



EXPLORATORY STUDY INTO CLIMATE CHANGE ADAPTATION PLANS AND MEASURES IN THE FAIRTRADE SYSTEM

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AUTHORS, DISCLAIMER AND CREDITS

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DISCLAIMER

The authorship of the report lies with the research consultants and the report does not necessarily represent the views of the Fairtrade system or any part of it thereof.

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of the research consultants and do not necessarily reflect the views of the European Union.

CREDITS:

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Fairtrade Editorial Review Team: Dr Jesse Hastings, Dr. Carmel Rawhani, Mr. Juan Pablo Solis, and other members of Fairtrade Research Task Force.

Design/layout: Alberto Martínez, Renderparty. Proofreading: Laura O'Mahony

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Cover Picture Caption: Coffee beans harvested from a coffee farm.

EXECUTIVE SUMMARY

OVERVIEW:

This study into climate change adaptation plans (CCAPs) and measures in the Fairtrade system draws on findings from an online survey and interviews conducted with Fairtrade Producer Organisations (POs), consultations with Fairtrade staff and a documentation and literature review. The online survey was launched in May 2024 for 369 POs in Africa and Latin America and received a total of 37 responses - mostly from coffee producing POs - which represents ten percent overall. A total of four systematisations¹ were conducted with POs in Latin America and the Caribbean (three for coffee and one for pineapples) and four in Africa (three for coffee and one for tea). As a result, the exploratory study is largely focused on coffee producing POs, but considers some other crops as well as basic data from Asia provided during the Inception Phase. The number of plans and data points collected was limited compared to original expectations. The implication of these data limitations is that the present study should be considered "exploratory" in nature. As such, the team has developed recommendations around what the next steps could look like from a systems perspective to enable a deeper analysis in the future.

KEY FINDINGS:

- **Promoting adaptation plans is an important part of Fairtrade's work with farmers as they begin to deal with the impacts of climate change.** By 2022, 502 CCAPs had been developed by Fairtrade POs in Latin America and the Caribbean (LAC), Africa and Asia, mostly for coffee (54.2 percent) but also for other crops. This represents just over a quarter of all POs in the Fairtrade system and almost 44 percent of all coffee POs. According to the survey, 96 percent of POs are either fully implementing or partly implementing (from 30 percent) their plans at farmer level. All PO respondents either strongly agreed or agreed that the CCAPs contribute to addressing the core climate challenges they face and to strengthening their livelihoods.
- **Measures included in the CCAPs demonstrate potential to support farmers to adapt to climate change, and POs reported observing a range of positive results. However, there is a need to strengthen baseline data collection and monitoring to fully understand the impact of these measures on the adaptive capacity of farmers.** Consultations with the POs through the online survey (37 responses) and case study interviews (eight in total), as well as a review of 27 CCAPs and of global literature pertaining to adaptation measures adopted by coffee farmers indicate that the five most common measures found in the CCAPs (planting resistant crop varieties, pruning and shade management, improving soil health, efficient water use and integrated pest management) can support farmers to adapt to climate change when implemented according to local conditions and with adequate systems for validation and monitoring. The main changes observed by farmers from implementing CCAPs include: improved soil quality and soil health, reduced use of chemical fertilisers, increased crop yields, enhanced resistance of crops to pests and disease, growing appreciation and understanding among farmers about climate change and its links to production, greater reinvestment by farmers and more peer-to-peer learning. A lack of rigorous baseline data and subsequent monitoring means that, at present, the changes observed are based on anecdotal evidence and this requires strengthening if Fairtrade wants to fully understand the impacts of CCAPs and how they contribute to its Theory of Change.
- **Training, technical expertise and funding are key to the development, implementation and sustainability of CCAPs.** Most POs have received and/or provided training on climate change and adaptation measures and indicate the need for continuous capacity building to sustain implementation. Specialist expertise - both external and in-house - has also been critical and should be accessible when required, including through Fairtrade where possible. About half of the African CCAPs reviewed showed weak understanding (or explanation) of the linkages between climate change and adaptation options, indicating a need for greater capacity building and knowledge in this respect. While most African POs have funded CCAP development themselves, POs in LAC have received financial and technical support from CLAC. Plan implementation is where greater funds and more financial assistance is required to support POs to deliver the range of measures identified, as well as to provide on-going technical expertise and adequate monitoring.

¹ Systematisation is a process that aims to produce knowledge about an action or practice through analytical reflection and interpretation of what happened. It answers questions such as (1) what changes (social, economic, environmental) came about because of the project/intervention? (2) How was it possible to achieve what was carried out? (3) What worked and did not work? (4) What were the key factors for success and what contributed to the challenges? (5) What could have been different and why?

RECOMMENDATIONS:

IMMEDIATE (YEAR 1)

- **Strengthen systems for improved data availability and accessibility.** It is recommended that Fairtrade International and the three regional producer networks (PNs) develop an appropriate mechanism for ensuring availability and accessibility of CCAPs to facilitate data collection for any future research efforts. Limited access to this data meant that this exploratory study could not deepen its analysis of the CCAP portfolio and processes as anticipated in the consultancy Terms of Reference.

SHORT-TERM (YEARS 2 AND 3)

- **Standardise the CCAP approach.** It is recommended that Fairtrade International and the PNs standardise the approach to CCAPs by developing a global guide using the CLAC guidelines and processes as a model and also drawing from the Fairtrade Africa guidelines. This would help strengthen the technical rigour of CCAPs by providing a clear methodology and roadmap to follow. Under the CLAC model, POs are supported to hire climate change technical experts who develop the plans in a participatory manner with the POs. Other regions could consider following this model, which appears to have a positive effect on the quality of plans.
- **Create a system for measuring impact.** Baseline data is not being collected for the majority of plans. This prevents Fairtrade and POs from obtaining a fuller understanding of the impacts of CCAPs and different adaptation measures on farmers' production and livelihoods. POs could collect relevant baseline data as part of the CCAP development and implementation process, with technical and funding support from PNs. To orientate this process, Fairtrade International should develop a baseline indicator framework for climate-resilient practices that is relevant to the locality, crop and PO set-up and aligned with Fairtrade's Theory of Change. Data and learning on successful (and unsuccessful) experiences would be extremely valuable for sharing outside the Fairtrade system to help support the scaling up of smallholder adaptation efforts in critical crop production systems around the world.

MEDIUM-TERM (YEARS 3 TO 5)

- **Include CCAPs as a core compliance criterion for more or all Fairtrade crops.** A positive correlation was found between the inclusion of CCAPs in the Fairtrade Coffee Standard in 2022 and the development and implementation of such plans by coffee producing POs. In order to drive uptake of CCAPs beyond the coffee sector, Fairtrade International could consider including CCAP development as a core compliance criterion in more of its product Standards. This could initially focus on those crops that are most vulnerable and exposed to climate change according to the 2021 Hot Spot Study (Feurer, M. et al., 2021), namely: cocoa, bananas, tea, cotton and sugarcane. Financial and technical support for POs (described below) would be required to ensure the sustainability of the CCAPs over the medium and longer term.
- **Develop a comprehensive support programme for CCAPs.** POs greatly valued the climate change adaptation training and regional guidelines provided by Fairtrade PNs and expressed a need for refresher training. Fairtrade International and the PNs could consider rolling out an annual training programme to ensure all coffee POs, as well as other POs interested in developing and implementing CCAPs, have access to up-to-date adaptation information and planning resources. Fairtrade PNs could consider incorporating the establishment of demonstration plots into climate adaptation training to promote this approach among POs. They could also establish peer learning schemes to showcase good practices and results between Fairtrade POs. Funding for this training programme could be sought from international donors and commercial partners.
- **Provide POs with access to finance for CCAP implementation.** To support CCAP implementation among POs, Fairtrade International and the PNs could consider supporting POs to access finance, for example in the form of grants and/or low interest loans, such as the Climate Eventuality Fund set up by Fairtrade in Latin America and the Caribbean. It provides up to US\$20,000 for CCAP implementation. This finance could be sourced by Fairtrade from international donors or commercial partners interested in supporting adaptation planning and implementation efforts among smallholders.

- **Consider how to facilitate more “futureproof” adaptation.** At present, the adaptation measures included in the coffee CCAPs are focused at production level and do appear to be supporting farmers to adapt to modest and intermediate impacts of climate change. Yet as climate changes become more substantial (as global climate prognostics indicate), and agricultural production becomes more challenging or even unfeasible in current production zones due to more extreme temperatures and more days without rainfall (Feurer, M. et al., 2021), a different set of measures will be required in order for smallholders to be able to adapt effectively. These “systemic” and/or “transformational” measures will require more radical changes both to production systems and the institutions supporting them (Kates, R. W. et al., 2012). The current CCAPs only focus on individual POs. It is therefore recommended that Fairtrade International undertake research into potential “systemic” and “transformative” adaptation measures for key crops and test models for collective action between POs to facilitate larger scale (e.g. landscape level) interventions.

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AIMS OF THE STUDY

This exploratory study seeks to identify the different climate change adaptation (CCA) measures being planned and implemented by Fairtrade POs primarily as part of their climate change adaptation plans (CCAPs). The study also aims to help Fairtrade understand how farmers are currently adapting to climate change, including exploring such questions as:

- Which aspects of climate change are farmers already adapting to as a current priority, and with which measures?
- For which effects of climate change are there still considerable gaps regarding adaptation efforts?

The intention is that this study will help Fairtrade understand which measures are most frequently applied and why, and in which ways adaptation support efforts need to be stepped up in order to strengthen the resilience of farmer and worker livelihoods and of Fairtrade supply chains.

This final report provides an overview of the study approach and methodology before presenting the main study findings, conclusions and recommendations.

METHODOLOGY

During the Inception Phase, which ran from November 2023 to February 2024, the study team focused efforts on understanding the background to and strategic relevance of introducing CCAPs into the Fairtrade system, collecting relevant data points (number of plans, etc.) from Fairtrade International and the three regional PNs, and assessing the feasibility of the proposed methodology.

This study adopted a multi-pronged approach to data collection, which consisted of a review of Fairtrade documentation (strategies, Standards, data sets collected on CCAP implementation) and literature, a review of a sample of adaptation plans, a PO survey, adaptation plan systematisations², as well as interviews and correspondence with Fairtrade and FLOCERT staff.

The final study approach and methodology is illustrated in Figure 1 below and consisted of three steps.

