

Thoughts on Climate Change and Coffee

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Increasing minimum temperature and erratic weather associated with global climate change are having a significant and negative impact on Arabica¹ and Robusta² coffee areas. Climate change in Central America and other locations has the potential to be an existential threat to rural communities dependent on coffee production for their livelihoods. Action is needed to (1) map critical coffee production areas that will be impacted by climate change, (2) assess the potential impacts as coffee areas become unsustainable, and (3) develop and support implementation of mitigation plans to prevent climate related social and economic problems.

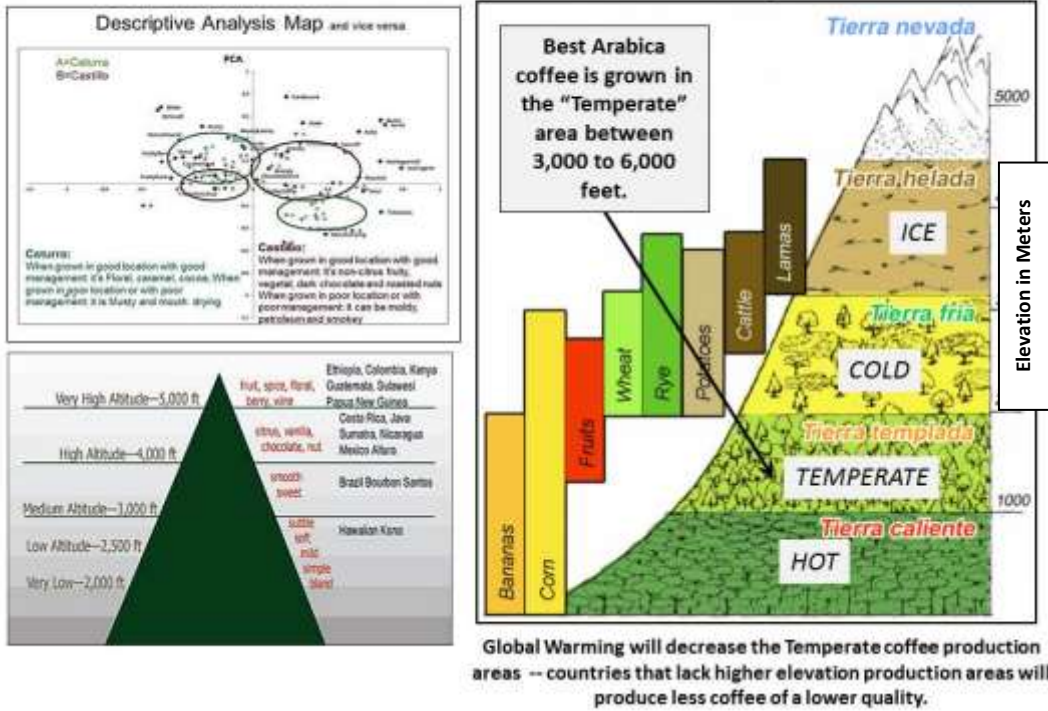
1. Mapping “At Risk” Areas – Identify coffee production areas in each country with elevation and climate data disaggregated by region. Use this information to create maps of areas that are most at risk of increasing minimum temperatures. Develop projections based on MAXENT climate models, historical data and other mechanisms to provide estimates of coffee yield reduction. Use the “descriptive analysis” approach to map areas that are at risk of losing cup quality.
2. Assessing Potential Impact – Using the yield reduction information developed under the mapping activity quantify the economic impact of climate change on smallholder coffee farmers in each country disaggregated by region. Assess potential for instability as coffee production becomes untenable. Create a “conflict map” where applicable to highlight secondary impacts of climate change (e.g., yield reduction, loss of income, increased civil unrest). As part of this analysis develop procedures for assessing coffee quality loss due to climate change.
3. Promoting Mitigation Programs – Based on potential impacts, prioritize actions needed to mitigate the impact of climate on coffee areas. Develop coffee area strategies that map “at risk” areas, assess and quantify impact, and provide a mitigation action plan. Design funding strategies for public – private partnerships, crowd funding with US and European consumers, and a concerted outreach to bilateral, multilateral and regional international development entities.

