



**Organization for Social Science Research in Eastern and Southern  
Africa  
Ethio-Latin Coffee Community of Practice Project**



**Proceeding of a webinar on:**

**Women, Coffee, and Climate: Women's Empowerment for Socio-ecological  
Resilience of Coffee Value-chain against Climate Change in Ethiopia**

**Utilization of Coffee By-Products and Waste Products: Empowering Women  
Smallholder Farmers and Ensuring Sustainable Management of the Coffee**

**Industry**



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Ethiopian Forestry Development



EIAR



Women  
In Coffee  
ETHIOPIA



CONACAFE  
CONSEJO NACIONAL DEL CAFÉ



TECNICAFÉ  
Parque Tecnológico de Innovación

**July 2023**

**Addis Ababa, Ethiopia**

## Introduction

The Women, Coffee and Climate project, a collaborative initiative led by the Spanish Cooperation Agency (AECID) Ethiopia, in partnership with organizations from Ethiopia, Colombia, and Honduras, stands as a proactive response to the complex challenges posed by climate change. With unwavering support from the EU DeSIRA program, this project has united key stakeholders, including the Ethiopian Coffee Tea Authority, Ethiopia Forestry Development, Ethiopian Institute of Agricultural Research/Jimma Agricultural Research Center, Ethiopian Women in Coffee (EWiC), and Organisation for Social Science Research in Eastern and Southern Africa (OSSREA), alongside esteemed counterparts TECNICAFE from Colombia and CONACAFE from Honduras.

In furtherance of our objectives, OSSREA organised a transformative webinar on July 25th, 2023 as part of the EthioLatinCoffee community of practice, hosted on the Zoom platform. The core purpose of this webinar was to illuminate the invaluable significance of coffee by-products and waste management within the realm of sustainable coffee production. Through interactive presentations and enlightening discussions, the webinar served as a crucial platform for stakeholders to augment their understanding of these critical aspects while focusing on empowering women smallholder farmers and ensuring the sustainable management of the entire coffee industry.

The webinar's intent was multi-faceted: to disseminate knowledge about the pivotal role played by coffee by-products and waste management in the context of sustainable coffee production, and to shed light on their potential to empower women smallholder farmers. An additional aim was to share commendable success stories, valuable experiences, and best practices championed by various organizations in harnessing coffee by-products as valuable resources. The discussions further underscored the transformative potential of these by-products as alternative income streams, promoting gender equality, and fostering women's empowerment across the coffee sector. Moreover, the event candidly delved into the intricacies of challenges and opportunities within the realm of coffee by-products utilization, encompassing scalability, market accessibility, and environmental sustainability.

Amidst its myriad objectives, the webinar prioritized the facilitation of knowledge exchange and networking. This interactive platform nurtured collaborations and partnerships within the sphere of coffee by-products utilization, cultivating collective efforts for sustainable industry practices.

At the end of the webinar, it was our sincere aspiration that participants departed with newfound inspiration and innovative visions for sustainable coffee production and waste

management. We envisioned a future wherein women farmers are empowered and the coffee industry stands resilient, equipped to meet the challenges of time.

We extend our heartfelt appreciation to all participants and stakeholders who contributed their insights and commitment, making this webinar a resounding success. Their active engagement was pivotal in realizing the webinar's overarching objectives and fostering meaningful dialogue within the global coffee community.

## Welcome

The webinar was inaugurated at 4:00 pm with a warm and enthusiastic greeting from Mr. Alemu Tesfaye, the Regional Programs Manager at OSSREA. Expressing his heartfelt appreciation, Mr. Alemu extended a warm welcome to all participants, acknowledging their pivotal presence in the event. He set the stage by revealing that the webinar was convened under the auspices of the EthioLatinCoffee Community of Practice and marked the fifth session of its kind.

Mr. Alemu underlined the focal theme of the webinar, revolving around the utilization of coffee by-products and waste products to empower women smallholder farmers and ensure the sustainable management of the coffee industry. Recognizing the indispensable role of the coffee sector in the economic progress of many nations, he stressed the timeliness and importance of embracing innovative approaches to enhance its sustainability, inclusivity, and especially, the empowerment of women smallholder farmers.

