

News from the Field

Climate-Smart Agriculture across scales in Latin America

The implementation of climate-smart agriculture (CSA) in Latin America presents interesting challenges and opportunities, especially when considering the region's agrobiodiversity, natural resources, and socioeconomic and cultural contexts.

Collaboration amongst many agencies in Latin America has brought significant advances in CSA. One notable development was the declaration of Central American countries during an event at COP21 in Paris to promote CSA (Figure 1). During the event, Ministers of Agriculture of Costa Rica and Guatemala reaffirmed that CSA provides a robust framework to transform agriculture in the region to become a resilient and sustainable source of development. Some of the main reasons to promote CSA, stated by the members of this declaration, included: i) Central America suffers measurable impacts from climate change evidenced in increased drought intensity in the Dry Corridor and intensive floods on the Atlantic Coast of the region; ii) the region needs to move from relief and emergency actions towards adaptation to climate change and therefore resilience; and iii) common vulnerabilities in the rural areas of Central American countries need to be addressed through collaborative action in order to increase productivity, efficiency and development for current and future generations. In addition, according to Costa Rica's Minister of Agriculture, Central America aims to serve as a demonstrative laboratory of the effectiveness of CSA, becoming an example to other regions.



Figure 1. Regional declaration to promote Climate-Smart Agriculture in Latin America, on day 2 of Global Landscapes Forum, Paris, France. (Photo: P Valbuena (CIFOR))

The strong commitment of the region to promote sustainable production and development through CSA has led to the formulation of a CSA strategy for Central America and the Dominican Republic, with the CGIAR's programme on Climate Change, Agriculture and Food Security (CCAFS) leading the technical support. The strategy will enable the region to have

robust guidelines that will allow countries to learn from their neighbours' successful experiences, but also to acknowledge what might work best considering context-specific challenges and opportunities given a changing climate. The expected outcomes of the regional strategy include: improving the livelihoods of the region's approximately 14 million smallholder farmers (BID, 2014); increasing productivity in relevant sub-sectors of the regional economy, such as livestock, while reducing their contribution to climate change; and increasing food security, as well as competitiveness through climate-smart value chains in coffee and cocoa using a *knowledge intensive approach*. The latter activities imply not only exchange of experiences but also applied research and thus generation of knowledge by and for the region.

The knowledge intensive approach promoted through the Central America CSA regional strategy already has significant advances to build on, especially regarding the coffee sector (Figure 2). Coffee is one of the most important products of the region (approximately 67 percent of the world's coffee is produced in Latin America (FAO, 2015)). Research conducted by CIAT, suggests that by 2050 there will be substantial decreases in the total area suitable for coffee production in Nicaragua, and predicts that climate change will shift the altitude range for coffee to higher elevations over time, with the optimal altitude shifting from 1,200 m at present to 1,400 m in 2020 and 1,600 m in 2050 in Central America (Laderach *et al*, 2011).



Figure 2. Mr José Luis's coffee farm in a Climate-Smart Village in Santa Rita, Copán (Honduras). (Photo: O Bonilla (CCAFS))

CIAT's research also established that climate pressure might lead farmers to move from coffee into other crops such as cocoa in the near future (Bunn *et al*, 2015). Coffee in Central America remains susceptible to leaf rust, with large-scale impacts such as increases in input costs, both for fertilisers



and for rust control application, while coffee prices continue to remain far below historic peaks. Today's impacts on coffee yields, pests and diseases, will be intensified by future climate changes. Bunn *et al* (2015) state that in this scenario cocoa is a feasible option for business diversification, given that it adapts well to the emerging climate. Under both current and future scenarios, CSA options such as diversification are providing a way out of negative impacts on farmers' income. Governments and the private sector have used this information to take action and collaborate in order to promote and implement CSA measures in the coffee sector. For example, Nicaragua's government, with IFAD's support, is promoting coffee diversification with cocoa to gradually transform agricultural landscapes. Also, companies such as *Root Capital* are investing in supporting their coffee suppliers, most of them small coffee cooperatives, to become more climate-smart by implementing practices such as diversification, efficient use of nutrients and inputs to reduce pest and disease damage, and associated practices to seek balance on quantity and quality characteristics that can provide differentiated added value.

Finally, Latin America is an example where CSA has become part of the global action translated into the National Determined Contributions (NDCs). In Colombia, CCAFS developed an approach to support the decision making process of the agricultural sector regarding climate at local scale. This approach is called *Local Technical Agro-climatic Committees (LTACs)* and it constitutes a dialogue between three types of communities: climate scientists, agro-climatologist scientists and local communities (Figure 3).



Figure 3. Local Technical Agro-climatic Committee in Montería, Colombia. (Photo: JL Urrea (CCAFS))

These communities interact in order to understand the erratic changes in climate and to provide possible answers that can help to manage local climate risk in agricultural production. As part of the process, capacity building in local and sectoral institutions is carried out in order to make the initiative sustainable in the long term. The LTACs facilitate knowledge exchange and promote the implementation of adaptation actions according to agro-seasonal forecasts which can enhance productivity. These adaptation actions include decisions on best planting dates for each agricultural season, more suitable seeds, as well as the desirable amount and frequency of irrigation and use of fertiliser. At the same time, the latter contributes to GHG emissions reduction. Given the success of this initiative, and the urgency to address agro-climatic risks, especially at the local level, while reducing GHG

emissions, the Government of Colombia has decided to include in its NDCs the establishment of at least 15 LTACs as a measure to promote food security, enhance adaptation and reduce GHG emissions.

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