



# Co-Creation of the Accelerating Circular Economy for Food (ACE4Food) Initiative

## COLLECTIVE IMPACT TOWARDS A CIRCULAR ECONOMY FOR FOOD IN EAST AFRICA

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### INTRODUCTION

The Accelerating Circular Economy for Food (ACE4Food) Initiative was convened by WRI Africa in collaboration with Resonance and IKEA Foundation. The co-creation process, and the main co-creation workshop brought together stakeholders interested in transforming circular food systems in the East Africa region. The workshop was designed to co-develop and co-design a **multi-stakeholder initiative**, known as the **Accelerating Circular Economy for Food (ACE4Food) Initiative**.

### Background

Our current food systems are unsustainable, significantly contributing to the polycrisis of biodiversity loss, climate change, poverty, and inequality—issues that exacerbate food and nutrition insecurity.

This is particularly concerning in Africa, where over 280 million people face food insecurity, over 60% of agricultural lands are degraded, and the rapid clearing of forests, peatlands and other natural ecosystems continues to produce more food for a growing population and for export commodities. The agri-food sector is responsible for approximately 55% of the total GHG emissions in Africa, which includes agriculture, forestry and other land uses, and post-production processes such as manufacturing of fertilizers, food processing, packaging, transport, retail, household consumption, and food waste disposal. This trend is driven by a linear “take-make-dispose” model that depletes finite resources and generates waste, leading to significant environmental impacts.

The co-creation workshop was informed by the recognition that investments in circular economy for food are uncoordinated, lacking a systems approach, risking duplication and present a missed opportunity for lessons sharing that

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*These conference proceedings reflect the presentations and discussions of participants and do not necessarily represent the views of the World Resources Institute or other participating institutions.*

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## ACCELERATING CIRCULAR ECONOMY FOR FOOD (ACE4FOOD) INITIATIVE

This initiative focuses on unlocking the potential of micro, small, and medium-sized enterprises (MSMEs) and global supply chains to drive the adoption and scaling of circular food systems business models, thereby accelerating progress toward climate goals and job creation.

### ACE4FOOD CO-CREATION WORKSHOP

The one and a half day co-creation event, held on May 30th and 31st, 2024, brought together a diverse group of stakeholders, including representatives from government, businesses (both MSMEs and large companies in the agri-food sector), civil society organizations, philanthropic donor organizations, and bilateral agencies.

could enhance collective impact. There is also the recognition that there needs to be more collective action rooted in cross-sector and multi-stakeholder engagement to realize systems to build on the collective efforts of various actors to accelerate the transition towards circular food systems in the East Africa region.

**The co-creation workshop revealed that, despite recent increases in investments supporting the circular economy in food systems, the adoption of circularity principles among agri-food sector actors remains relatively low.** It was also found that many actors have unclear or conflicting understandings of circularity, which hampers the formulation of effective policies to support circular food systems at national and subnational levels.

Additionally, the lack of a unified vision creates uncertainty about the criteria funders use to support circular businesses, and there is minimal coordination among the various stakeholders, increasing the risk of duplicated efforts. Achieving this ambition requires a range of actors and many sub-components working together to deliver collective impact from circular food systems. Such collective impact can only be achieved through a network of communities of practice, composed of individuals, organizations, and institutions who advance a common agenda by learning together, aligning, and coordinating their actions to effect systemic change.

The stakeholder engagement preceding the workshop and the co-creation exercises within the workshop have defined the current structure and key pillars of the **ACE4Food Initiative**, recognizing this is a continued co-creation and engagement process. The proposed five key pillars and five levers address the identified challenges and transition from the current state to the desired future state. **The goal of ACE4Food is to establish an expedited, integrated, and coordinated systems approach to food circularity in East Africa, which could be contextualized and scaled to other regions on the continent.**

**The core thematic areas include circular economy system leadership and design, food loss and waste, productive use of waste, regenerative agriculture, and the food-energy nexus.** Within the workshop co-creation process, participants also reflected on four levers of change—system leadership, policy and enabling environment, gender and social equity, and finance and markets—to deliver collective impact goals for people (improved livelihoods, food security and nutrition, jobs, increased productivity, incomes, and climate resilience), nature (biodiversity protection, water security, etc.), and climate (reduced greenhouse gas emissions).

*The goal of ACE4Food is to establish an expedited, integrated, and coordinated systems approach to food circularity in East Africa, which could be contextualized and scaled to other regions on the continent. The core thematic areas include circular economy system leadership and design, food loss and waste, productive use of waste, regenerative agriculture, and the food-energy nexus.*

Achieving impact at scale will require strong system leadership.

This report provides a summary of the **ACE4Food Initiative** co-creation process and outlines the next steps for achieving collective impact toward a circular economy for food in East Africa.

One of the key challenges is the lack of a coordinated, systems approach in investments, leading to duplication of efforts and missed opportunities for sharing lessons that could accelerate progress toward circular food systems. Similar to the parable of the six blind men and the elephant, interventions are approaching the challenge of circular food systems from various angles—some focus on job creation from food waste, others on financing gaps for agri-SMEs, regenerative agriculture, food loss and waste reduction, policy development, or capacity building for food systems actors. While these initiatives address specific aspects of the circular economy, there is limited attention to the broader picture—the “elephant in the room.” The slow transition from conventional, top-down, hierarchical approaches in food systems to a circular economy is partly due to the lack of a common vision, limited awareness of the value of circular initiatives in reducing waste, and a lack of trust and coordination among stakeholders. Progress in this area requires systems leadership—innovative, adaptive approaches that engage broad networks of diverse stakeholders to advance a shared vision for systemic change.

To achieve true circularity, the transition to circular food systems must also be accompanied by a shift to clean energy. Currently, food systems consume 30% of the world’s available energy, with a third of agri-food systems’ GHG emissions stemming from energy use. Expanding access to renewable energy could significantly reduce these emissions.

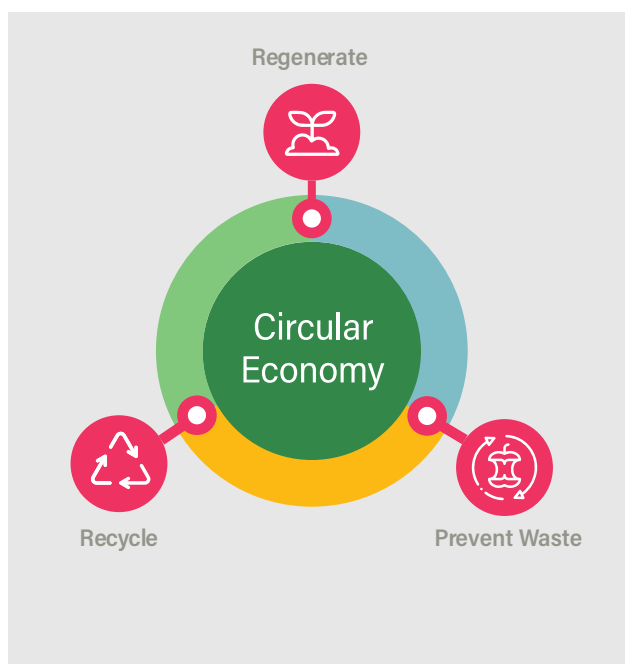
The three circular economy principles applied to food systems include: (i) producing food in ways that regenerate soils and nature; (ii) preventing food loss and waste; (iii) recycling commonly wasted resources into useable products.