STEP 1: COLLECTION OF PLANS

During the Inception Phase, the study team learned from Fairtrade that copies of the CCAPs are not currently held on file or may be subject to data protection, meaning there was no access to the full portfolio of CCAPs as anticipated initially. So, the study team opted to collect as many CCAPs as possible by inviting POs to voluntarily share their plans via an online survey (Step 2). Consequently, a total of 27 plans were collected directly from POs. This meant that the study team was unable to randomly select a sample of plans as originally intended, and instead had to work with what was available.

STEP 2: PO SURVEY

The study team developed a set of survey questions for the POs. After designing and testing the survey with support from Fairtrade staff, this was finally launched in Africa at the beginning of May 2024 and in Latin America and the Caribbean towards the end of May 2024. NAPP decided not to participate in the study after the Inception Phase. The survey was launched using the Kobo toolbox in Africa and ODK in CLAC, due to different data protection protocols in the regions.

² Systematisation is a process that aims to produce knowledge about an action or practice through analytical reflection and interpretation of what happened. It answers questions such as (1) what changes (social, economic, environmental) came about because of the project/intervention? (2) How was it possible to achieve what was carried out? (3) What worked and did not work? (4) What were the key factors for success and what contributed to the challenges? (5) What could have been different and why?

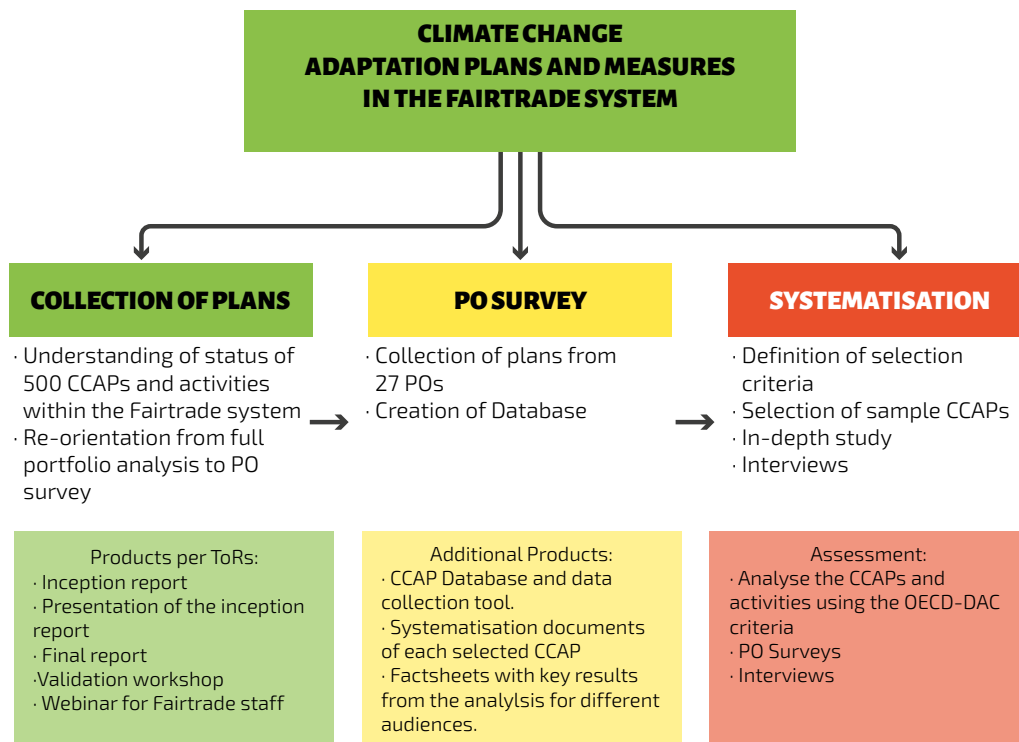


Fig. 1 Study approach

STEP 3: SYSTEMATISATION

Systematisation is a process that aims to produce knowledge about an action or practice through analytical reflection and interpretation of what happened. This approach helps to deeply and critically interpret experiences, and places equal importance on both the process and result of knowledge development, while also exploring key questions, such as:

- What changes (social, economic, environmental) came about because of the project/intervention?
- How was it possible to achieve what was carried out?
- What worked and did not work?
- What were the key factors for success and what contributed to the challenges?
- What could have been different and why? (Jara Holliday, O., 2018).

The purpose of carrying out the systematisations was to assess the CCAP instrument, the activities involved, their implementation status, and the challenges in implementing them. This was guided by research questions corresponding to six OECD evaluation criteria: relevance, coherence, effectiveness, efficiency, impact and sustainability (OECD, 2019).

The systematisation process involved setting up online consultations with POs and was initiated parallel to the online survey with support from the PNs in Africa and Latin America to identify and contact POs. Overall, eight systematisations were carried out, four with POs in Latin America (three for coffee and one for pineapples) and four in Africa (three for coffee and one for tea).

LIMITATIONS

This study was based on the assumption that the consultancy team would be able to access a representative sample of the CCAPs, either because these are held on file by Fairtrade or because POs would share their plans through the online survey. During the Inception Phase, it became clear that plans were either not held on file by the PNs (FTA and NAPP), or, in the case of CLAC, the plans were subject to data protection and could not be shared directly with the consultants without PO consent. So, the team decided to deploy a survey that gave POs the opportunity to upload and share their CCAPs.

Of the 369 POs in Africa and Latin America that had developed CCAPs as of 2022, a total of 37 - representing ten percent - answered the online survey and 27 POs shared their plans with the team. As for the systematisations, the aim was to analyse six coffee POs from each region and two POs that had developed plans for other products. In the end, the team was able to conduct four systematisations in CLAC (three for coffee and one for pineapples) and four in Africa (three for coffee and one for tea).

Ultimately, this has meant that the number of plans and data points collected was limited compared to original expectations. The implication of this is that the present study should be considered "exploratory" in nature. As such, the team has developed recommendations around what the next steps could look like from a systems perspective to enable a deeper analysis in the future.

FINDINGS

TOP-LEVEL FINDINGS

This section provides top-level study findings, which are covered in more detail in subsequent sections.

- **CCAP development is on the rise, especially among coffee farmers:** Between 2021 and 2022, a total of 502 CCAPs were developed across the Fairtrade system. This represents just over a quarter of all POs and just under 44 percent of all coffee POs. More than half of all CCAPs have been developed for coffee (54.2 percent), followed by cocoa (18.3 percent) and then tea (7.8 percent). In all three regions, the majority of CCAPs have been developed for coffee - ranging from just over 40 percent of all plans in Asia to almost 70 percent of all plans in Africa. Other regionally relevant crops for CCAPs include bananas in LAC (9.3 percent of all plans and almost a third in 2022) and sugar in Asia (18.5 percent of all plans). According to the online survey, just over two-thirds (67 percent) of POs and their members are implementing the adaptation measures in the CCAPs.
- **Different regional approaches to CCAPs have been adopted by the PNs in Latin America, Asia and Africa:** CLAC has had considerable involvement through the provision of technical and financial assistance, including contracting external experts and making available grants and/or low interest loans to POs. In Africa, POs are leading the CCAP development process, often after having received capacity building training from Fairtrade staff. And, in Asia, POs attend an annual training session and then mostly develop the plans themselves.
- **POs are facing a multitude of threats and risks due to climate change:** Most of the POs are experiencing changes in crop productivity and higher temperatures followed by greater incidence of pests and diseases, drought and water scarcity. Other impacts of climate change, such as changes in plant cycles, land degradation and poor soil quality, were reported by nearly 50 percent of survey respondents. These results broadly confirm findings from the 2021 Hot Spot Analysis, which pointed to increasing heat stress and dry spells as two likely major impacts of climate change under future low and high emissions scenarios.
- **Clusters of measures proposed in CCAPs appear to be supporting farmers to adapt now but may not be sufficient to meet the challenges of future climate scenarios:** The most common adaptation measures reported by coffee producing POs are planting resistant crop varieties, pruning and shade management, improving soil health, efficient water use and integrated pest management. While these measures may be addressing modest and intermediate climate change impacts, POs are not currently identifying "systematic" or "transformational" adaptation measures that would enable them to deal with more significant expected changes in the climate.

- **CCAPs plans are mostly good quality with some room for improvement:** Of the 27 plans CCAPs assessed against a combination of FLOCERT certification criteria and criteria included in the Africa and Latin America CCAP guidelines, the majority of plans developed in LAC ranked "good" (87 percent) and the remainder ranked "moderate". In Africa, around a third of plans assessed ranked "good" while the other plans ranked "moderate" (50 percent) or "weak" (17 percent). This was largely due to a lack of contextual information and analysis clearly linking climate threats with adaptation measures, and indicates a need to strengthen knowledge and capacity in this respect.
- **Assessing the CCAP instrument against OECD criteria reveals that:**
 - **The CCAP is a tool that is relevant for Fairtrade farmers.** It helps them to build their knowledge and awareness of the impacts of climate change and is also enabling them to start taking initial measures. Based on a literature review, these measures demonstrate that there is potential to address climate change impacts at production level and thereby strengthen the resilience of farmers' livelihoods. Greater efforts to carry out baseline data collection and monitoring are required to understand the actual impacts of the plans and measures contained in them. Farmers would also benefit from technical support to identify suitable adaptation measures for addressing the more significant impacts of climate change anticipated in climate prognostics.
 - **Plans are effective to different degrees in different regions.** While nearly all POs report implementing their plans, the degree to which the measures are being taken up by individual farmers varies between 30 percent and 100 percent, and usually around 80 percent in LAC. Training, technical expertise and funding are key to the effective development, implementation and sustainability of CCAPs.
 - **The CCAP approach appears to be efficient in terms of supporting POs to identify and implement adaptation measures.** However, capacity strengthening around matching adaptation measures to possible future climate scenarios is required, especially in Africa but also in LAC where the focus has been largely on current impacts.
 - **CCAPs are bringing about positive changes.** By creating greater awareness and knowledge among farmers of climate change impacts and adaptation options, investment in the implementation of these measures has increased both at PO and farmer level. Some POs report that coffee plants are more resilient and better yielding thanks to these measures. Better data collection and monitoring is required to be able to evaluate these changes as "impacts".
 - **The sustainability of the CCAPs over the longer term** will require continuous training, external expert guidance to lead participatory processes, as well as access to financial resources, in particular so POs and farmers can invest in more technological and infrastructure-related adaptation measures, as well as for adequate data collection and monitoring practices.
 - **Measures that were found to be complementary to the CCAPs include:** POs having already carried out an environmental risk assessment as required by the Fairtrade Standard for Small-scale Producer organisations; PO participation in training programmes (such as the Climate Academy); PO representative participation in COP events, and access to CLAC's Climate Eventuality Fund.

