



CENTER FOR
CIRCULAR ECONOMY
IN COFFEE

*The sustainable future
of coffee: a year with
the Center for Circular
Economy in Coffee*

2024 Summary Booklet



Credits

Photography: Lavazza Group, C4CEC, UNIDO

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The Center for Circular Economy in Coffee is a global **precompetitive platform** for **enhancing** and **nurturing** the **circular economy principles** and **practices** within the coffee sector.





**Officially launched on September 26, 2023
at ICO World Coffee Conference**



“ If on the one hand tangible action by individual players is indispensable, it is only by joining forces with all the other players in the coffee industry that we can give a real boost to the circular transition. This Center represents a valuable precompetitive area which has the potential to deliver lower impacts on environment and improve the income for coffee growers and other stakeholders: a very good reason for all the actors of the supply chain to join the group and actively participate.

Mario Cerutti, C4CEC Board chairman, Lavazza Foundation Secretary,
Lavazza Group Head of Institutional Relations & Sustainability





Organizational structure

The C4CEC, based in Turin, collaborates with international partners **to gather and share best practices, research, and practical solutions** related to the application of circular economy in the coffee value chain.

The center's Scientific Board uses cutting-edge research from universities and partnerships with **Slow Food** and **Sys - Systemic Design Lab**.

Additionally, the ITC Coffee Guide Network Circular Economy Working Group, in collaboration with the International Coffee Organization (ICO) and Politecnico di Torino, provides **a platform for multi-stakeholder discussions** on shaping the future of circular economy practices in the coffee industry.

Founding members and Strategic partners



Politecnico
di Torino



Università di Scienze
Gastronomiche di Pollenzo



INTERNATIONAL
COFFEE
ORGANIZATION



International
Trade
Centre



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

**In every cup of coffee,
there was a journey,
beginning in the
heart of a farm and
traveling through
many hands.**





Events on Circular Economy in which the C4CEC has actively participated

Feb 3-5	»»»	AFCA Addis Ababa, Ethiopia
April 12-14	»»»	SCA EXPO Chicago, USA
June 27-9	»»»	World of Coffee Copenhagen, Denmark
Sept 11	»»»	ICO Global Leader's Forum London, UK
Sept 26-30	»»»	Slow Food - Terra Madre Salone del Gusto Turin, Italy
Oct 3-4	»»»	Swiss Coffee Trade Association (SCTA) Basel, Switzerland
Oct 15-16	»»»	Next Bite (EIT Food) Rome, Italy
Oct 17-18	»»»	International Coffee Convention Mannheim, Germany



8 international events



**Promote circular economy
culture and knowledge**



Definition of Circular Economy in Coffee

A Circular Economy model for the coffee sector designs, balances, and implements **regenerative practices, resource efficiency, and waste reduction** while giving **value to process outputs**, achieving environmental, social and economic **sustainability**.

Driven by a **systemic and holistic approach**, it draws inspiration from the dynamics of **natural systems** to regenerate, maintain, and create **shared value** for all stakeholders, across different **contexts** and within the entire coffee value **circle**.

ITC Coffee Guide
Network Circular
Economy Working
Group, 2024





Global biomass generated through coffee processing, for 2022-2023

1-5%

of the original
cherry remains
in our cup



The coffee cherry is made up of elements with unique bio-active compounds that can be used across industries from cosmetics, food products, agriculture production, energy, to bio-plastics and more



9.98

million tonnes
of green coffee
produced in coffee
year 2022-23

72%

of total biomass is
generated in coffee
producing countries

For every tonne of cherries, approximately
200 kg of green coffee beans are obtained

1
tonne
cherries



=



200 kg
green
coffee
beans

29.34



million tonnes of total biomass
generated from coffee processing from
cherry to green coffee



40.68

million tonnes of biomass
generated globally.
Equivalent to nearly seven
times the weight of the
Great Pyramid of Giza

Coffee processing from coffee cherry to cup generates a global total of 40.68 million tonnes of biological material each year. These estimates are calculated using known conversion ratios. They include the total biomass created from green coffee processing: roasting, and brewing (husks, pulp, mucilage, parchment, silverskin, spent coffee grounds, and water that will be evaporated). This does not include the weight of the green coffee bean itself

10.38

million tonnes
of green coffee
consumed in
coffee year
2022/2023



3 billion cups of coffee
are consumed in the
world daily



11.14

million tonnes
of spent
coffee grounds
generated



Packaging, coffee capsules, and logistics required to meet consumer demands for convenience and quality generate greenhouse gas emissions and produce waste that is often difficult to recycle efficiently

Source: International Coffee Organization, 2024. *Beyond Coffee: Toward a Circular Coffee Economy.*



**Coffee reimaged:
redefining waste
and closing the
sustainability loop.**



The activities performed at the Center for Circular Economy in Coffee



PROMOTE CIRCULAR ECONOMY CULTURE AND KNOWLEDGE

Develop courses, technical guides, trainings, and practical information on implementing circular economy throughout the coffee sector supported by research. Serve as a hub for current and valuable resources on circular economy in coffee.