These principles can transform food systems, yielding triple benefits for people, nature, and climate. For instance, evidence shows that the circular economy could reduce emissions by 49%, or 5.6 billion tons of CO<sub>2</sub> equivalent, by 2050, delivering adaptation benefits primarily through agri-food waste elimination (12.2%) and regenerative production practices (34.2%). These interventions hold significant potential to shift food systems from being a major contributor to climate change to becoming a climate solution.

## Addressing Interconnected Challenges with a Circular Food Systems Approach

Recognizing that circular food systems can address interconnected challenges across food systems, nature, and climate, several projects have been established in East Africa (see Table 1). These initiatives, led by organizations such as WRI, Bopinc, Danish Church Aid, Biovision Foundation, and ACEN, among others, aim to support MSMEs and companies in integrating circular economy models into their businesses, create

**FIGURE 1 | The Three Circular Economy Principles**



a conducive policy environment for circular economy, and develop innovative mechanisms to increase access to finance for circular enterprises. While not exhaustive, these examples illustrate the growing momentum toward circular economy investments in East Africa.

In East Africa, the circular economy is gaining significant traction, largely driven by the urgent need to address the environmental crisis, particularly in waste management. A notable example is the prohibition of the manufacturing, use, importation, and sale of single-use plastics in Rwanda and Kenya. Despite this progress, considerable challenges to scaling circular economy practices remain. These challenges include a lack of financing, insufficient capacity and expertise to develop new business models and technologies, and unsupportive policy and regulatory frameworks. Drawing from the case of managing single-use plastic waste, there are immense opportunities for local and sustainable alternatives when innovative technology is coupled with supportive policy shifts. Transitioning to circular food systems, however, requires the redesign of established and complex systems, which can be difficult to implement. Some actors may perceive this transition as a risk or a threat to the status quo, potentially employing political economy tactics to hinder

**FIGURE 2 | Circular Economy for Food Initiatives in East Africa**

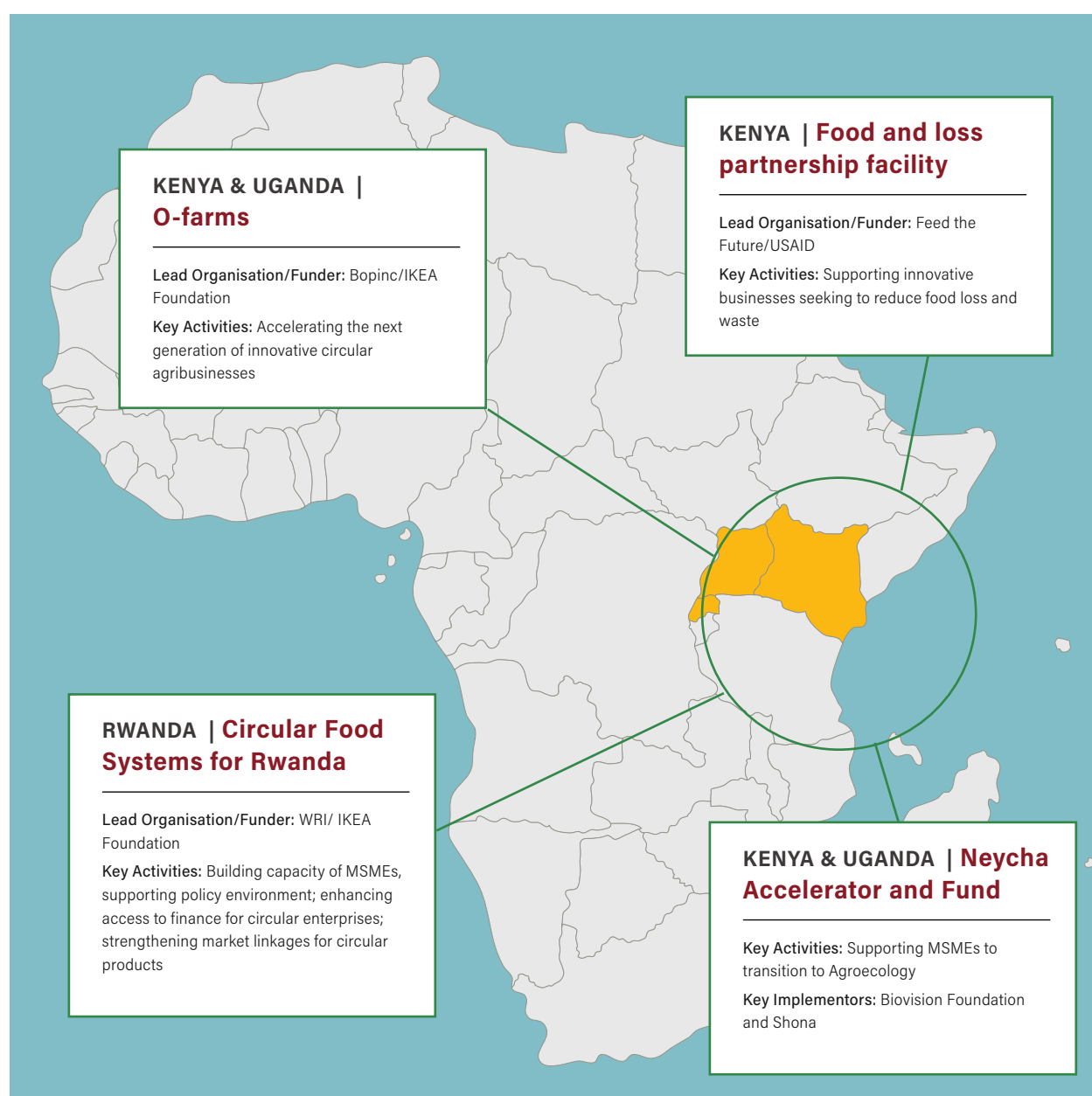
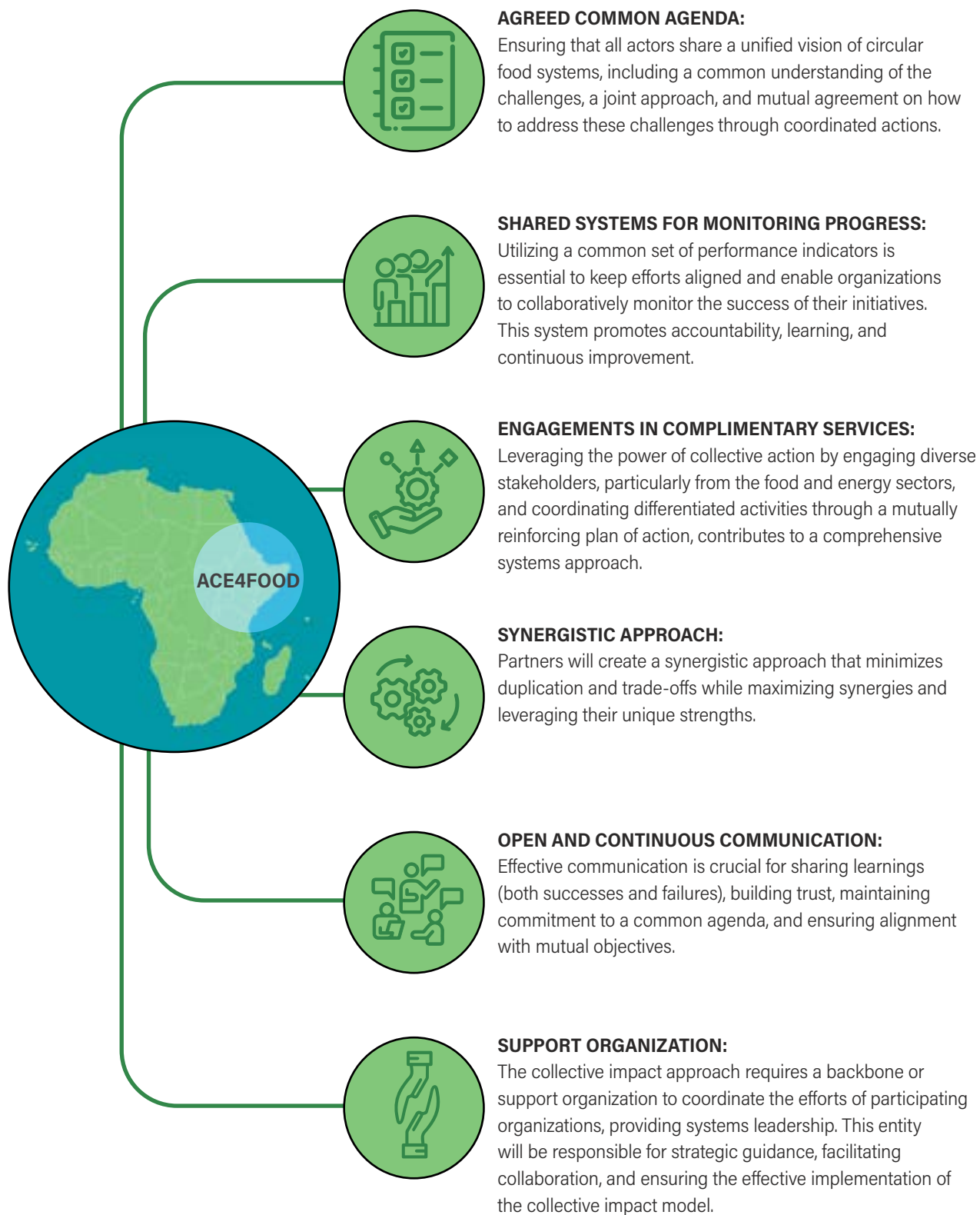