CCAP DEVELOPMENT ACROSS THE GLOBE

Between 2021 and 2022, a total of 502 CCAPs were developed across the Fairtrade system: 90 in 2021 followed by a huge increase to 412 in 2022. Figures for 2023 have not been shared with the study team. Per region, the distribution of CCAPs for 2021 and 2022 is: 54 percent CLAC, 20 percent FTA and 26 percent NAPP. Per product (Fig. 2), over half (54.2 percent) of all CCAPs have been developed for coffee, followed by cocoa (18.3 percent) and then tea (7.8 percent).

In all three regions, the majority of CCAPs have been developed for coffee - ranging from just over 40 percent of all plans in Asia to almost 70 percent of all plans in Africa. CCAPs have been developed for cocoa in LAC and Africa (but not in Asia), and for tea in Africa and Asia (but not in LAC). Other regionally relevant crops for CCAPs include bananas in LAC (9.3 percent of all plans and almost a third in 2022) and sugar in Asia (18.5 percent of all plans). "Other" crops (12 percent overall and a third of all adaptation plans in Asia) include cotton, rice, herbs and spices, fruits (pineapple, coconut), cashew nuts, oil seeds and ginger in Asia.³

³ Data for "other" crops in Africa and LAC has not been seen by the study team.

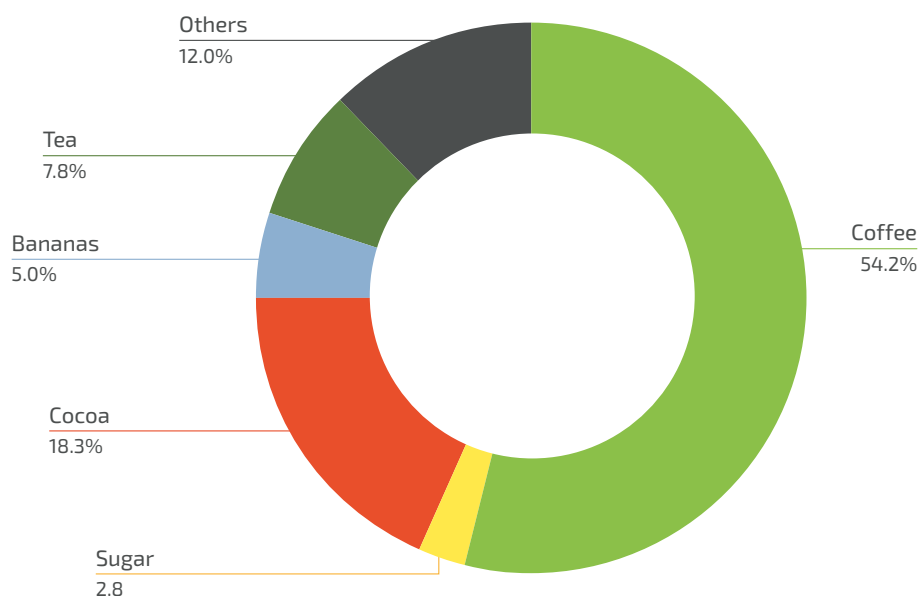


Fig. 2 CCAP distribution per product

DIFFERENT REGIONAL APPROACHES

Fairtrade's three producer networks (PNs) - CLAC in Latin America, FTA in Africa and NAPP in Asia - have been implementing different approaches and measures to support POs in the CCAP process.

ASIA

By 2022, POs in the Asia region had developed 26 percent of all CCAPs of which just over 40 percent were for coffee and a third for other crops, including sugar (18.5 percent), cotton, rice, herbs and spices, fruits (pineapple, coconut), cashew nuts, oil seeds and ginger. POs have developed their adaptation plans based on an annual training event run by NAPP where an external expert builds PO capacity on climate change issues and how to develop a plan. No specific methodology or guide has been used and farmers rely mainly on peer learning for developing the plans. Most cooperatives implement the plans themselves with no support from Fairtrade. In general, POs either use Premium money to develop and implement the plans or NAPP may launch a call for proposals using internal or external funding, such as from National Fairtrade organisations (NFOs) (for example, Max Havelaar Switzerland) or international donors (BMZ, for example).

LATIN AMERICA

Before the requirement for adaptation plans was introduced into the Fairtrade General and Coffee Standard in 2022, some POs in Latin America and the Caribbean had already developed climate adaptation plans as part of existing climate change projects. For example, the projects Honey for the Future (which started in 2019 and involved the development of seven plans in Guatemala) and Exchange (which started in 2018 and involved the development of 29 plans in Guatemala, Bolivia and Honduras) supported POs to develop adaptation plans based on climate data and models as well as local knowledge. Both projects were funded by Fairtrade Finland through its Development Cooperation Programme with the Finnish Foreign Affairs Ministry.

During 2020, CLAC created a guide on how to develop the adaptation plans. It also conducted a study of crops with high climate vulnerability to identify 700 POs that should be supported to develop adaptation plans due to an increase in the frequency and intensity of climatic events in their areas. Subsequently, CLAC developed a roadmap for rolling out the plans in three phases: 1. Planning; 2. Implementation; and 3. Scaling-up.

By 2022, 54 percent of all CCAPs developed globally were in LAC, mostly for coffee but a third of plans developed in 2022 were for bananas. In LAC, almost a quarter of the plans (24 percent) were developed between PO staff and consultants specially contracted by CLAC. The consultants guided the process and used a participatory approach employing workshops, focus groups and interviews. Farmers were included in the entire process, and this contributed to their ability to identify climate change risks and threats and made them more aware of how these risks and threats affect them. Less often, CCAPs were developed by PO staff working alone (16 percent) or by consultants working alone (16 percent). Usually, PO technicians are responsible for overseeing the process.

While the climate change unit within CLAC supports adaptation plan development among POs, implementation of the plans falls under the remit of the Sustainable Production Unit. One interesting aspect of the CLAC approach is that of developing adaptation plans in clusters, whereby adaptation plans are developed in parallel for several POs farming the same products in the same agro-climatic zones. This has enabled scaling up of plan development in a more efficient manner.

In general, plan development and some implementation is financed through CLAC. It operates a Climate Eventuality Fund, which provides up to US\$20,000 as a grant and/or low interest loan. CLAC also supports POs to write proposals and identify external financing for plan implementation.

AFRICA

Adaptation plans were initiated by POs in Africa (mainly coffee producing POs) following their inclusion as a core compliance criterion in the Fairtrade Coffee Standard. In 2021, FTA developed a Climate Risk Assessment Tool to support POs to identify key risks and then develop an adaptation plan. However, the original tool was found to be too complex as many coffee farmers are older and have lower levels of education. FTA is now using an abridged, simplified version. The methodology was developed by a consultant who trained an internal team which supports POs. The PO Management Board is trained by Fairtrade to use the Climate Risk Assessment Tool and then validate the findings with the farmers and local communities. The Management Board usually oversees the entire process. Survey findings indicate that most of the CCAPs in Africa were developed by PO staff alone (32 percent) and only 12 percent of plans were produced by PO staff working with an external consultant. In general, POs pay for the development and implementation of the plans. Many coffee POs use Premium money. By 2022, POs in Africa had developed 20 percent of all CCAPs, with the majority (70 percent) being for coffee and for a smaller number for tea.

In Africa, the POs are leading this process. Sometimes they contract an external agronomist and sometimes they use an in-house agronomist. Occasionally they contract a crop specialist. Some POs have received support from Fairtrade, usually in the form of training.

Several facilitating factors and barriers to adaptation planning have been shared by the PNs, as summarised in the table below:

Facilitating factors	Barriers
<ul style="list-style-type: none"> - Strategic relevance of plans to Fairtrade’s mission - The mandatory requirement in the Coffee Standard - Planning guidelines and tools (LAC and FTA) - Technical expertise among Fairtrade staff (all PNs to different degrees) - Ability to contract external consultants with relevant experience (LAC and NAPP) - Annual capacity building events (NAPP) - Peer support between farmers (NAPP) - PO motivation to develop plans for crops other than coffee even though not a mandatory requirement (all 3 regions) - Availability of funding, external and internal (all 3 regions) - The cluster approach in LAC 	<ul style="list-style-type: none"> - Limited financial and technical capacity of POs to develop and implement the plans - Lack of consultants with the requisite skills to support the CCAP process - Understanding the real potential of adaptation measures, few have been critically evaluated to date (LAC) - Lack of farmer-friendly information (NAPP, FTA) - Government regulations may dictate which adaptation measures may be used and this needs to be taken into consideration (e.g., reforestation tree species in Kenya)

According to the online survey, 67 percent of POs and their members are implementing their CCAP and 29 percent are partly implementing their CCAP.

THREATS AND RISKS FACED BY POS DUE TO CLIMATE CHANGE

A general analysis indicates that most of the POs are experiencing changes in crop productivity and higher temperatures followed by greater incidence of pests and diseases, drought and water scarcity (Fig. 3). Other impacts of climate change, such as changes in plant cycles, land degradation and poor soil quality, were reported by nearly 50 percent of survey respondents.

When looking at each region separately, the results vary. In LAC, high temperatures, drought and water scarcity are the three most severe threats perceived by POs. In Africa, pests and diseases, as well as poor soil quality and health are reported by POs as affecting crops more frequently (Fig. 3). In LAC and Africa, climate change is posing risks to crop productivity, which also affects planting cycles. Flooding and waterlogging are not very common but are affecting both regions in a similar way.

These results seem to confirm the findings of the 2021 Fairtrade and Climate Change: Systematic review, hotspot analysis and survey (Feurer, M. et al., 2021)⁴, which found that heat stress and less rain are likely to be the major impacts of climate change felt by farmers under both low and high emissions scenarios.