Amid the virtual gathering of like-minded participants, Mr. Alemu articulated that the collective vision was to harness the latent potential of coffee by-products and effective waste management to bring forth positive transformation in the industry. The imminent discussions were anticipated to unravel multifaceted dimensions: exploring the gamut of coffee by-products, their pragmatic utilization, showcasing triumphant stories and best practices, and addressing the intricacies of challenges and opportunities embedded within this significant endeavor.

Acknowledging the distinguished lineup of experts, esteemed speakers, and industry stalwarts present, he affirmed that this assembly was more than a webinar; it was a platform for knowledge dissemination, cooperation, and aspiration. He emphasized the participatory spirit, encouraging active engagement, queries, and dynamic dialogues throughout the proceedings.

With gratitude resounding in his words, Mr. Alemu lauded the panelists, speakers, and participants for their resolute commitment to steering positive change and fostering sustainability within the coffee sector. He reserved a special commendation for the unwavering efforts of the partners and organizing committee, whose untiring dedication had actualized this event.

Mr. Alemu elucidated the planned trajectory by providing a succinct glimpse into the day's agenda, addressing logistics, and imparting his well-wishes for an enriching and inspiring webinar experience. Concluding his opening remarks, he seamlessly transitioned the virtual stage to the keynote speaker, Mr. Javier Hoyos, the Executive Director of the Technical Technology Park for Coffee based in Popayan, Colombia.

## **Presentations**

Mr. Javier Hoyos initiated his presentation by extending a warm welcome to all participants and expressing his gratitude for being part of the webinar. He embarked on a comprehensive discourse, shedding light on the invaluable experience of the Technical Technology Park for Coffee (TechniCafe) in Colombia concerning the utilization of coffee by-products and waste management. His presentation encapsulated several key points:

- **Untapped Potential:** Mr. Hoyos emphasized that the full utilization of the coffee plant remains a goal yet to be fully realized. Only a fraction of the plant, namely the fruits, which constitute merely 5%, has been effectively utilized. Alarmingly, a meager 2% of the entire plant content has been harnessed, while the rest of the plant is either discarded or at best employed as organic matter or kitchen fuel for cooking.
- **Holistic Utilization:** He proposed that the potential exists to employ every facet of the coffee plant, encompassing the leaves, branches, stem, main stand, root, flower, and, of course, the grain.

- **Overcoming Challenges:** Mr. Hoyos highlighted that TechniCafe has identified challenges and designed strategies to confront them. By leveraging research development and intervention processes, the organization has succeeded in generating novel products from the coffee byproducts
- **Technological Advancement:** Addressing challenges necessitated technological advancements to create new processes for utilizing the entire coffee plant due to its myriad alternative uses.
- **Women, Coffee, and Climate Project Alignment:** Notably, Mr. Hoyos underscored the project's alignment with enhancing value addition within the coffee value chain. This entails generating new business models to amplify profits and income for coffee producers, effectively necessitating the comprehensive utilization of coffee by-products.
- **Environmental Impact:** He elucidated that this comprehensive approach not only enhances profitability but also reduces environmental impacts stemming from coffee farming practices, such as pulp waste.
- **Entrepreneurial Initiatives:** He stressed the importance of nurturing entrepreneurial initiatives to fortify coffee businesses. This, in turn, contributes to reducing negative social repercussions such as crime and poverty while bolstering societal cohesion.
- **Stem Utilization:** Mr. Hoyos suggested that the coffee stem holds promise as a high-quality wood source due to its density, suitable for carpentry. It can be employed manually or through mechanical means. In some instances, it has even been used for fireplaces and charcoal.
- **Nutritional Benefits of Coffee By-Products:** He delved into the nutritional bounty of coffee by-products. Coffee leaves, for instance, boast antioxidant properties and a wealth of phenolic compounds, including Mangiferin, which

lends to its antioxidant character. Mangiferin is instrumental in reducing diabetes risks, lowering cholesterol, and safeguarding brain cells.