A comprehensive approach is needed to create synergy and build alliances to promote coffee adaptation and mitigation strategies. Evidence based information for engaging policy-makers and the private sector is needed as are comprehensive plans to help coffee communities address climate issues. Most of all, leadership is needed – to identify the problems, guide a process for resolving them, and support partnerships to ensure sustainable Arabica and Robusta coffee production.

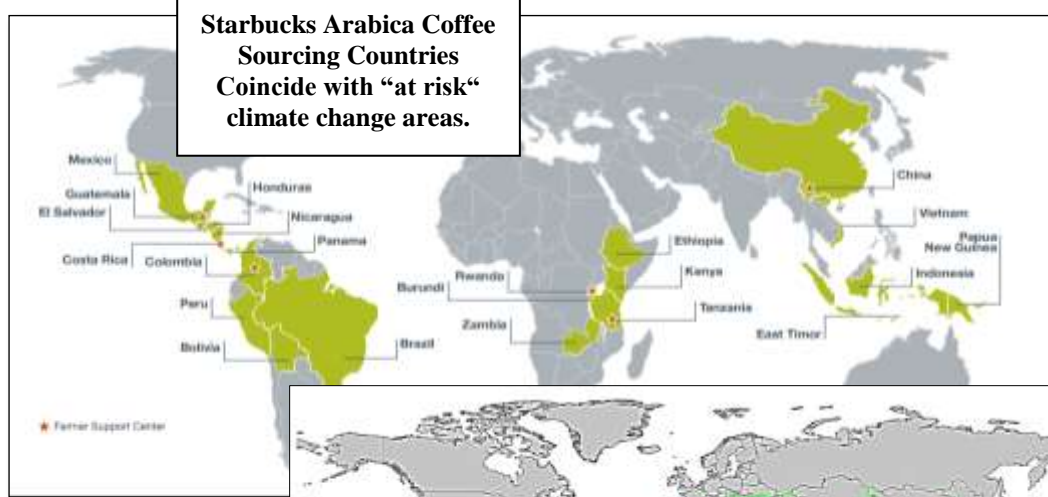
¹ Craparo, A.C.W., P.J.A. Van Asten, P. Laderach, L.T.P. Jassogne, and S.W. Grab. *Agriculture and Forest Meteorology* 207.2015 (2015): 1-10. *Coffea Arabica Yields Decline in Tanzania Due to Climate Change*. See https://www.academia.edu/11931368/Coffea_arabica_yields_decline_in_Tanzania_due_to_climate_change_Global_implications>.

² Bunn, C., Läderach, P., Rivera, O.O., Kirschke, D. *Climatic Change- DOI 10.1007/s10584-014-1306-x A Bitter Cup: Climate Change Profile of Global Production of Arabica and Robusta Coffee*. See <http://link.springer.com/article/10.1007%2Fs10584-014-1306-x#>

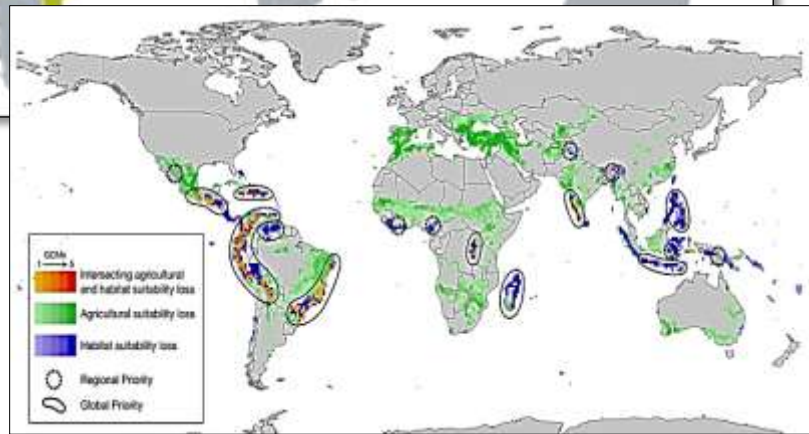
Coffee Growing Areas: Elevation Affects Temperature Which Influences Coffee Quality



Recent research provides clear evidence that climate change induced minimum temperatures are having an ongoing, negative impact on Arabica coffee yields.