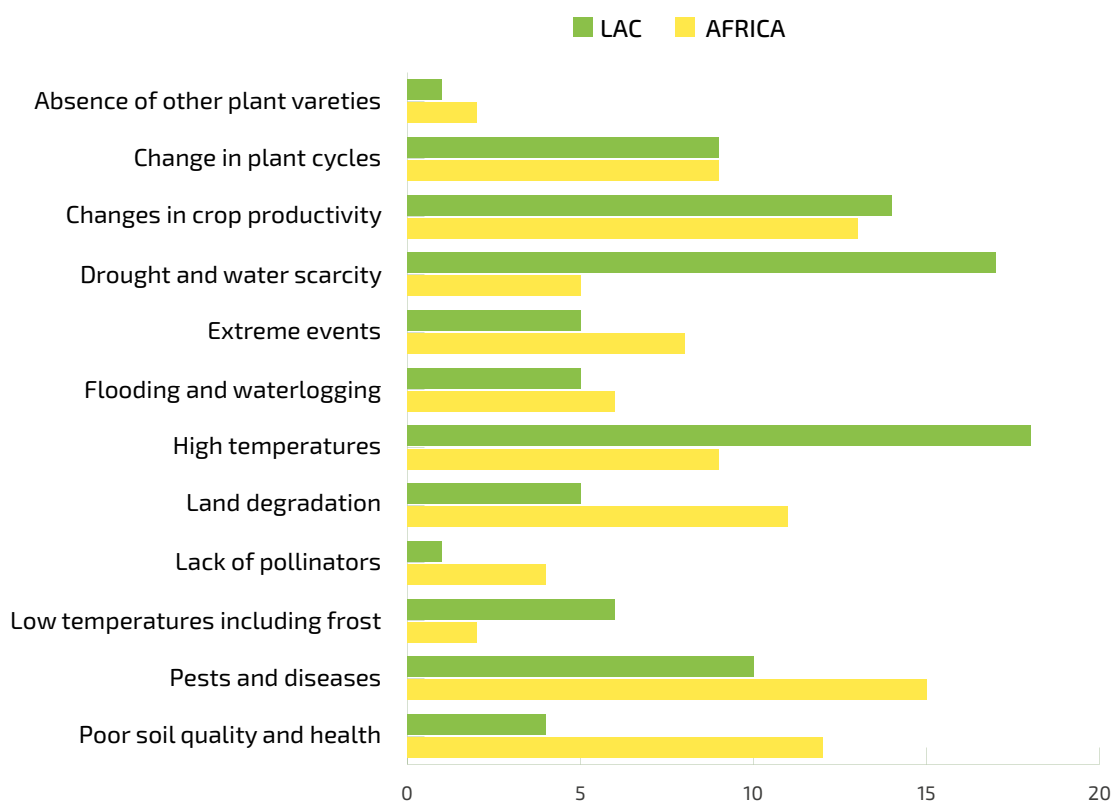


Figure 3. Climate change threats and risks POs are facing because of climate change

CLUSTERS OF CCA MEASURES PROPOSED IN THE CCAPS

The most common adaptation measures reported by coffee producing POs are planting resistant crop varieties, pruning and shade management, improving soil health, efficient water use and integrated pest management (Fig. 4). The least common measures are improved buildings and physical infrastructure, renewable energy technology, and protection/restoration of valuable habitats. Based on a rapid review of global literature, The section below describes whether these measures demonstrate the potential to contribute to strengthening the resilience of farmers' and workers' livelihoods and Fairtrade supply chains. That review found that, while measures for addressing modest and intermediate climate change impacts are being implemented, POs may require support to identify and implement "systematic" or "transformational" adaptation measures to effectively deal with more significant changes in climate.

⁴ <https://www.fairtrade.net/library/fairtrade-and-climate-change-systematic-review-hotspot-analysis-and-survey>

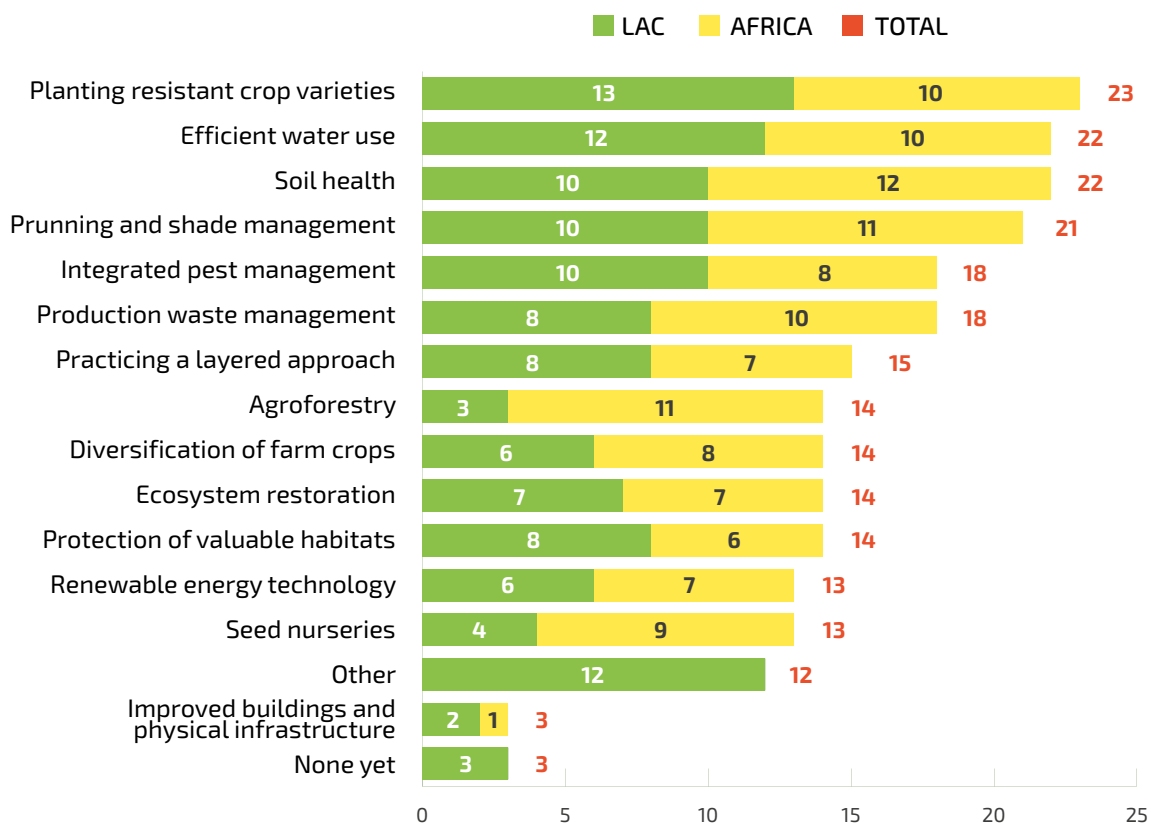


Figure 4. Adaptation measures taken by POs for coffee

SCORING THE QUALITY OF THE CCAPS

A total of 26 plans were shared by POs through the online survey, and one further plan was shared directly with the team. The team carried out an analysis of these plans according to three criteria:

- FLOCERT criteria for coffee producing POs only:** environmental risks that affect the organisation are identified; risks are prioritised; existence of climate adaptation plan based on identified risks; the plan is updated every year; agricultural practices are adapted until there are no more risks (this applies only from Year 3 of certification).
 - Climate Academy Guide criteria for POs in Africa only:** mapping the farm and activities; collect knowledge on the climate within your region; identify risks posed by climate change and associated risks to farming systems/production; identify possible opportunities to adapt and mitigate climate change; understanding of interrelations between the climate, changing climate conditions and your production; outline actions to take to adapt coffee farming and processing to the effects of climate change; action plan: problem/activity/timeframe/resources/responsible monitoring.
- CLAC guide criteria⁵ for POs in Latin America only:** establishment of the work scenario; must include scientific research, collecting information on climate variation in the region and how it is affecting farmers through a participatory methodology; evaluation of climate change issues; adaptation planning; validation and implementation of measures and adaptation; learning process.

⁵ Email correspondence with FLOCERT confirmed that regarding compliance with the Coffee Standard requirement on adaptation plans, FLOCERT:

· Checks as spelled out in the requirements that:

- environmental risks that affect the organisation are identified,
- risks are prioritised,
- a climate adaptation plan based on identified risks exists,
- the plan is updated every year,
- agricultural practices are adapted until there are no more risks (this applies only from Year 3 of certification).

· Does not make judgement on risk identification, prioritisation, planned actions.

· Does not collect the plans. The plans are shown to the auditor but not stored anywhere with FLOCERT.

Each plan was scored according to how many of the criteria were met as follows:

- 0 points if the plan met none of the criteria
- 1 point if the plan met one or two of the criteria
- 2 points if the plan met several criteria
- 3 points if the plan met all criteria

According to this system, the majority of plans (87 percent) developed in LAC scored three points and the remainder scored two points. In Africa, around a third of plans scored three points while the other plans reviewed scored two points (50 percent) or just one point (17 percent). Several of the plans scoring one or two points were very basic in structure and content, and lacked contextual information and analysis that clearly links climate threats with adaptation measures. This indicates a need to strengthen knowledge and capacity in this respect.

ASSESSING THE CCAP INSTRUMENT AGAINST OECD CRITERIA

In order to assess the CCAP instrument against the six OECD evaluation criteria - relevance, coherence, effectiveness, efficiency, impact and sustainability - the study team carried out eight systematisations with POs in Africa and Latin America.⁶

RELEVANCE

Almost all of the respondents to the online survey (96 percent) agreed or strongly agreed that the CCAP is relevant to strengthening their ability to adapt to climate change and improves their livelihoods.

“Climate change adaptation plans are vital tools for building resilience and minimising the impacts of a changing climate on society and the environment. By prioritising proactive, inclusive and innovative approaches, we can better prepare for the challenges ahead and create a more sustainable future for all.”

Coffee PO, Kenya

“For those cooperatives that have not started, it is now the time to have these plans to guide you on where you are coming from and whether you are going to achieve required efficiency. Climate change is here with us.”

Tea farmer, Uganda

The five most common adaptation measures included in coffee CCAPs are: planting more resistant coffee varieties; efficient water use; soil health; pruning and shade management, and integrated pest management (Fig. 4). The study team conducted a literature review pertaining to these five measures in order to assess whether they demonstrate the potential to contribute to strengthening the resilience of farmers' and workers' livelihoods and Fairtrade supply chains.

⁶ Because these systematisations including non-anonymised details from the POs, they are excluded from this public report but available to the Fairtrade system for learning.

Broadly speaking, all five of these measures are included in [the coffee&climate toolbox](#)⁷ developed by the Hanns R. Neumann Stiftung. This is mentioned in the Fairtrade Coffee Standard as a key reference for POs developing their adaptation plan. The coffee&climate initiative has funded pilot activities at farm and community level in Latin America, Africa and Asia to understand the potential of these measures to improve coffee production despite changing climate conditions. These pilot activities show that all five of the most common adaptation measures included in Fairtrade coffee CCAPs have the potential to increase the resilience of coffee crops and also provide some important learnings for effective implementation.⁸

A 2021 systemisation of Fairtrade's climate change projects provided evidence of the effectiveness of a range of adaptation measures based on the experiences of Fairtrade POs in Africa, Latin America and Asia (Clements and Pacha, 2021). The projects that were analysed implemented a combination of adaptation measures. Awareness raising, training and capacity building around Good Agricultural Practices (GAPs) were common to all projects, followed by sustainable land management and agroforestry. Impact data collected for most projects was not specific to individual adaptation measures but impressive results were reported for coffee productivity and yield even after a relatively short period. For example, the GREAN project, which lasted only two years, reported that over 90 percent of small farmers who had introduced agroforestry and sustainable agriculture practices had experienced improvements in production, leading to more than 98 percent increasing their earnings. Another example is the 2015–2016 project to support indigenous organic coffee farmers in Mexico. It enabled farmers to grow 125,000 coffee plants within just one year, as well as to improve soil structure, fertility and the health of their coffee plants by applying GAPs. The results of individual projects are summarised in a range of project briefs submitted to Fairtrade as part of that consultancy assignment.