- **Coffee Pulp's Versatility:** Mr. Hoyos detailed the multifaceted applications of coffee pulp, encompassing organic fertilization, substrate for fungi cultivation, direct fuel, biogas or bioethanol production, dehydrated pulp for flour, herbal teas, and animal feed, as well as human consumption in the form of syrup and sweets.
- **Mucilage and Parchment Utilization:** He highlighted the use of mucilage for diverse products such as liquor, sweets, and fuel. The mucilage also influences coffee differentiation by enhancing grain properties. The parchment, usually discarded, can be utilized to create bio-construction materials and gluten-free flour.
- **Spent Coffee Grounds:** Often overlooked, spent coffee grounds possess multiple uses, from natural fertilizers and aromatic components to bioconstruction materials and even biodiesel production.

Following the presentation, Mr. Alemu Tesfaye conveyed his profound appreciation to Mr. Javier Hoyos for his insightful and remarkable presentation. This opening discourse set the stage for subsequent presentations by esteemed colleagues. He then extended the floor to the next presenter, Mr. Diego, an Engineer from the Technical Technology Park for Coffee, to continue with his presentation.

Mr. Diego's presentation was characterized by gratitude for the platform provided to share the groundbreaking work of TechniCafé in harnessing the potential of coffee by-products. His presentation homed in on the following key areas:

- **Pas Cafe - Brewing Peace:** An inspiring venture dubbed Pas Cafe was introduced - an initiative involving former combatants who have transitioned into a coffee products business. This company, specializing in producing peace-infused motorcycles, found support from TechniCafé due to its use of coffee cascara and mucilage. This initiative is founded on the innovative idea of "producing peace with coffee aroma."
- **Diverse Product Range:** Mr. Diego showcased various products developed in collaboration with coffee producers and business partners. These ranged from dairy products to coffee-linked sweets and snacks utilizing mucilage. In 2019, this endeavor received recognition as Colombia's most innovative coffee production project.
- **Gusticafe:** A productive unit affiliated with TechniCafé, Gusticafe, was spotlighted. This unit, led by local women from coffee-producing families, specializes in bakery products utilizing coffee by-products. Their portfolio includes cookies, bread, cherries, syrup, and other baked goods.
- **Safety and Practicality:** He emphasized adhering to basic safety processes, ensuring the safety of final products. A practical methodology encompassing collection, cleaning, selection, disinfection, pulping, and washing was employed. This approach was aimed at simplifying processes to facilitate the production of foodstuffs.
- **Dulce de Leche:** The utilization of coffee by-products for dairy products such as Dulce de Leche, a traditional Colombian sweetened milk with coffee flavor, was highlighted. This product's traditional allure has garnered significant consumer attention.
- **Changing Mindsets:** Initially, convincing coffee producers to utilize by-products was challenging due to their conventional practice of selling these materials as

waste. The establishment of innovative products and good manufacturing practices gradually broke these barriers, fostering awareness and change.

- **Empowerment through Training:** The focus extended to training smallholder coffee families to develop various products using the by-products. This initiative aimed to imbue coffee producers with the tools to create added value and expand their businesses.
- **Technological Facilitation:** The utilization of basic, affordable technologies in these processes was underscored. Instruments like refractometers, infrared thermometers, lactose densimeters, and digital scales were used to measure sugar concentration, milk quality, and other critical parameters.
- **Generating Added Value:** The innovation's potency lay in generating added value from by-products, often surpassing the value of conventional coffee products. A comparative table highlighted how by utilizing coffee cascara and mucilage, the return on coffee cherry increased by 60-85%.
- **Simple Technology:** Mr. Diego stressed that technology shouldn't be a limiting factor for coffee producers. Simple equipment, mainly utilized post-harvest, is pivotal to ensure holistic by-product utilization.

Concluding his presentation, Mr. Diego left the audience with the industrial park's motto - "united, we can achieve everything." In response, Mr. Alemu Tesfaye expressed heartfelt appreciation to Mr. Diego for the insightful presentation and the uplifting success stories. Gratitude was also extended to Ms. Cheria for her exceptional translation. Mr. Alemu then welcomed the next presenter, Ms. Rozi from AMPROCAL, a Honduran coffee cooperative, to share her insights.