Global Climate Change Adaptation Priorities for Biodiversity and Food Security Study - Lee Hannah



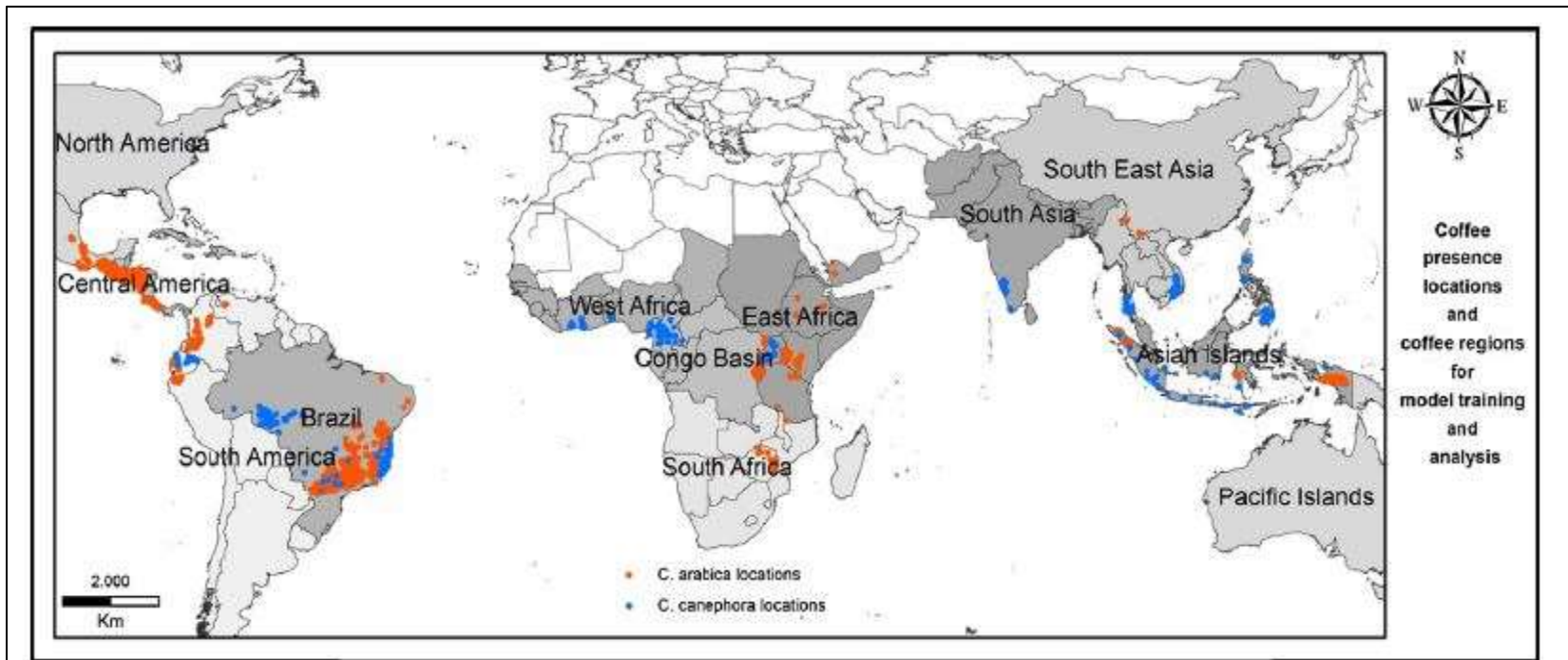


Fig. 1 Global coffee location database and major coffee growing regions. *Blue points* represent *C. canephora* occurrence locations; *orange points* locations of *C. arabica* based production. *Grey shading* and **bold names** represent regions of coffee production

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