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Time for tea: lessons from co-producing future climate information for tea production in Kenya and Malawi

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Given a long economic life span of around 100 years of a tea plant, there is a growing demand for usable future climate information for long-term planning in the sector. Tea is a climate sensitive crop, and severe temperature fluctuations and extreme events of droughts and floods reduce yield and affect quality. Kenya and Malawi are the largest producers of tea in Africa and therefore any impact of climate change on tea production directly and indirectly risks the livelihood of millions of people including farm workers and smallholder farmers. Here, we discuss a three stage approach adopted in the Climate Information for Resilient Tea Production (CI4Tea) project to engage tea sector stakeholders in western Kenya and southern Malawi to identify what climate information is important for tea production and adaptation priorities for tea producers. We outline the research approach and the lessons learned in the process of co-producing climate information. The first stage consists of stakeholder engagement through one-to-one interactions, workshops and questionnaires, to identify specific months, seasons, climate metrics and thresholds that are relevant for tea production, as well as available data on local climate of existing tea estates. The second stage consists of analysing potential future changes in temperature and precipitation based on bias-corrected 29 CMIP5 global climate models (GCMs) and high resolution convection-permitting climate simulations from pan-African climate model – CP4Africa. Constant communication, describing the research process in detail, and transparency in information provision, helped tea producers feel more comfortable in sharing information and knowledge. We developed trust through iterative processes to gain access to local weather station observations in the tea producing regions. This enabled the downscaling of climate projections at the tea estate scale. The third stage is to tailor the climate information communication based on stakeholders' feedback. Since the future climate information is co-produced and communicated to tea sector stakeholders after incorporating their feedback, it adds credibility and a sense of ownership, and is more likely to be used by tea producers, tea research institutes, national tea board and association, and sectoral and certification bodies such as Ethical Tea Partnership and UTZ. The approach we have taken enables the development of adaptation plans for existing, replanted, and irrigated tea plantations that may be used to inform ongoing and future policy initiatives such as the Malawi Tea 2020 Revitalization Programme and Sustainability Roadmap for Kenyan tea sector.