Ms. Rozi's presentation emanated from a place of gratitude for her participation in the webinar and the platform it provided. As the trade manager of a women's association in



Honduras, she delivered a concise yet impactful presentation, touching upon the following key points:

- **Agricultural Impact:** She presented a snapshot of coffee products thriving in national and local markets, with a remarkable collection of around £68,000 worth of coffee in the previous year. The association offers technical assistance, primarily directed at environmentally conscious coffee production among women, small producers, and those in need of agriculture farm guidance.
- **Empowerment through Education:** Despite existing limitations, especially in terms of women's education, Amprocal has managed to significantly increase direct and indirect partner support. The training programs provided by Amprocal are yielding tangible results. Through these, women are discovering their skills, developing entrepreneurship, and fostering family support.
- **Entrepreneurial Spirit:** Many young women partners aspire to work independently and produce small coffee batches with distinct flavor profiles. Training initiatives encompass diversified skills, such as making handmade soaps, cosmetics creams from coffee beans, and crafting herbal teas using coffee pulp.
- **Holistic Utilization:** Amprocal's approach revolves around utilizing every aspect of coffee by-products. This extends to cultivating sugarcane alongside coffee farms, offering economic opportunities for families. The presentation showcased products such as nance sweets, a traditional Central American treat.
- **Diverse Creations:** The creative utilization of coffee by-products extended to crafting hot meal soups incorporating coffee by-products alongside ingredients like rice and honey. Partners engaged in beekeeping even developed and traded salted honey.

- **Future Generations:** Amprocal's commitment to sustainability encompassed imparting knowledge to future generations. Training programs for partners' children are aimed at perpetuating coffee production traditions and inspiring new generations to embrace coffee farming.
- **Interactive Learning:** A captivating image depicted children learning the art of coffee cupping, showcasing Amprocal's dedication to interactive learning.

As her presentation concluded, Mr. Alemu expressed gratitude to Ms. Rozi for the enlightening insights and for sharing compelling examples of women's empowerment through the utilization of coffee by-products. He announced the upcoming question-and-answer session and invited Ms. Vivian, the administrative and finance manager at Techni Café in Honduras, to moderate the session.

### **Q&A Session and Panel Discussion Introduction**

Ms. Vivian from TecniCafe facilitated the Q&A session, presenting questions sourced from participants via the Q&A chat platform. The first inquiry addressed why coffee planting practices in Ethiopia have not diversified into various forms. In response, Dr. Wubalem acknowledged the importance of the question, indicating that this matter would be tackled in the upcoming panel discussion. Ms. Vivian supplemented this by emphasizing the lack of such products in Ethiopia and expressing hope that knowledge sharing and experiences within the community of practice could catalyze positive change. She also suggested the implementation of pilot projects based on the practices introduced in Diego's presentation.

Furthermore, Ms. Vivian lauded Honduras' initiatives and recommended integrating them into the community of practice framework. She underscored the necessity of establishing a platform for experience sharing, affirming that this activity was

commencing as one of the primary objectives within the community of practice framework.

Building on this, Mr. Alemu previewed the forthcoming panel discussion, slated to delve into the opportunities and challenges associated with coffee by-product utilization across Ethiopia, Colombia, and Honduras. He briefly introduced the esteemed panelists: Professor Gezahegn Berecha from Jimma University in Ethiopia, Mr. Diago from Technicafe in Colombia, and Ms. Mayra from Catracha Collectivo in Honduras. He expressed gratitude to the panelists for their vital contributions to the webinar and invited Dr. Wubalem Tadesse, Lead Researcher at Ethiopian Forestry Development, to moderate and guide the ensuing panel discussion.

Accordingly, Dr. Wubalem Tadesse assumed the role of moderator, conveying his gratitude to both presenters and participants for their active engagement. He then extended the platform to the first panelist, Professor Gezahegn from Ethiopia, inviting him to share his reflections.

### **Panel Discussion**

Expressing gratitude for his participation, Professor Gezahegn embarked on his presentation, offering insights into the opportunities, challenges, and experiences related to by-product utilization within the coffee industry, drawing from his association with Jimma University and the broader Ethiopian context.