COLLECT AND SHARE GOOD PRACTICES

Build a multi-stakeholder knowledge sharing network to develop and disseminate evidence-based good practices in the coffee sector. The featured practices are approved by the Scientific Board.



PILOT PROJECT AND RESEARCH

Support members in developing a circular project or research concept. Connect members to foster opportunities for collaboration, pilot projects, and funding.





Two collaborative publications in one year

Resources



Making a case for a circular economy in the coffee sector



The document provides some insights on the work by the global multi-stakeholders working group on Circular Economy in Coffee, part of ITC's Coffee Guide Network.

The goal of this report is to accelerate the circular economy agenda, supported in practice by the launch of the C4CEC, established to put recommendations and solutions into action.



Beyond coffee. Towards a Circular Coffee Economy

The fourth edition of the Coffee Development Report (CDR), the flagship publication of the International Coffee Organization (ICO), explores the untapped potential of coffee cherries and beans beyond traditional brewing.

This edition is produced in collaboration with ITC, C4CEC, Lavazza Foundation, and Politecnico di Torino, including contributions from the Circular Economy Working Group.

**Promote circular economy
culture and knowledge**





Building a multi-stakeholder knowledge sharing network to develop and disseminate evidence-based good practices



average 150
participants for
each event



Experts presented examples of circular economy practices in the coffee value chain, highlighting innovation, business improvements, and opportunities for small enterprises in coffee-producing regions. They will also discuss challenges and scaling opportunities.

Global webinar series 

Webinar 1:
Presenting the Circular Economy report findings
"Making a Case for Circular Economy in Coffee"

Co-hosted by ITC

Webinar 2:
Circular Economy and Regenerative Agriculture in Producing Countries

Co-hosted by Fairtrade

Webinar 3:
Innovations in Coffee and Consumer-Facing Products with Circular Solutions

Co-hosted by Specialty Coffee Association

Webinar 4:
Sector Recommendations for Circular Economy in Coffee: Insights from the Coffee Development Report

Co-hosted by ICO



(Re)generating value through circular economy in coffee

Presented by:
ITC, ICO, and C4CEC



Promote circular economy culture and knowledge





**Politecnico di Torino,
Raffles Milano International Design Institute,
University of Gastronomic Sciences of Pollenzo**



**+ 50 students
+ 12 projects**



The three universities have worked on projects to redesign the coffee supply chain in a systemic way. For example, they have explored strategies to promote local coffee consumption in Kenya, developed solutions for utilizing coffee byproducts, and addressed unique challenges such as market access and sustainability across different regions.



Photo credit: Politecnico di Torino

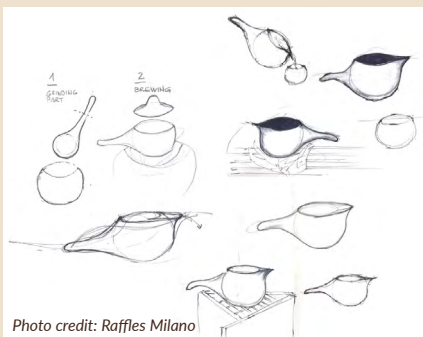


Photo credit: Raffles Milano

**Promote circular economy culture and
knowledge with the Next Generation**



A woman with long brown hair and glasses, wearing a light blue long-sleeved shirt and khaki pants, is kneeling in a field. She is carefully planting a small green coffee seedling into a hole in the dark brown soil. The field is surrounded by tall green grass and some dry straw. In the background, there are trees and a black netting structure, possibly a greenhouse or a windbreak. The overall scene is bright and sunny, suggesting a warm climate.

**Each coffee plant
can tell a story
of circularity,
innovation, and
collaboration.**



Building a multi-stakeholder knowledge sharing network to develop and disseminate evidence-based good practices