PLANTING MORE RESISTANT COFFEE VARIETIES

Improved crop varieties can better withstand higher temperatures, are more resistant to pests and diseases, and can be better adapted to increased shade in agroforestry systems. However, knowledge on which variety is best suited for a specific context is still limited (Verburg et al., 1998). A new class of F1 hybrid coffee varieties is being examined by World Coffee Research and others to see if they can withstand the pressing challenges of climate change. While F1 hybrids are showing improved performance over traditional crops, they require different management, increased nutrition, and careful education to yield benefits to farmers (World Coffee Research, online publication). By way of a specific example, new F1 hybrid coffee varieties in Costa Rica were found to give 29–61 percent higher output than traditional coffee varieties even after controlling for other variables including climate inputs (Kahsay et al., 2023). It is also important to note that the manner in which new coffee varieties are introduced can create new sources of vulnerability that could compromise the local and ecological benefits of coffee production systems, as well as diminish their capacity to cope with the future impacts of climate change (Ruiz de Oña and Merlín-Urbe, 2021).

PRUNING AND SHADE MANAGEMENT

The benefits of tree shade systems for climate change adaptation relate primarily to the buffering of air temperature and adverse climatic conditions, soil moisture preservation and nutritional balance (Verburg et al., 1998).⁹ The presence of shade trees may also stimulate the growth of new coffee bush branches and reduce the incidence and severity of coffee leaf rust (Gonzales et al., 2023). However, these impacts are not universal and, in some instances, shade trees may lead to maladaptation, for example, by reducing soil moisture or increasing competition for growth resources. The overall effect of shade trees is dependent upon site conditions (soil/climate); component selection (species/varieties/provenances); below ground and above ground characteristics of the trees and crops, as well as management practices, including appropriate selection, spacing and pruning of shade tree species (Verburg et al., 1998).

Pruning is a rejuvenation technique aimed at removing non-productive stems and branches and at stimulating new vegetative growth in order to restore the plant's productive capacity and lead to better fruit quality (Fernandes et al., 2012). In the context of climate change, pruning can also be used to help control coffee leaf rust by removing infectious lesions (Baitelle et al., 2019). Coffee plants that are well pruned may be less vulnerable to climate variability (GTZ, 2010). However, we did not find more specific recommendations relating to the type of pruning and climate change adaptation benefits during this rapid review.

⁷ The coffee & climate toolbox is a compilation of tools, climate maps, case studies, guidelines and further training materials that equip farmers and farming communities with valuable information. The initiative for coffee&climate was launched by members of the coffee sector in 2010 to address the challenges that changing climate conditions pose to the entire coffee value chain. Hanns R. Neumann Stiftung (HRNS) is the implementing organisation of the initiative.

⁸ The coffee&climate initiative, [Juncea case study](#)

⁹ The coffee&climate initiative, [Shade management case study](#)

SOIL HEALTH

Cover crops can conserve soil moisture but may be susceptible to pests that also attack coffee plants.¹⁰ Observations of a combination of dry mulch and cover crops show that coffee trees standing on the mulched plot look healthier and carry more and healthier cherries compared to those that aren't.¹¹ Conservation agriculture can improve yield by 25 percent to 100 percent under climate change conditions.¹² Integrating legume cover crops for weed control have also been shown to help buffer coffee against climate change (Mwangi et al., 2021).

EFFICIENT WATER USE, SUCH AS RAINWATER HARVESTING

Efficient water use can help coffee farmers cope with water scarcity, ensuring the wellbeing of coffee plants during dry periods. Sustainable water management practices and the implementation of irrigation systems are crucial in regions facing changing precipitation patterns. Rainwater harvesting improves soil moisture but can overflow with intense rains.¹³ Recycling coffee washing water, using mucilage water to water coffee plants and employing micro-irrigation or drip irrigation systems are all possible methods for ensuring more efficient water use in a climate change context (GTZ, 2010). For these methods to be effective, proper determination of coffee water requirements is essential (Asefa, 2023).

BIOLOGICAL MANAGEMENT OF PESTS, DISEASES AND WEEDS

Due to limited knowledge on how pest population dynamics and interactions will change as a result of climate change, it is difficult to predict the effectiveness of integrated pest management for coffee production (Vergurg et al., 1998). Techniques that enable continuous scouting for pests, preventing infestation and controlling of pests and diseases are required alongside all adaptation methods. For example, too much shade from trees or waterlogging from unchecked drip irrigation systems can favour certain pests and diseases resulting in maladaptation (GTZ, 2010). Knowledge of different coffee plant pests and diseases is crucial since they flourish in different conditions and require different adaptive methods. For example, high humidity and high precipitation provide favourable conditions for leaf rust and leaf spot, meaning farmers should reduce shade and carry out strong pruning. On the other hand, cercospera and insects, such as leaf miners, thrive in good light and high temperatures. Thus, during dry years, pruning of shade trees should be minimised so as to not create these favourable conditions (GTZ, 2010).

CONCLUSIONS

According to the evidence reviewed, the most common adaptation measures being implemented by Fairtrade coffee farmers do demonstrate potential to address the challenges of climate change when implemented through an approach that is locally appropriate, with adequate validation and monitoring processes. The coffee and climate initiative guidance points to the importance of validating or testing the selected adaptation practices on a small scale before dissemination takes place. In some cases, Fairtrade POs in Africa and LAC reported having set up demonstration plots to trial measures and show the benefits to their farmers.¹⁴ However, it was beyond the scope of the present study to evaluate the implementation approach applied by the POs to each adaptation measure. As a result, the literature review can only give a broad indication of the potential of the measures to contribute to farmer resilience.

Monitoring was in place in both regions. In LAC, annual or bi-annual visits are carried out by POs which use a specific form to track implementation progress year on year. These POs indicated that they do not have sufficient human resources to follow up more frequently. In Africa, monitoring also takes place. However, the frequency of visits and monitoring techniques was not clear from the interviews. Costs relating to human resources and transport were also mentioned by POs in Africa as factors that hinder more frequent follow-up.

¹⁰ The coffee&climate initiative, [Cover crops case study](#)

¹¹ The coffee&climate initiative, [Soil moisture tool combining cover crops and dry mulch case study](#)

¹² The coffee&climate initiative, [Conservation agriculture case study](#)

¹³ The coffee&climate initiative, [Rainwater harvesting basins case study](#)

¹⁴ In LAC, for example, a pineapple PO set up a soil regeneration plot with the aim of exploring the best soil restoration methods. They tried with nitrogen fixers, introducing organic matter, mineral content, and microorganisms. In their own words, they created a "living laboratory". In Rwanda, a coffee PO reported the important impact that setting up a model farm has had on convincing farmers to change their practices.

EFFECTIVENESS

Nearly all POs report implementing their plans.¹⁵ The degree to which the measures in the CCAPs are being taken up by farmers varies between 30 percent and 100 percent. Generally, a percentage of 80 percent or more was reported by POs in LAC.

The ability of POs and their members to implement the measures depends mostly on:

- The provision of training to members on adaptation measures. Many POs recognise that this training needs to be provided on a continual basis to ensure implementation is sustained. Capacity building training from Fairtrade was greatly appreciated, and farmers often gained a great deal of motivation through peer learning and demonstration plots, which enabled them to appreciate the benefits of new techniques first-hand.
- Acknowledgement of the importance of climate change (a common denominator among all POs consulted).
- Technical and financial capacity, particularly when it comes to explaining and demonstrating new techniques to farmers (either with an external consultant or in-house expertise).
- Being able to fund interventions that require a higher investment, such as new technologies or infrastructure. Access to finance provided by CLAC was extremely valuable for POs in LAC.

POs that participated in the interviews provided greater insights around a range of facilitating factors, including:

- **Access to internal funding to cover the costs:** all African POs are covering the costs of developing and implementing their plans by themselves. They reported spending between US\$390 and US\$2,600 to date for plan development. According to the PO interviews, the motivation to implement measures on coffee farms can depend on how much profit farmers earn. So, if the price of coffee drops, that will impact farm activities and farmers may resort to doing other things. During years when coffee fetches good prices, this translates into more adaptation measures being implemented. One PO in Africa reported that when it finished developing the CCAP, it had just made payments to the farmers. As a result, there was good uptake of the adaptation measures.
- **Access to Fairtrade funding to cover the costs:** In contrast to Africa, the POs in LAC reported that CLAC had paid for a consultant to lead CCAP development. CLAC played an active role in the recruitment process, advertising via its website and evaluating the proposals received. POs also reported having received financial assistance through CLAC's Climate Eventuality Funds - usually of about US\$15,000-20,000 in the form of a grant or low interest loan - for CCAP implementation.
- **Fairtrade training** was cited by various POs as a useful input to CCAP implementation.
- **Several POs in Africa, but not all, mentioned using Fairtrade guidelines during the process.** In the plans seen for LAC, it appears that consultants used different methodologies and did not necessarily follow the CLAC guidelines.
- In both LAC and Africa, POs mentioned the **importance of peer support** between farmers, which was reported as increasing morale.
- **Acknowledgement of the importance of the climate change issue** by PO management was also seen as a significant factor for POs in both Africa and LAC. For example, in an African tea producing PO, the Director and another staff member had attended different COP meetings thanks to a Fairtrade initiative. Their participation in these events was reported as having greatly contributed to their knowledge and motivation to implement the CCAP. This PO has won an international award for its work on climate change adaptation and reported having invested US\$150,000-200,000 over the past four years on CCAP implementation.
- **Access to relevant adaptation technologies** was another factor. By and large, this seems to relate to the provision of training to farmers using in-house expertise (usually an agronomist) but also to setting up nurseries for producing tree seedlings. One PO in LAC reported setting up a meteorological station that provides critical data on local conditions. This helps farmers to focus their adaptation actions in an effective way.
- In one African coffee PO, a **Training-of-Trainers system** was established involving youth extension officers who oversaw the process of sensitising and training farmers. In other POs, a single technician is responsible for visiting farms and providing support.
- **Setting up a model farm** to show farmers the benefits of the adaptation measures was reported by one African coffee PO as being extremely valuable in helping to convince farmers to take up the new measures. There was also an example in LAC where a PO set a demonstration plot on soil fertilisers for pineapple.