FIGURE 3 | Core principles of ACE4Food

A collective impact approach is built on six core principles:





Participants proposed key strategies to address these challenges and identified the missing elements needed for a comprehensive systems approach to food circularity. The remainder of this paper is structured as follows: a description of the co-creation process, the results of the co-creation process, conclusions, and a synthesized roadmap extending through the end of 2025.

The goal of the ACE4Food co-creation workshop was to bring together stakeholders with a shared vision of circular food systems transformation.

The aim was to co-develop and co-design a multi-stakeholder initiative focused on the East Africa region, with a particular emphasis on unlocking the potential of MSMEs and global supply chains. This initiative seeks to drive the adoption and scaling of circular food systems business models, thereby accelerating progress toward climate goals and job creation.

## Accelerating Circular Economy for Food (ACE4Food) Initiative

The Accelerating Circular Economy for Food (ACE4Food) Initiative aims to reimagine circular agri-food systems that equitably improve livelihoods while helping to achieve goals for nature and climate. This ambitious goal requires the collaboration of a diverse range of actors and components to deliver collective impact from circular food systems. Collective impact<sup>11</sup> [https://ssir.org/articles/entry/collective\\_impact](https://ssir.org/articles/entry/collective_impact)

can only be realized through a network of communities of practice, comprising individuals, organizations, and institutions who advance a common agenda by learning together, aligning, and coordinating their actions to achieve systemic change. This approach is especially critical in Africa, where the concept of a circular economy is relatively new and requires ongoing support, coordination of investments, knowledge sharing, and awareness-building.

Participants proposed key strategies to address these challenges and identified the missing elements needed for a comprehensive systems approach to food circularity. The remainder of this paper is structured as follows: a description of the co-creation process, the results of the co-creation process, conclusions, and a synthesized roadmap extending through the end of 2025.

## ROADMAP TO THE CO-CREATION PROCESS

Co-creation involves bringing together organizations and individuals to collaboratively address development challenges and foster local ownership. This process leverages shared knowledge and experiences to produce meaningful outcomes.

