We can also better connect knowledge and action via co-learning that links closely the users and producers of climate information so as to address the correct time and spatial scales and climate variables and embed this information into the social and institutional processes through which decisions are made.