¹⁵ According to the online survey, 67 percent of POs and their members are implementing the CCAP and 29 percent are partly implementing the CCAP, with only one respondent indicating that their plan is not being implemented. In the group of systematisations, all POs reported that they are implementing their CCAPs.

FACTORS THAT LIMIT IMPLEMENTATION

According to the online survey, the main factors limiting the implementation of the CCAPs are lack of available funding, lack of technical capacity within the PO, lack of clarity around what to do, and no access to relevant adaptation technology. Answers were similar between regions.

- POs that took part in the interviews provided greater insights around a range of factors that hindered implementation for them, including the following:
- **Lack of funding** was mentioned by most POs in both regions, especially for implementing measures that require infrastructure (e.g. constructing a terrace system, new buildings, installing biogas or solar panels). Additional funds are also needed for providing seedlings, continuous and refresher training, and effective monitoring (e.g. covering transport costs). One African PO reported that take-up of biogas had been low - just four percent of farmers - because of the cost.

"Most of the implementation measures require funding, and yet we depend on [our Fairtrade] Premium to be able to act on most of these strategies. We thus seek financial help from our partners since it's a global challenge."

Manager, coffee PO, Uganda

"Because of limited funds to facilitate the implementation of the plan, we find ourselves not able to implement as planned in a specified period of time. So, with support from Fairtrade, we will be able to accomplish in time with feasible results."

Coffee farmer, Uganda

"Climate change funds should be considered by Fairtrade."

Coffee and honey PO representative, Uganda

- **Lack of motivation** among farmers or difficulty changing attitudes was reported as affecting adoption rates. Some POs reported that it took time to see a change in behaviour among farmers with regard to the cutting down of trees. Some farmers believed that too many trees would reduce the space available for coffee plants and consequently negatively affect coffee production. Other farmers feared losing their income by taking up new technologies. In some instances, it was difficult to gain support for the CCAP where farmers observed that other cooperatives were not doing the same. Pushing through with the plan can require time to ensure the community is on board and understands the causes, effects and possible solutions. One PO in Africa reported that it is challenging for older farmers to adopt new techniques.

"Implementation is dependent on the willingness of the farmers to accept working on activities required on their farms."

Manager, coffee PO, Kenya

- **Lack of tangible benefits** - one PO in LAC reported that farmers wanted to see direct benefits, for example, from carbon credits.
- **Lack of information** on tried and tested adaptation measures - research into the suitability of native trees for shade management, for example - was also cited by POs as a limiting factor.

"We need more sharing of new actions that have worked."

Manager, coffee PO, Brazil

- **Archaic data collection methods** on CCAP implementation was cited by one African PO as hindering implementation because the information is collected through conversations and no paper records are kept for the future.
- **Lack of sufficient personnel** was mentioned by several POs in LAC.

Measures that are implemented

Almost all of the eight POs interviewed for the systematisations said they had conducting training for farmers on various topics. This concurs with survey results, which also found that most of the POs have provided training to their members on sustainable agriculture practices based on the environmental risk assessment. In Latin America, 90 percent of POs have provided training while in Africa 70 percent have. The training topics vary slightly between Africa and LAC with the most common ones being the following: integrated pest management, production waste management, pruning and shade management, agroecology and agroforestry systems, efficient water use, and soil health and the appropriate use of fertilisers. These are followed by diversification of farm crops, seed nurseries, ecosystem restoration and protection of valuable habitats (Fig. 5).

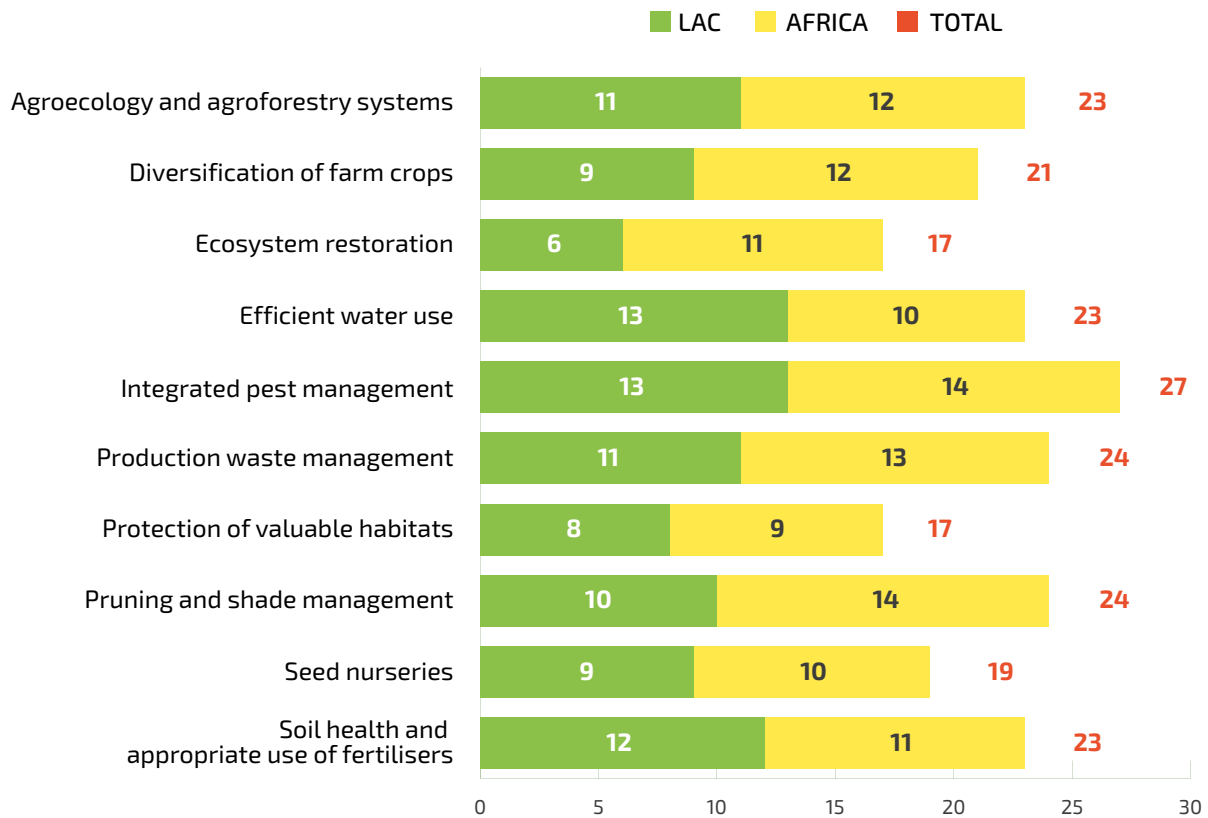


Figure 5: Changes observed by POs after implementing CCAPs

Many POs interviewed in Africa reported having set up seed nurseries to provide their members with seedlings and many farmers are planting trees. In general, there was lower uptake of measures that cost more money, such as infrastructure. POs in LAC also reported implementing ecosystem restoration and water management practices as well as introducing resistant crop varieties.

EFFICIENCY

Nearly all POs agree or strongly agree that the CCAP contributes to strengthening their ability to adapt to climate change and improves their livelihoods. As a result, the CCAP approach appears to be efficient in terms of supporting POs to identify and implement adaptation measures.

IMPACT

Information has been gathered on observed changes - rather than impact - mostly due to a lack of rigorous baseline data and the short time that has elapsed since POs started implementing their plans. Overall, CCAPs appear to have led to greater awareness and knowledge among farmers about the impacts of climate change and adaptation options, as well as a greater level of investment in the implementation of mitigation measures, both at PO and farmer level. Reductions in the impact of coffee production on the local environment were also reported. These included greater soil health and some initial indicators that coffee plants are more resilient and better yielding despite climate change.

According to the online survey, the five main changes observed after implementing CCAPs (mentioned in order of

importance) are:

1. **Improved soil quality and soil health** (more changes observed in LAC). The POs interviewed reported that lower rates of soil erosion had been observed. They said that less soil and fewer seedheads were being washed away in rivers or that farmland was less bare than previously.
2. **The use of chemical fertilisers has been reduced or eliminated** (equally in both regions) POs in the interviews also reported greater application of organic manure where previously farmers had depended entirely on chemical fertilisers.
3. **Increased crop yields** (slightly more often in Africa)
4. **Restoration of soil fertility** (slightly more often in LAC)
5. **Resistance of crops to pests and diseases** (more relevant in LAC)

All the changes reported by POs in LAC and Africa are shown in Figure 6 below.

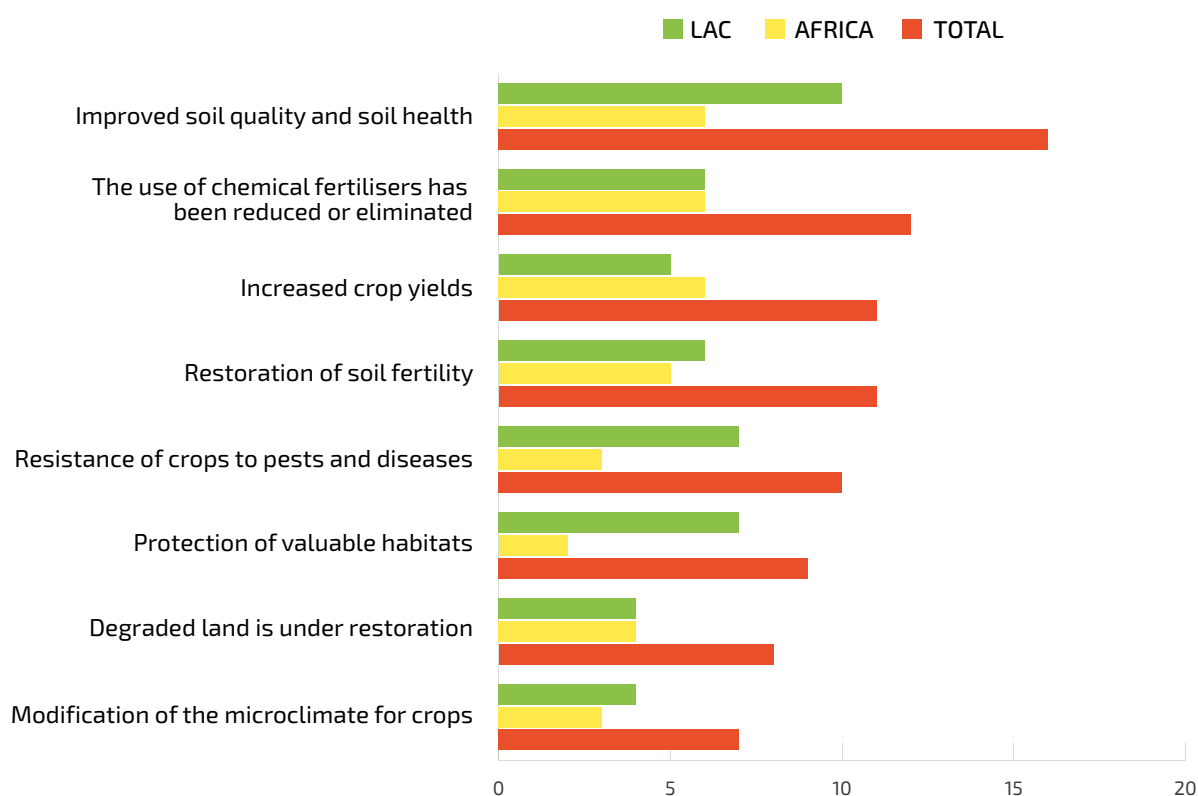


Figure 6: Changes observed by POs after implementing CCAPs

Additional changes reported by POs during systematisation interviews include:

1. Greater take-up among farmers of collecting seedlings from nurseries and planting shade trees.
2. Greater intercropping with shade trees, for example, in the case of banana plants.
3. Greater reinvestment by farmers in their farms. In Africa, this represented a change in mindset among farmers who are now interested in renovating their coffee plants.
4. Greater appreciation and understanding among farmers and the PO around climate change, its links to production and a roadmap including possible measures.
5. In LAC, one PO reported that farmers are more aware of new EU regulations.
6. Greater use of energy-saving stoves
7. Farmers more willing to relocate crop production for soil and water conservation purposes.
8. Greater awareness among farmers of which new technologies to adopt.
9. The CCAP process has contributed to encouraging peer learning between farmers.

In terms of what would not have happened without the CCAP, POs interviewed reported that:

1. Farms would be more exposed to soil erosion.
2. Farmers would still be dependent on using some chemical fertilisers.
3. Encroachment into ecosystems would be higher with greater biodiversity loss.
4. More farm waste would be dumped on farmland and into water bodies.
5. Farmers would not have acquired new knowledge and attitudes regarding adaptation techniques.
6. POs would have less clarity around what to do.

SUSTAINABILITY

To support sustainable uptake and implementation of the plans, POs indicated that they need continuous training and expert guidance to navigate the complexities of climate change. Access to external financial resources is also critical for most POs since they are not in a position to make the necessary investments into more technological and infrastructure-related adaptation measures without this. Refresher training and adequate data collection and monitoring also require greater financial support to guarantee sustainability over time.

COMPLEMENTARITY

Formal requirements in the Fairtrade General Standard and the Fairtrade Coffee Standard have been instrumental in driving and complementing CCAP implementation. Provision of training – such as through the Climate Academy – as well as initiatives to involve farmers in the issues of climate change – such as inviting them to attend COP meetings – also appear to complement CCAP development.

The 2019 Fairtrade Standard for Small-scale Producer Organisations (point 3.2 “environmental development”) requires all POs to develop an environmental risk assessment.¹⁶ We found that where POs had carried out this assessment it was complementary to CCAP development and often used as a key input. We also found that several POs were already implementing environmental management practices set out in the general Standard, which are complementary to or the same as the adaptation measures identified in their CCAP.

Participation in training provided by the Climate Academy was mentioned by several African POs as helpful in building in-house expertise for delivering training to farmers and for developing their plans. One tea producing PO mentioned that participation by staff members in two rounds of the COP had helped their cooperative to understand and prioritise climate change.

Financial capacity was the main factor reported as limiting POs from implementing their plans. In LAC, access to CLAC’s Climate Eventuality Fund was critical to enabling POs to implement adaptation technologies that they would not have been able to afford otherwise.

Continuous training on adaptation measures was also mentioned by several POs as key for plan implementation and success.

CONCLUSIONS

WHICH ASPECTS OF CLIMATE CHANGE ARE FARMERS ALREADY ADAPTING TO AS THEIR CURRENT PRIORITY AND WITH WHICH MEASURES?

This study is too limited, and it is too soon in the history of the CCAPs to be able to draw conclusions around which aspects of climate change farmers are adapting to. Anecdotal reports indicate that soil health, crop resistance to pests and diseases, and crop productivity are improving thanks to measures adopted. However, a more rigorous system – including a baseline study for each PO and a methodology for evaluating impacts – would be required to understand the degree to which farmers and their livelihoods are adapting to the effects of climate change.

¹⁶ “To ensure that you and the members of your organisation follow agricultural and environmental practices that contribute to a more sustainable production system where risks to health and the environment are minimised and biodiversity is protected and enhanced.”

FOR WHICH EFFECTS OF CLIMATE CHANGE ARE THERE STILL CONSIDERABLE GAPS REGARDING ADAPTATION EFFORTS?

The adaptation measures included in the coffee CCAPS are “incremental” – defined as actions that can be readily applied in current systems to adapt to modest or intermediate impacts of climate change. There are a range of incremental measures not found in the CCAPs reviewed for this study, including, for example, collection of weather data (although one PO in LAC reported having done this)¹⁷ and micro-insurance schemes¹⁸ among others (see Clements and Pacha’s 2021 report for a full analysis of measures found in Fairtrade climate change projects). According to the literature, incremental adaptations might suffice with modest climatic changes. However, more substantial climatic changes will require a different set of measures, known as “systemic” or “transformative” options. These options will necessitate more radical socio-ecological changes in production systems and the institutions supporting them (Kates et al., 2012; Rickards and Howden, 2012). According to the 2021 Systematic review, hotspot analysis and survey (Feurer, M. et al., 2021), under a high emissions scenario, all Fairtrade banana, cocoa, coffee, cotton, tea and sugarcane producing areas are expected to be impacted by heat stress, as well as other climatic factors, including extreme weather events. Given that the world is not on track to meet the mitigation targets set out in the Paris Agreement, Fairtrade POs are likely to experience the results of a high emissions scenario in the medium term. As such, it is recommended that Fairtrade ramps up its efforts to support adaptation planning and implementation among all POs, starting with those producing bananas, cocoa, coffee, cotton, tea and sugarcane. This should include support for POs to consider possible future climate scenarios and corresponding adaptation options that may well require broader and more complex measures than those currently proposed in the CCAPS.

WHAT ASPECTS COULD BE REPLICATED OR SCALED UP IN A DIFFERENT REGION, OR WITH A DIFFERENT PRODUCT?

- A formal requirement in all Fairtrade Standards for CCAPs to be developed for Fairtrade certified products would drive uptake beyond coffee POs.
- Providing financial assistance for contracting expertise and implementing plans, such as the grant/loan scheme provided by CLAC under the Climate Eventuality Fund.
- Refresher training and access to guidelines, ensuring more POs have access to these resources.
- Establishing demonstration plots showcasing good practices and results to farmers and peer learning schemes to test and validate adaptation measures and implementation approaches.

¹⁷ The coffee&climate initiative, [Climate data collection case study](#)

¹⁸ The coffee&climate initiative, [Crop insurance case study](#)

RECOMMENDATIONS

IMMEDIATE (YEAR 1)

STRENGTHEN SYSTEMS FOR IMPROVED DATA AVAILABILITY

Fairtrade international with support from the PNs should consider centralising the collection of CCAPs or obtaining consent from POs to access their plans upon completion so that these documents are readily accessible by Fairtrade and/or consultant teams should further research be conducted. This could be undertaken immediately as new CCAPs are developed, for example, by requiring POs to share a final version of their plans with PNs who then store them on a centralised database, or by requiring POs in Latin America and the Caribbean to consent to sharing their plans upon completion.

SHORT-TERM (YEARS 2 AND 3)

STANDARDISE THE CCAP APPROACH

It is recommended that Fairtrade International and the PNs standardise the approach to CCAPs, by developing a global guide using the CLAC guidelines and processes as a model and also drawing on experiences from Africa, such as the Climate Academy programme. This would help strengthen the technical rigour of CCAPs by providing a clear methodology and roadmap to follow. Under the CLAC model, POs are supported to hire climate change technical experts who develop the plans in a participatory manner with the POs. This helps strengthen ownership, implementation and monitoring.

CREATE A SYSTEM FOR MEASURING IMPACT

Study findings indicate that baseline data is not being collected for the majority of plans. This will prevent Fairtrade from obtaining a fuller understanding of the impacts of CCAPs and specific adaptation measures on PO production and livelihoods. POs could collect this data as part of the CCAP development and implementation process, with technical support and funding from the PNs. A baseline indicator framework relevant to the locality, crop and PO set-up would need to be developed and aligned with Fairtrade's Theory of Change for climate-resilient practices (Fig. 7).