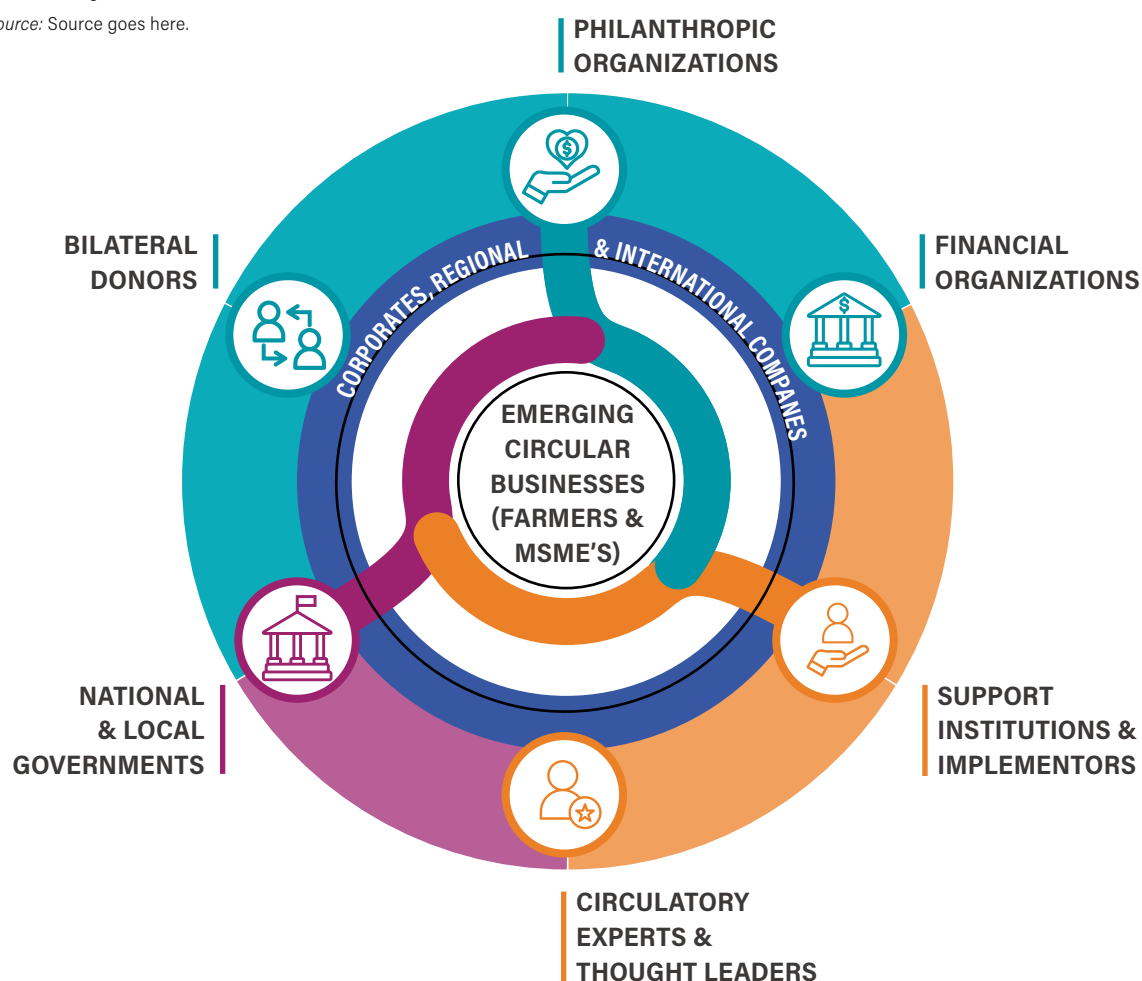
The ACE4Food co-creation aimed to engage diverse ecosystem stakeholders and leaders in East Africa to identify pathways forward for this initiative. By convening leaders in circular food systems, the event facilitated the collection of insights from multiple perspectives, helping to shape a regional initiative for circular food systems transformation in East Africa.

The **ACE4Food** co-creation workshop brought together many organizations and while these participants represent a significant force behind the transition to a circular economy for food in East Africa, they do not encompass the full range of leaders who could contribute to collective action. Consequently, not all food systems leaders were represented at this first co-creation event. Several other organizations and initiatives, mentioned by participants as crucial to engage, will be invited into the conversation as we move forward. The presence of certain participants (and the absence of others) may have influenced the emphasis and gaps in the concepts developed from the data we collected. We will continue to identify and engage key players who were missing during this initial co-creation event, inviting them into follow-up conversations to gather needed input and explore opportunities for collaboration as we advance together. Below is a snapshot of the types of ecosystem stakeholders and their networks that participated in the co-creation process.

**FIGURE 4 | Circular food systems ecosystems**

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## SETTING THE STAGE FOR CIRCULAR FOOD SYSTEMS IN EAST AFRICA

### Co-creation workshop exercises and key outcomes




The first half of Day 1 focused on providing context and sharing case studies related to circular food systems initiatives in East Africa. Co-organizers presented a high-level vision for the workshop, and speakers shared lessons learned from their initiatives.

Discussions progressed from individual programs to a broader exploration of key enabling factors for transitioning to circular food systems, including markets, finance, and technical capacity. Structured speed networking allowed participants to share priorities and resources, laying the foundation for deeper collaboration. Subsequent sessions on visions and intentions, along with lightning talks, highlighted various aspects of circular food systems.

A panel on the Circular Food Systems Ecosystem further explored systems thinking and thematic areas such as energy, climate, green jobs, and enabling factors like policy and finance. Participants then prioritized these key themes, setting the stage for detailed planning.



**TABLE 1 | Identified Actors Invited to Co-Create a Circular Food Systems Initiative for East Africa**

 CATEGORY	 PARTICIPANTS	 RATIONALE
Emerging Circular Businesses (Farmers & MSMEs)	Insectipro, Safi Organics, Regen Organics, Kentaste Products Ltd., Best Tropical Fruits Ltd., Sbike Ltd. (Kenya), Kigasali Coffee Company, Glory Poultry Farm (Rwanda)	Emerging businesses are the lifeblood of an ecosystem and drive innovation. These companies provide crucial insights into gaps and opportunities for starting and implementing circular business models in food.
Corporates, Regional and International Companies	Olam Food Ingredients (OFI), Inyange Industries (Rwanda)	Their experience working across value chains and with large numbers of farmers gives them strong influence on key supply chains in East Africa.
Financial Organizations	ACELI Africa, Family Bank	These organizations provide crucial insights into the financial gaps and opportunities for circular businesses in the region.
Philanthropic and Donor Organizations	IKEA Foundation, Rockefeller Foundation, Porticus Foundation, Mastercard Foundation, Africa Climate Foundation, Global Alliance for the Future of Food, Embassy of Denmark, USAID	These organizations either facilitate circular food systems initiatives or incorporate elements of circularity, such as regenerative agriculture. Their influence and contributions to food systems transformation were deemed critical for the co-creation event.
Support Institutions and Implementers	WRI, Resonance, Bopinc, Wasafiri, SNV, Biovision Foundation, CPIC, Enviu	These organizations work with entrepreneurs, farmers, and other key value chain players in East Africa to foster innovations and create the connections needed to transition to a circular food economy.
Circular Food Systems Experts/Thought Leaders	Africa Development Bank (AfDB), Africa Circular Economy Network (ACEN)	These coalitions, organizations, or networks convene key stakeholders, publish resources and tools, and advise other organizations on strategies for circularity in food systems.
Local and National Governments	Kenya's Ministry of Agriculture	The Kenyan government plays a central role in developing and implementing policies and strategies.