Professor Gezahegn underscored key points, highlighting:

- **Opportunities in Ethiopia:**
  - Ethiopia's significant coffee production status, ranking first in Africa and sixth globally.

- The abundant by-products generated in the coffee production process, presenting ample opportunities for utilization.
- Traditional uses of coffee by-products, such as coffee husk beverages, which could serve as a springboard for novel products like cascara teas.
- The alignment of by-product utilization with sustainable development goals and waste recycling initiatives.
- The potential of by-product utilization to contribute to climate adaptation and mitigation efforts.
- The rising domestic coffee consumption in Ethiopia, creating opportunities for innovative products.

Professor Gezahegn then delved into initiatives undertaken at Jimma University and nationally:

#### **University Initiatives:**

- Introduction of waste management by utilization, employing coffee by-products as compost.
- Research on the impact of coffee compost on crop yield and quality, and exploration of its use in greenhouse crop production.
- Creation of a business model substituting imported coco-pits with coffee compost.
- Exploration of vermicomposting as an enhancer in decomposition processes.

#### **National Initiatives:**

- Oromia Farmers Coffee Cooperative Union's adoption of charcoal and briquettes for energy, seeking climate credits.
- Emerging projects on mushroom production and biogas generation from coffee by-products, supported by the German Government.

- Professor Gezahegn acknowledged the relevance of Mr. Diago's presentation, highlighting its potential adaptation to the Ethiopian context.

However, Professor Gezahegn also illuminated the challenges faced:

### **Challenges:**

- Infrastructure limitations for safe and hygienic production.
- Limited technical expertise and know-how.
- Logistics issues related to exporting cascara.
- Hygiene maintenance in drying and storage processes, particularly for smallholder farmers.
- Scaling up innovations and achieving commitment across value chains.
- Collaboration, partnership, and capacity-building requirements for overcoming challenges.

Concluding his presentation, Professor Gezahegn emphasized the need for strengthened collaboration, capacity-building, and shared learning across nations, bolstered by platforms like the webinar.

Dr. Wubalem thanked Professor Gezahegn for his insightful presentation, offering a concise summary of the main points. With that, he invited the next panelist, Mr. Diego Triana, to share his insights.

Mr. Diego commenced his presentation by aligning with Professor Gezahegn's insights and then delving into the following key points:

### **Challenges with Coffee By-Products:**

- The misconception of coffee waste, often seen as a problem rather than a resource.
- Advocating for effective utilization, such as converting waste into natural fertilizer.

**Research and Translation:**

- Highlighted Colombia's extensive research efforts on coffee by-product utilization.
- Recognized the gap between research findings and practical product development and distribution.
- Stressed the need to bridge this gap to transform research into tangible innovations and value-added products.

**Development and Knowledge Transfer:**

- Emphasized the importance of seamlessly transitioning research into innovation and a line of marketable products.
- Advocated for strategies to raise awareness among smallholder coffee producers, equipping them with the knowledge to utilize by-products effectively.

**Holistic Knowledge Dissemination:**

- Noted the historical focus on the coffee bean alone, leaving out other valuable parts of the coffee plant.
- Urged comprehensive knowledge dissemination to coffee producers for the sustainable utilization of coffee by-products.

Mr. Diego's presentation was insightful in underscoring the necessity of translating research into practical applications for the coffee industry's benefit.

Following this, Dr. Wubalem thanked Mr. Diego for his presentation and summarized its main points. He then invited the final panelist, Ms. Mayra Orellana-Powell, to share her insights.

Ms. Myra's presentation began with expressing gratitude for the opportunity and acknowledging the impact of hosting the Ethiopian and Colombian delegates during the exchange visit in Honduras. She emphasized the importance of these exchanges for learning and collaboration, stating that the focus should be on sharing good practices, not competing.

She outlined several key points during her presentation:

**Diversification and Experience Sharing:** Highlighted the significance of experience-sharing platforms where communities can learn from each other, replicate successful practices, and not view themselves as competitors.