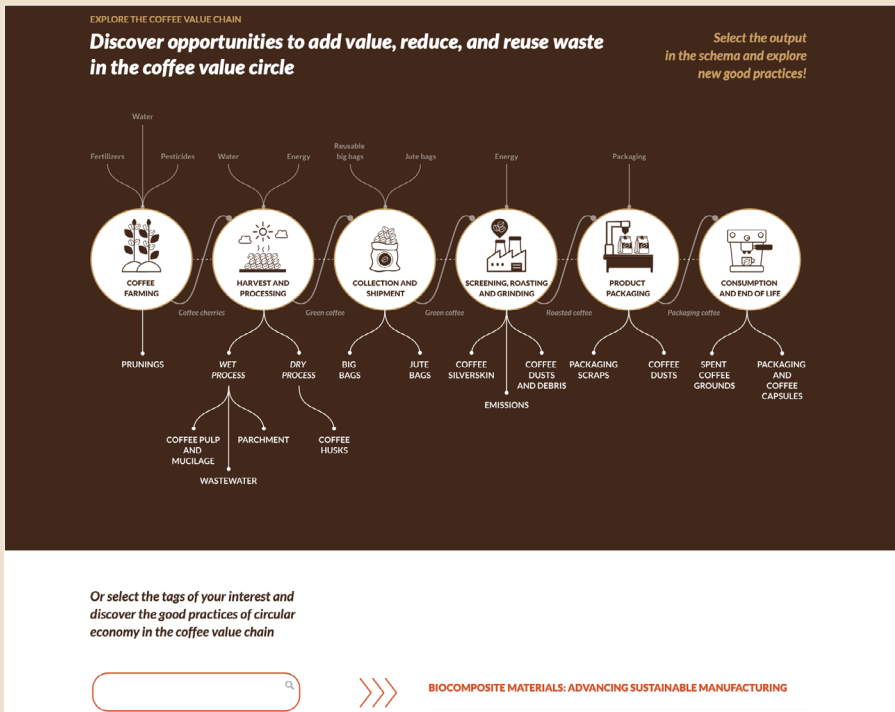


23 Good practices



This initiative to map existing best practices in the coffee supply chain is an ever-evolving resource designed to highlight and promote sustainable and circular approaches, in the coffee sector.

Interactive good practices map

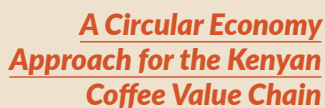


Collect and share good practices



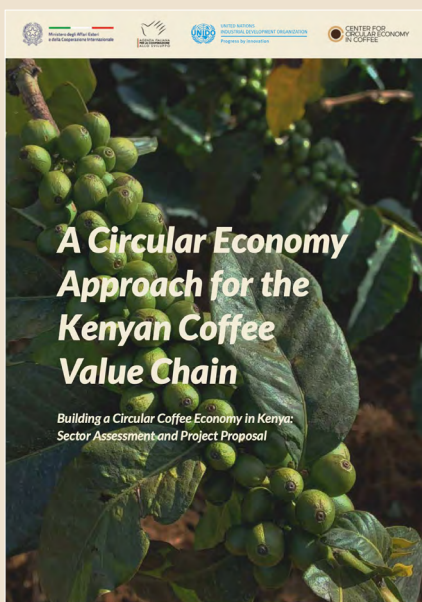
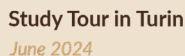


***The coffee supply chain is a living cycle
— a blend of tradition, innovation,
and responsibility. At every stage, lies
the potential to transform waste into
resources, empower communities, and
redefine sustainability.***



The initiative, emerged from a preparatory assistance funded by MAEC, aims to define a comprehensive project document and create a knowledge network aimed at promoting sustainable coffee supply chains and circularity in the coffee sector through a public and 8 Counterpart private partnership approach.

Timeline & Milestone



Pilot project and research





The C4CEC initiative is open to all organizations and companies in the global coffee sector, while individuals can participate through ITC's Coffee Guide Network Circular Economy Working Group

Our members span 18 countries across 6 continents and include a diverse mix of SMEs, multinational enterprises, public institutions, academic institutions, and NGOs

- »» Aashirvad International (Ecotact)
- »» Accademia Espresso - La Marzocco
- »» AFCA
- »» Artisan Roast
- »» Ascafé
- »» Biovision Africa trust
- »» Cabeco
- »» Cafe Imports Fullfillment LLC
- »» Casa del Caffè Vergnano SpA
- »» Centro de Investigacao e Conservacao Ambiental
- »» Città Metropolitana di Torino
- »» Coffee Kreis
- »» COFFEE RESURRECT, Inc.
- »» Coffeefrom
- »» Cupmena
- »» Damn Good Coffee Company
- »» Dedan Kimathi University
- »» Delta Coffee
- »» Demus S.p.A.
- »» Diamond Enterprise plc/
Dahab Specialty Farm

- »» EcoBean Sp z o.o.
- »» Equilibrium
- »» Equinox Inc.
- »» Fairtrade
- »» Fondazione Slow Food ETS
- »» Happy Goat Coffee Company
- »» Huskee Pty Ltd
- »» Kaffe Bueno
- »» KALRO
- »» Kedemt Coffee
- »» Kiboota-Kateebwa coffee farmers
- »» cooperative society Itb
- »» Mountain Harvest
- »» Mr. Bean Coffee Ltd.
- »» Oromia Coffee Farmers Cooperatives Union
- »» Plart Design
- »» Qahwa World
- »» Ruwawa Farm
- »» Sabae Coffee
- »» SCA
- »» Selvitas
- »» Solidaridad
- »» Think In Circles
- »» Universidad Complutense de Madrid



**The Circular Economy
Working Group has over
62 individual contributors**



43 new members





((We aim to challenge the outdated perception that coffee producers gain value solely from the coffee bean itself. I firmly believe that everyone in the coffee sector - coffee farmers, workers, industry stakeholders, and consumers - can play a crucial role in driving the shift toward a more sustainable and resilient industry. By repurposing “waste” into new products and alternative energy sources, we can unlock significant income possibilities and job opportunities while simultaneously lowering production costs. The International Coffee Organization is proud to be a founding member of the C4CEC. We encourage all coffee stakeholders to join this platform and work towards a resilient, inclusive, and sustainable coffee sector.

Vanusia Nogueira, ICO Executive Director





www.circulareconomyincoffee.org