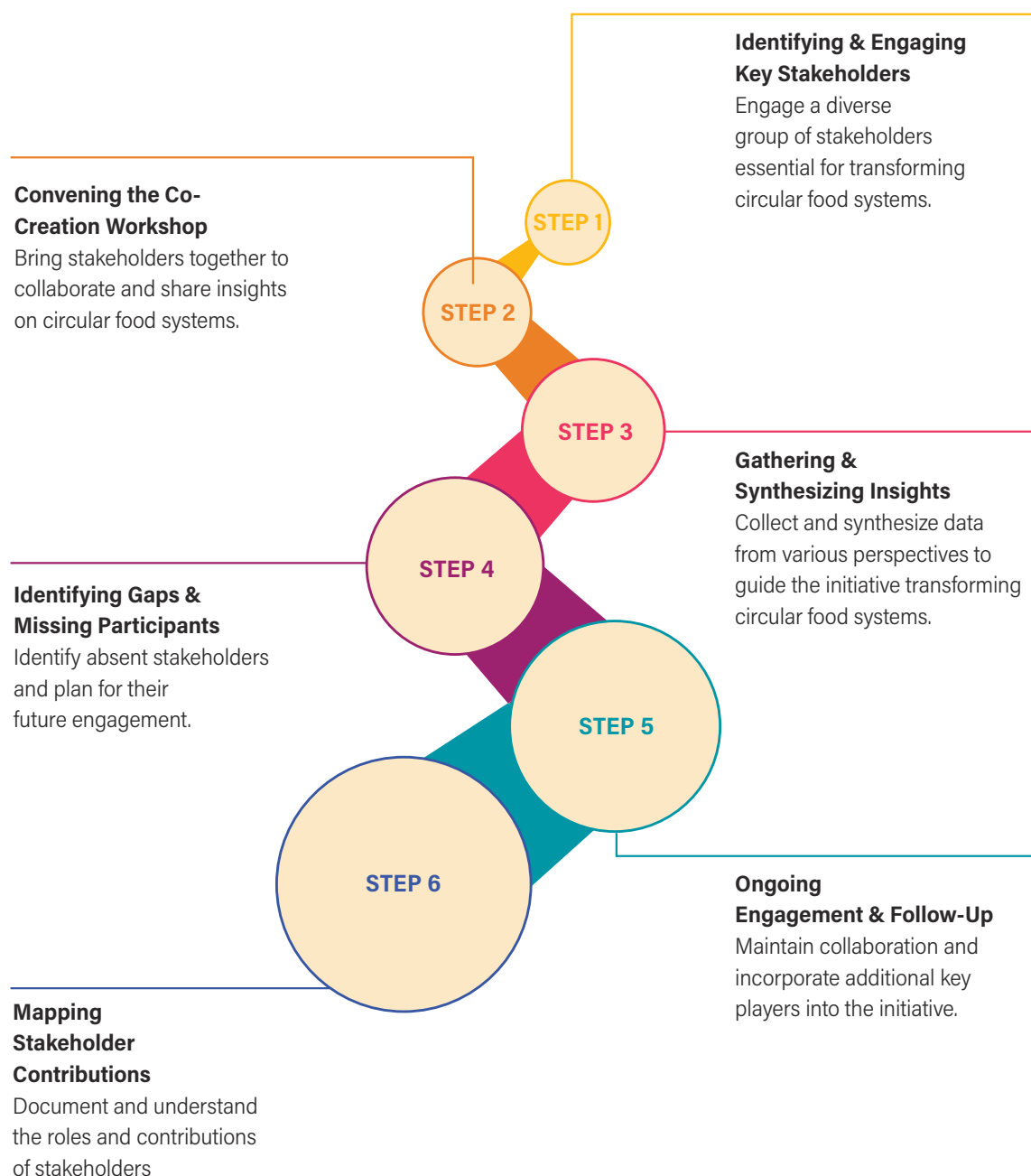
During the second half of Day 1 and into Day 2, participants engaged in a series of co-creation activities. **Building on the key themes identified—regenerative agriculture, food loss and waste, and productive use of waste—participants introduced a new pillar, the food-energy nexus, and an overarching lever, systems leadership.**

These themes guided exercises that allowed participants to assess current states, envision ideal future states, and outline actionable steps, resources, and key stakeholders necessary for progress.

Additionally, participants reflected on three critical levers of change—policy and enabling environment, gender and social equity, and finance and markets—that emerged as essential considerations across all thematic areas to achieve collective impact. For each key theme, participants undertook exercises (based on integrating future planning into the development model) which allowed them to discuss the current state of that theme, as well as the ideal future state, and some steps on how we could get there.

This included discussion of some actionable steps that could be taken, key stakeholders needed to make progress, resources needed, possible roadblocks ahead, etc. From this process rich data from diverse participants on the collective action needed to move the dial on circular food systems in East Africa was collected. From diverse participants on the collective action needed to move the dial on circular food systems in East Africa (Figure 6).

**FIGURE 5 | Co-creation approach**



## Action Planning

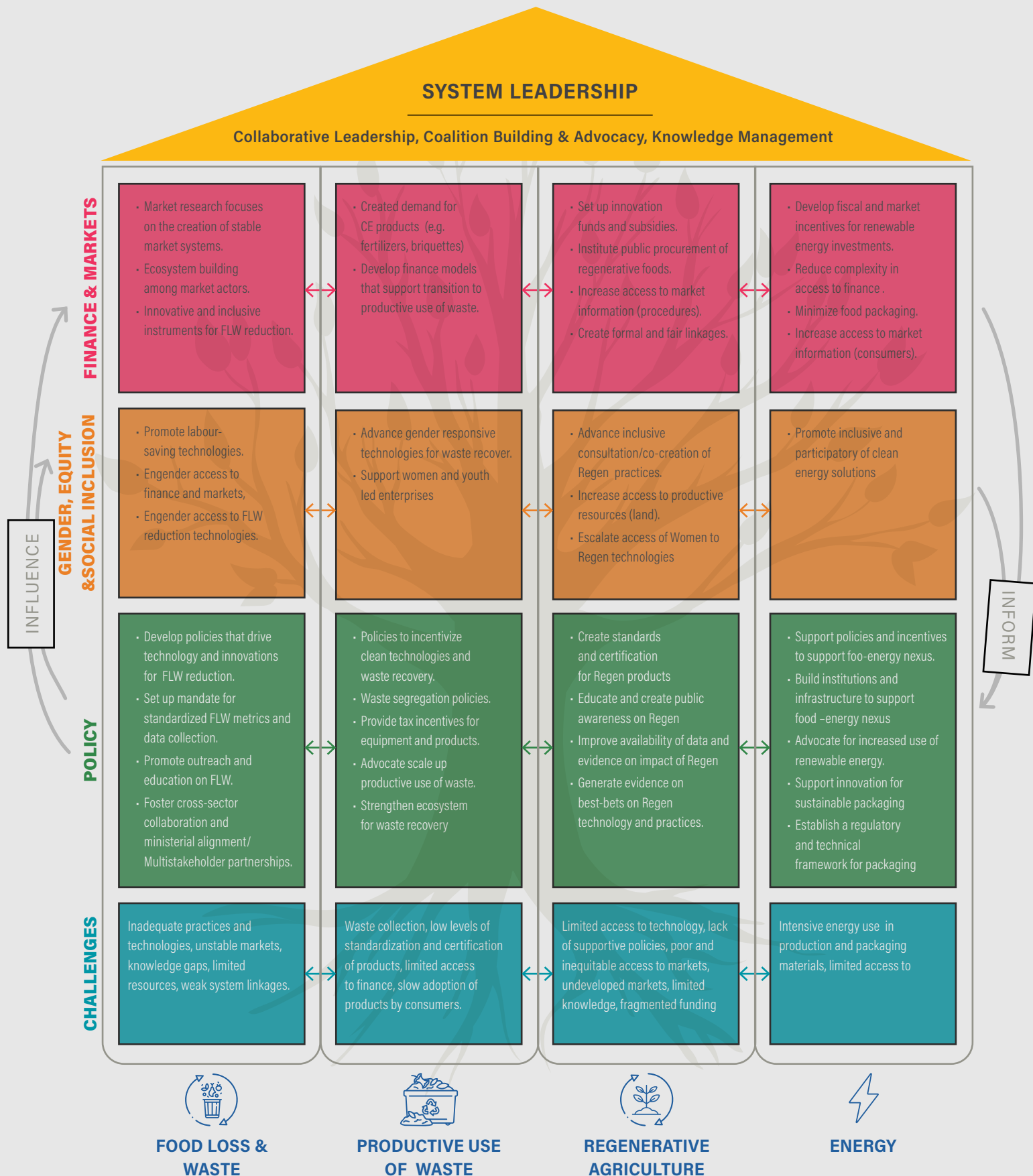
On Day 2, the focus shifted to action planning based on the key themes and concepts identified during the co-creation activities. Participants mapped the roles of different stakeholders in the initiative and outlined next steps for the ACE4Food co-creation process. This session also helped to identify resources, commitments from interested participants, and internal timelines for each participant, as well as initiative-wide next steps and an ideal timeline for implementation.