**Coffee By-Product Utilization in Honduras:**

- Mentioned the use of coffee parchment and pulp to create fertilizers, particularly due to challenges in purchasing commercial fertilizers due to the war situation in Ukraine and the impact of the COVID-19 pandemic.
- Cited examples of producing crafts, keychains, and even coffee flour from by-products.
- Described a successful venture into honey production within coffee farms, underscoring its economic and environmental benefits.

**Challenges and Solutions:**

- Identified challenges in finding markets at local, national, and international levels.
- Discussed difficulties in exporting honey due to regulatory issues.
- Emphasized the importance of creating a culture of specialty coffee and soap products within local communities.
- Suggested networking as a solution for market linkages and mutual promotion.

**Sustainability and Inclusion:**

- Stressed the necessity of caring for local producers to ensure their continued interest and benefit from coffee-related activities.
- Advocated for involving more youth, as they often move to cities due to limited opportunities in rural areas.

- Underlined the role of women in creating quality products and the need to provide diversified opportunities.

Ms. Myra's presentation provided valuable insights into the challenges and successes of coffee by-product utilization in Honduras. Dr. Wubalem thanked Ms. Myra for her presentation and provided a summary of its main points. He then opened the floor for questions, answers, and further discussion. The panel discussion was rich in perspectives and experiences from the three different countries, highlighting opportunities, challenges, and strategies related to coffee by-product utilization.

### **Q&A Session and Reflections**

During the Q&A session, a question was raised about why Ethiopia hasn't extensively used coffee by-products. Professor Gezahegn responded, stating that while Ethiopia's focus has historically been on the coffee bean, initiatives to use by-products have begun due to environmental concerns. He mentioned initiatives like extracting alcohol from coffee leaves but noted that these efforts are still not widely scaled to significantly impact smallholders. He highlighted the indirect use of coffee plant parts for ecosystem services like soil erosion prevention. He also pointed out the trade-offs between using leaves for other purposes and their impact on bean quality.

Mr. Alemu thanked Professor Gezahegn for his insightful response. Mr. Almaw Molla from Coffee Resort introduced his company's recycling efforts of coffee by-products, expressing interest in partnerships.

Ms. Sara from the Ethiopian Women Coffee Association reflected on the presentations, emphasizing how the insights gained from experiences in other countries, like Colombia, have been helpful for understanding effective utilization of coffee by-products.



The session continued with more questions, discussions, and reflections, contributing to a deeper understanding of the challenges and opportunities related to coffee by-product utilization in different regions. The community of practice and knowledge-sharing aspect of the webinar was underscored as a valuable platform for collaborative learning.

### **Closing Remarks**

In the closing remarks of the webinar, Mr. Alemu Tesfaye thanked all the presenters, panelists, and participants for their active engagement in the event. He then invited Mr. Omar Funez, the Secretary General and CEO of the National Coffee Council (CONACAFÉ) of Honduras, to provide his closing thoughts.

Mr. Funez expressed his gratitude for the webinar and its efficiency in sharing knowledge among participants. He emphasized the importance of continuing knowledge-sharing, experience exchange, and innovation to ensure additional income sources for small-holder coffee producers in Ethiopia, Colombia, and Honduras. He underlined the significance of diversifying income for coffee producer families, especially women and youth, to secure their basic needs.

He highlighted the untapped potential of various components of the coffee plant beyond the coffee bean, emphasizing the importance of research to realize this potential. Mr. Funez commended the various uses of coffee by-products, including natural fertilizers, cosmetics, and ethanol, presented during the webinar.

He stressed the need to move from discussion to action, making sure that the generated knowledge and research findings reach coffee producers and help them implement the knowledge effectively. Mr. Funez expressed his admiration for the innovative ideas

shared in the webinar, such as using coffee leaves for tea and coffee pulp for various products, even suggesting the possibility of creating furniture and handicrafts.

He also highlighted the market potential for carbon credits within the coffee production sector and called for collaborations beyond pilot projects to create sustainable impacts. Mr. Funez extended his appreciation to the Spanish Cooperation and OSSREA for organizing the community of practice webinars and emphasized the importance of continuing to share knowledge and prioritize the well-being of coffee-producing families.

With this, the webinar concluded at 6:05 pm, marking the successful end of the session.

**Annex:**

- For more [HERE](#) you will find the recording of the webinar.