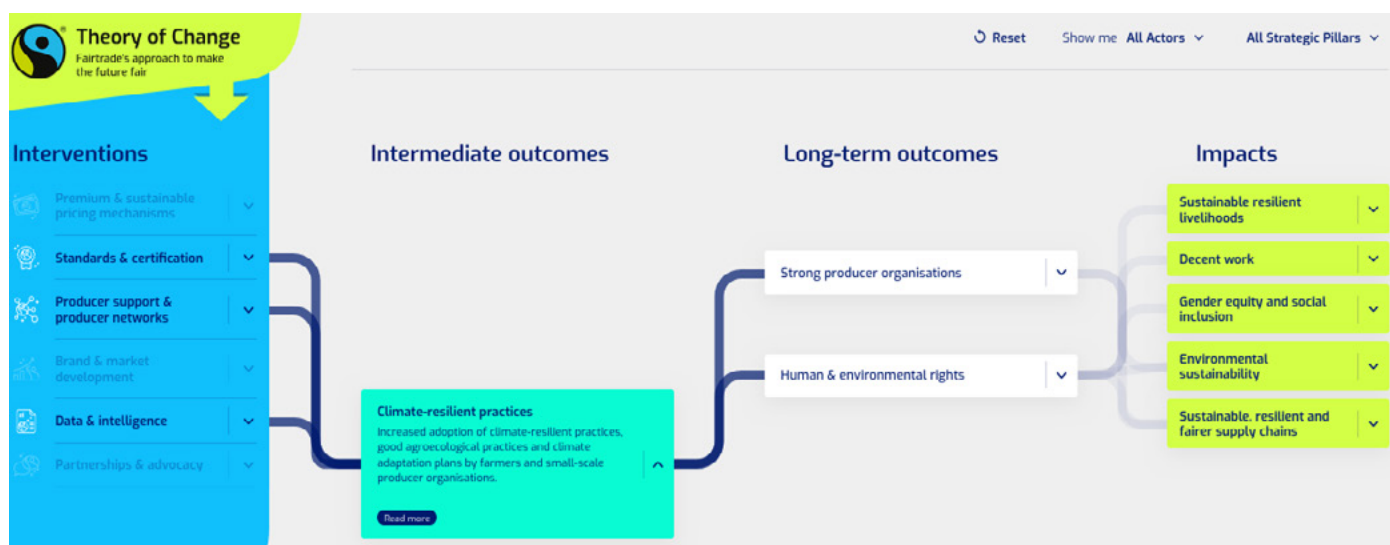


Figure 7: Fairtrade's Theory of Change relating to climate-resilient practices

Suggestions for dimensions to be covered in the indicator framework include:

- Availability and access to natural resources and ecosystems, for example, water, forests, agricultural land.
- Agricultural productivity.
- Socio-economic indicators, such as farmer income, food security, access to markets, finance, information and basic services.
- Institutions and policy making where adaptation measures in the plans look to drive change beyond production level. Indicators would be required to understand how plans influence the enabling environment for adaptive capacity building, including support services, financing, stakeholder awareness.

There is huge potential for Fairtrade POs implementing their CCAPs to contribute to a growing – but still insufficient – evidence base around effective adaptation options and conditions for implementation. This information could be shared between POs as well as outside of the Fairtrade system to help support the scaling up of adaptation efforts in critical production systems.

MEDIUM-TERM (YEARS 3 TO 5)

INCLUDE CCAPS AS A CORE COMPLIANCE CRITERION FOR MORE OR ALL FAIRTRADE CROPS

All POs confirmed that CCAPs are enabling them to address the challenges of climate change. More coffee producing POs have developed CCAPs than POs working with other crops. This appears to be due to the requirement to do so, which was introduced into the Fairtrade Coffee Standard in 2022. Many POs have been able to finance the process of plan development themselves, indicating that plan development at least (see the next point on implementation) is within the capacity of many POs. Priority crops for scaling up CCAPs could be those identified in the 2021 Fairtrade Hot Spot report as most vulnerable and exposed to the impacts of climate change, namely: cocoa, bananas, tea, cotton and sugarcane.¹⁹ This recommendation is based on the assumption that Fairtrade will support POs to access relevant technical support and financing mechanisms for CCAP implementation.

DEVELOP A COMPREHENSIVE SUPPORT PROGRAMME FOR CCAPS

POs greatly valued the climate change adaptation training and regional guidelines provided by the Fairtrade PNs and expressed a need for refresher training. Fairtrade International and the PNs could consider rolling out a training programme to ensure all coffee POs, as well as other POs interested in developing and implementing CCAPs, have access to adaptation training and planning resources. Funding for this training could be sought from international donors and commercial partners.

Demonstration plots set up by POs were reported as providing great motivation for farmers to take up new adaptation practices because they could see the benefits for themselves. However, at present, there appears to be a lack of consistency across POs for testing and validating different adaptation measures (practices, new technologies, etc.) and implementation approaches, and subsequently sharing results and learning with their farmer members. Fairtrade International and the PNs could consider incorporating the establishment of demonstration plots into climate adaptation training to promote this approach among POs. They could also establish peer learning schemes to showcase good practices and results between Fairtrade POs. Funding for these plots and peer learning mechanisms could be sought from international donors and commercial partners as part of a comprehensive CCAP package, as per recommendations made in the 2021 Offer to Business in Climate Change (Clements & Pacha, 2021).

PROVIDE ACCESS TO FINANCE TO POS FOR CCAP IMPLEMENTATION

According to the POs surveyed, the main factor hindering plan implementation was access to financial resources. In LAC, the CLAC Climate Eventuality Fund has helped to overcome this challenge in a few of the cases reviewed. By providing 50 percent grant funding and a 50 percent low interest loan of between US\$15,000 -20,000, POs were able to access technologies and infrastructure that would otherwise be too costly, such as paying for a licence to access local climate data via mobile phones. This approach could be replicated in other regions. Fairtrade International could, for example, seek external funding from international donors or commercial partners to scale up a CCAP

¹⁹ <https://www.fairtrade.net/library/fairtrade-and-climate-change-systematic-review-hotspot-analysis-and-survey>

programme. This could include a financing mechanism (grant/loan/revolving fund) to support POs to contract specialist expertise, invest in more expensive adaptation measures, strengthen data collection and monitoring, etc. This could be achieved in the short to medium-term depending on funding currently available. It is recommended that CLAC meet with colleagues in Fairtrade Africa and NAPP in the short-term to discuss the details of their Climate Eventuality Fund in more depth.

CONSIDER HOW TO FACILITATE MORE "FUTUREPROOF" ADAPTATION

At present, the adaptation measures included in the coffee CCAPs are focused at production level and do appear to be supporting farmers to adapt to modest and intermediate impacts of climate change by, for example, improving shade, water management and irrigation practices, soil nutrition, crop diversification and disease management. Yet as climate changes become more substantial (as global climate prognostics indicate), and coffee (and other crop) production becomes more challenging or even unfeasible in current production zones due to more extreme temperatures and more days without rainfall (Feurer, M. et al., 2021), a different set of measures will be required in order for smallholders to be able to adapt effectively. These "systemic" and/or "transformational" measures will require more radical changes both to production systems and the institutions supporting them (Kates, R. W. et al., 2012).

An example of this kind of adaptation measure would be a landscape or national approach that encompasses collective action between coffee (or other crop) POs and other stakeholders, as well as coordinated cross-sector and value chain planning. The aim would be to strengthen risk management and organisational structures; improve knowledge networks; advocate for realignment of international and national policy and legislation, as well as the formation of new market. At present, the CCAPs are mostly developed independently by individual POs and do not readily allow for this broader, more holistic vision of climate change adaptation.

It is therefore recommended that Fairtrade International undertakes research into potential "systemic" and "transformative" adaptation approaches and options for coffee and other Fairtrade products, and that the PNs support POs to consider future climate scenarios in their CCAPs, including identifying appropriate "systemic" and "transformational" adaptation options. Organisations and initiatives working in this sphere for coffee include, by way of an example, the USAID Feed the Future Alliance for Resilient Coffee (ARC) and its seven leading partners, namely: Hanns R. Neumann Stiftung (HRNS), Sustainable Food Lab (SFL), World Coffee Research (WCR), the International Center for Tropical Agriculture (CIAT), the International Institute of Tropical Agriculture (IITA), Conservation International (CI) and Root Capital.

REFERENCES

- Asefa, A. (2023): [Impact of Water Stress and Irrigation Scheduling on Coffee arabica at Jimma, South West Ethiopia: A Review](#) in International Journal of Current Research and Academic Review, Volume 11 Number 8 (August 2023).
- Baitelle, D.C., Filho, A.C.V., Freitas, S.J., Miranda, G.B., Vieira, H.D. and Vieira, K.M. (2019): [Cycle pruning programmed on the grain yield of arabica coffee](#) in Science and Agrotechnology 43: e014419, 2019.
- Clements, R. and Pacha, M. J. (2021): Offer to Business in Climate Change Internal Paper.
- Clements, R. and Pacha, M. J. (2021): Fairtrade Climate Change Projects: Learning from experience.
- Fairtrade (2024): [Monitoring the scope and benefits of Fairtrade. Monitoring Report 15th Edition](#).
- Fernandes, A.L., Santinato, F., Santinato, R., and Michelin, V. (2012): [Condução das podas do cafeeiro irrigado por gotejamento cultivado no cerrado de Minas Gerais](#) In Enciclopédia Biosfera 8(15): 487-494, 2012
- Feurer, M. et al. (2021): FAIRTRADE AND CLIMATE CHANGE Systematic review, hotspot analysis and survey. <https://www.fairtrade.net/library/fairtrade-and-climate-change-systematic-review-hotspot-analysis-and-survey>
- Gonzales, R., Arévalo, L., and Solis, R. (2023): [Shade Management And Pruning In Two Coffee Varieties Vs. Plant Growth And Leaf Rust In The Peruvian Amazon](#) in Bioagro 35(1): 49-58, 2023
- GTZ (2010): [Climate Change and Coffee Training for coffee organisations and extension services](#). Eschborn, Germany.
- Jara Holliday, O. (2018): La sistematización de experiencias: práctica y teoría para otros mundos políticos – 1ed. Bogotá: Centro Internacional de Educación y Desarrollo Humano - CINDE, 2018. Page 258. <https://repository.cinde.org.co/handle/20.500.11907/2121>
- Kahsaya, G. A., Turreira-García, N., Ortiz-Gonzalo, D., Georget, F. and Bosselmann, A. S. (2023): [New coffee varieties as a climate adaptation strategy: Empirical evidence from Costa Rica](#) in World Development Sustainability, Volume 2, June 2023.
- Kates, R. W., Travis, W. R., Wilbanks, T. J. (2012): [Transformational adaptation when incremental adaptations to climate change are insufficient](#) in Proc. Natl. Acad. Sci., 109pp. 7156-7161, 2012.
- Mwangi, N. J., Mavindani, K. J., Nzioka, M. J. (2021): [Evaluating cover crop ecosystem services for buffering coffee against changing climate](#) in Journal of Biodiversity and Environmental Sciences, Vol. 19, No. 4, pp. 16-35, 2021.
- Organisation for Economic Co-operation and Development (2019): [Evaluation Criteria: Adapted Definitions and Principles for Use](#). OECD, 2019.
- Rickards, L. and Howden, S. M. (2012): [Transformational adaptation: agriculture and climate change](#) in Crop Pasture Science, 63, 2012, pp. 240-250.
- Ruiz de Oña, C. and Merlín-Urbe, Y. (2021): [New Varieties of Coffee: Compromising the Qualities of Adaptive Agroforestry? A Case Study From Southern Mexico](#) in Frontiers Sustainable Food Systems, Sec. Agroecology and Ecosystem Services, Volume 5, May 2021.
- World Coffee Research. F1 Hybrid Trials: Understanding the promise of a new class of coffee varieties for climate change and farmer livelihoods. Accessed online: <https://worldcoffeeresearch.org/programs/next-generation-f1-hybrid-varieties>