## Emerging Theory of Change

**The ACE4Food Theory of Change was developed with the understanding that achieving the initiative's ambitious goals requires transformative change.** This involves unlocking the potential of MSMEs and global supply chains to scale circular food systems business models, thereby accelerating progress towards

**FIGURE 6 | Circular food systems ecosystems**

**COLLECTIVE IMPACT: JOBS, FOOD SECURITY, NUTRITION, CLIMATE (GHG), NATURE/BIODIVERSITY**



collective impact goals in areas such as improved livelihoods, food security, job creation, biodiversity protection, water security, and reduced GHG emissions. **Achieving impact at scale will require strong systems leadership, with one or more organizations acting as systems orchestrators to unite a diverse network of local partners with expertise in key areas.**

Promoting regenerative agriculture practices, reducing food loss and waste, and enhancing the productive use of renewable energy are critical to this transition. The initiative also emphasizes the importance of supportive policies, gender and social inclusion, and finance and markets for circular inputs, services, and products. Establishing an enabling policy and regulatory environment at national and sub-national levels, while addressing barriers such as skills and financing gaps, will catalyze the growth of a resilient circular economy. Inclusive markets will provide opportunities for MSMEs, women, and youth, while also informing necessary policy changes.

## RESULTS: SYSTEMS LEADERSHIP AND FOUR KEY PILLARS THAT EMBODY CIRCULAR FOOD SYSTEMS FOR COLLECTIVE IMPACT

Systems leadership is a collaborative leadership strategy employed by individuals or organizations that combines deep systems insight with coalition building and strategic engagement to co-create pathways for transformation that drive systemic change.

This section presents the results of the convening, focusing on systems leadership as the “roof” and four key pillars of the circular economy in food—food loss and waste, productive use of waste, regenerative agriculture, and the food-energy nexus—along with the levers that support the transition.

### Systems Leadership and Design

Systems leadership and change are critical levers in the transition to a circular food system. **Systems leadership acts as the “roof,” the overarching lever that connects and supports the pillars of the entire conceptual structure.** It plays a crucial role in examining trade-offs and unintended consequences that may arise from changes in one pillar and their impact on others. Additionally, it provides strategic support in

**FIGURE 7 | 4 Pillars that embody circular food systems for collective impact**



**BOX 1 | Key Takeaways**

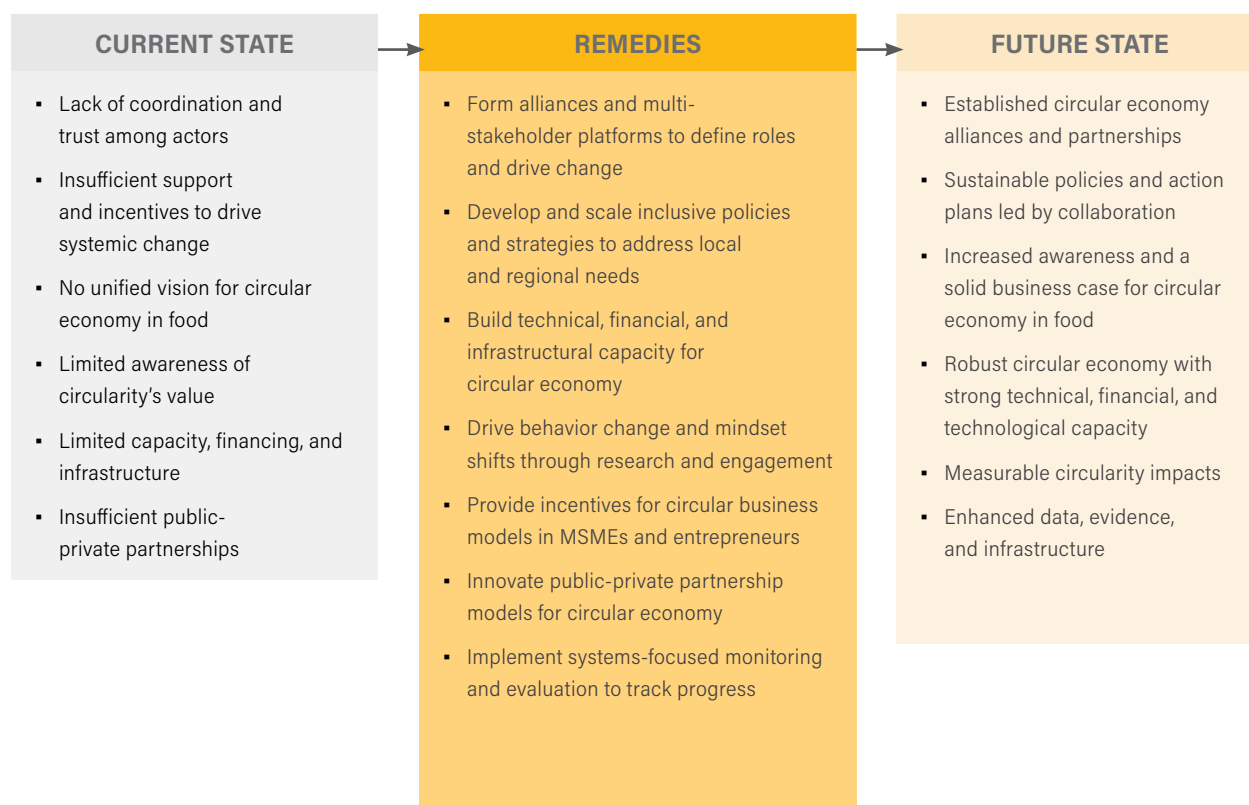
Key takeaways emphasized that the transition to a circular economy will require systems leadership focused on three overarching goals that are currently lacking in agri-food circular economy initiatives:

1. Collaborative leadership to foster learning, build trust, and empower stakeholders who share a common goal;
2. Coalition building and advocacy to develop alignment and mobilize action among stakeholders within the system; and
3. A deep understanding of the complex systems shaping the circular economy challenge, including the identification of technologies, innovations, and policies to support the transition.

infrastructure development, regulatory frameworks, research and innovation, and monitoring and evaluation across all pillars. Participants identified systems leadership as “critical for mindset change for a systemic shift” and essential for providing “capacity building for the sector to create solutions for businesses in the circular economy.”

They envisioned enhanced systems leadership that would drive the future state of a circular economy for food, characterized by shared priorities and improved collaboration among stakeholders. Achieving this vision would require strengthening public-private partnerships, generating systematic evidence through research to inform progress, and employing tactical communication to overcome barriers in the political economy while raising awareness about the value of circular food systems (Table 2).

**TABLE 2 | Systems Leadership - Current versus Future State and Remedies**



## Pillar 1: Reducing Food Loss and Waste

Workshop participants noted that momentum to reduce food loss and waste (FLW) is slow and identified potential interventions to accelerate progress toward Sustainable Development Goal 12.3 (Table 3).

Participants identified policy strengthening as a key lever in reducing food loss and waste, providing a framework for cross-sector collaboration, ministerial alignment, and resource allocation toward FLW reduction efforts. It was also emphasized that without financing from both the public and private sectors, little progress would be made, highlighting the need for increased mobilization of funds in the FLW reduction space. Co-creation workshop participants also stressed the importance of leveraging existing leadership groups in FLW reduction, while also engaging influential figures—social, political leaders, and experts—as champions of FLW reduction and to promote the sharing of ideas.

### BOX 1 | Key Takeaways

The key takeaways from this discussion included the need to:

1. Focus on innovations to reduce FLW, expand outreach and education, and increase emphasis on post-harvest practices; and
2. Stabilize markets and avoid narrow approaches to FLW reduction. The latter underscores the importance of encouraging alternative actions and measures that enhance system performance, such as adopting productive use of waste approaches, which are covered in a separate subsection.

**TABLE 3 | Challenges and Remedies in Reducing Food Loss and Waste**

CURRENT STATE	REMEDIES	FUTURE STATE
<ul style="list-style-type: none"><li>▪ Inefficient harvesting, sorting, and packaging practices</li><li>▪ Limited storage capacity and outdated technology</li><li>▪ Unstable markets and unrealistic standards causing high rejection rates</li><li>▪ Gaps in awareness and knowledge</li><li>▪ Food safety concerns, particularly for domestic markets</li><li>▪ Insufficient financial resources for FLW reduction</li><li>▪ Weak collaboration between government, farmers, and the private sector</li></ul>	<ul style="list-style-type: none"><li>▪ Train and raise awareness on post-harvest practices to prevent FLW and promote diverse uses</li><li>▪ Scale innovations that extend food shelf-life</li><li>▪ Incubate and support innovative FLW solutions</li><li>▪ Apply data-driven decision-making and conduct market research to stabilize market systems</li><li>▪ Build market ecosystems and remove trade barriers through policy changes</li><li>▪ Recognize FLW reduction champions and foster cross-sector collaboration</li><li>▪ Strengthen government and farmer group partnerships, particularly for advanced storage access</li></ul>	<ul style="list-style-type: none"><li>▪ Innovative solutions for FLW reduction</li><li>▪ Support for entrepreneurs addressing FLW</li><li>▪ Enhanced post-harvest handling and diversified by-product use</li><li>▪ Strong market linkages with clear standards and fair pricing</li><li>▪ Increased financial investment in FLW reduction</li><li>▪ Improved certifications and market strategies</li><li>▪ Diversified markets with opportunities for various food grades</li></ul>

## Pillar 2: Productive Use of Waste

The food sector today remains highly wasteful, from production through to consumption. While there are significant opportunities to reduce waste and unlock new revenue streams through sustainable practices in agri-food waste recovery (such as controlled combustion-pyrolysis, composting, and anaerobic digestion), only about 10% of the solid waste collected in African cities is recycled.

During the workshop, “waste” was mentioned 30 times, second only to “food” (44 times), underscoring the importance of this theme in the circular economy. Although precise estimates for agro-waste are not readily available, participants estimated that only 10%-15% of generated food waste is used productively. The most common uses identified include converting waste into biofertilizers (through composting using vermiculture or black soldier fly), livestock feed (using black soldier fly larvae), soil amendments (biochar), waste-to-energy solutions (briquettes, biogas, and to a lesser extent, biorefinery), and Pillar 3: Productive Use of Waste

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**TABLE 4 | Challenges and Remedies to Scale Up Productive use of Waste**

CURRENT STATE	REMEDIES	FUTURE STATE
<ul style="list-style-type: none"> <li>▪ Inefficient systems for solid waste collection</li> <li>▪ Limited policies and incentives for promoting waste reuse</li> <li>▪ Inefficient technologies for waste valorization</li> <li>▪ Limited access to finance for MSMEs in waste recovery</li> <li>▪ Limited market access for waste-derived products and services</li> <li>▪ High energy costs for waste recovery</li> </ul>	<ul style="list-style-type: none"> <li>▪ Develop ecosystems and business models for improved waste collection</li> <li>▪ Strengthen policy incentives, including tax breaks, for waste diversion</li> <li>▪ Create innovative finance models to support "waste to wealth" initiatives</li> <li>▪ Offer preferential financing and procurement for waste recycling</li> <li>▪ Build capacity for cleaner, gender-responsive waste recovery technologies</li> <li>▪ Increase consumer awareness and establish government procurement programs to incentivize waste reuse</li> <li>▪ Implement tax incentives for waste recovery equipment and products</li> </ul>	<ul style="list-style-type: none"> <li>▪ Zero waste</li> <li>▪ Efficient waste reduction and food management</li> <li>▪ Job creation through productive use of waste</li> <li>▪ Balanced use of organic and mineral fertilizers (50/50)</li> <li>▪ Energy as a service</li> </ul>



**FIGURE 8 | Productive use of waste co-creation canvas**



Some MSMEs, particularly in the biofertilizer and feed sectors, have demonstrated the business case for the productive use of waste, including companies like Insectipro, Regen Organics, Best Tropical Fruits from Kenya, and Kigasali Coffee from Rwanda. However, these businesses face challenges such as waste collection, low levels of standardization and certification for waste-derived products like biofertilizers, limited access to finance, and slow consumer adoption of these products.

Participants envisioned a future with zero waste left to rot in landfills and where at least half of the fertilizer used by farmers is organic. To achieve this, several challenges and potential solutions were identified (Table 4).

To accelerate the productive use of waste, participants highlighted several key takeaways: (i) the need for policies that incentivize waste recovery, including the adoption of clean technologies; (ii) enhancing technical and financial capacity, along with advocacy efforts, to scale up waste utilization; (iii) strengthening multi-stakeholder partnerships and generating evidence to support waste recovery initiatives; and (iv) government implementation of programs focused on saving, recycling, and repurposing food and food waste, ensuring that food reaches consumers rather than landfills (Figure 8).

### **Pillar 3: Regenerative Agriculture**

Current food production methods are extractive and detrimental to soil, water, the environment, and human health. These systems contribute to severe land degradation, biodiversity loss, and climate change. In sub-Saharan Africa, land degradation, declining soil fertility, and nutrient depletion have led to over a 50% decline in yields and have negatively impacted the quality of food, resulting in reduced nutrient content in edible parts. This underscores the urgent need for action to address these challenges.

ACE4Food co-creation workshop participants identified several key challenges within the current food production system, including high dependence on fossil fuel products (such as chemical fertilizers), soil acidity, low fertilizer response, exposure to agrochemicals, lack of diversity in production systems, and overall declining soil health. Participants emphasized the need to decouple food systems from fossil fuel dependency and to transform food production and consumption, including increasing production diversity and promoting healthy, diversified diets. In response to these challenges, regenerative agriculture and agroecology—core principles of circular food systems—were extensively discussed. The proposed changes include adopting production models that are compatible with nature, focusing on agroecological processes and soil health, and prioritizing the needs of farmers.

Participants explored the challenges actors face in transitioning to regenerative agriculture, with a primary issue being the lack of financing to support adoption and implementation, especially for MSMEs and farmers producing regenerative products, inputs, and services. When funding is available, it is often limited and fragmented due to disjointed efforts and programs. Another significant challenge is access to markets and the underdeveloped infrastructure needed to support regenerative agriculture. Additionally, the lack of a supportive policy environment and misalignment of existing policies in the agri-food sector further complicate efforts. Limited knowledge sharing also emerged as a barrier to scaling regenerative agriculture, highlighting the need for greater dissemination of cost-effective regenerative practices.

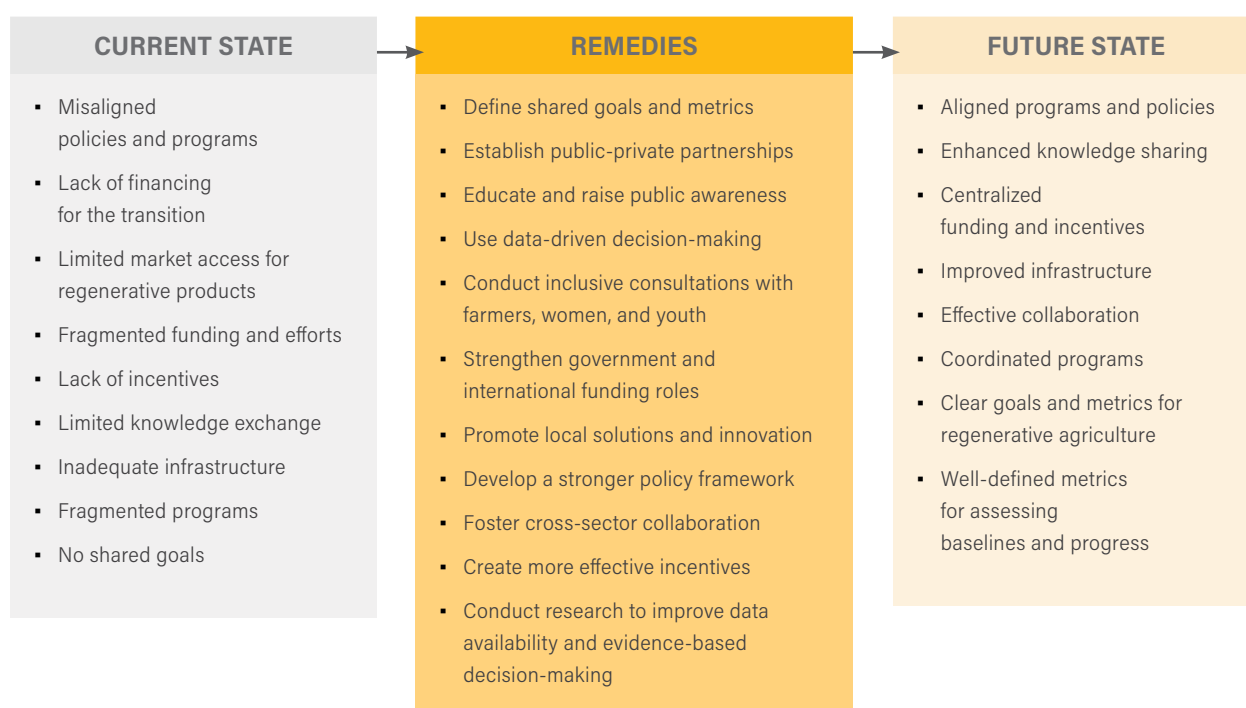
From these discussions, participants envisioned a future where land, water, and other productive resources are sustainably managed to improve yields, enhance climate resilience, and ensure food and nutrition security and livelihoods. The participants' insights on current and future states, as well as the necessary steps to achieve these goals, are summarized in Table 5.

### BOX 1 | Key Takeaways

Key takeaways from this theme included:

1. An emphasis that regenerative agriculture should encompass production processes, logistics, global markets, inputs, and nutrition;
2. The resilience of food systems should be central, with a focus on soil and water conservation, and engaging communities—bringing both farmers and consumers into the conversation—and ensuring that attention is given not only to crops but also to diversifying income and nutrition; and
3. Success depends on increasing demand for regenerative agriculture products and services, securing innovation funds and subsidies, and implementing new extension and change management strategies

**TABLE 5 | Regenerative Agriculture: Current and Future State, and Remedies**



## Pillar 4: Energy

Food systems currently consume about 30% of the world's available energy, with nearly three-quarters attributed to post-production operations such as processing, transportation, packaging, food preparation, and waste management. In Africa, the relationship between energy and food is complex, often characterized by energy deficits or limited access. This makes managing energy in food systems crucial. The current energy situation in East Africa is marked by low electricity coverage and limited access due to high fuel prices, yet increased energy access is essential to unlock various entry points—such as cold chains, irrigation, and processing—that can enhance productivity and manage post-production processes.

As one participant noted, “Energy should not be seen as a separate element to circularity. Both food and energy systems are intertwined—with social, environmental, and climate implications.” It is imperative that food systems adopt circularity to increase energy efficiency across the entire food economy. Energy is also crucial for end-of-life operations to enhance resource recovery from food waste. However, as another participant pointed out, “Circularity activities involving waste can be dirty and unsustainable if the energy sources are primarily fossil fuels, firewood, or burning organic matter.”

The interlinkages and interdependencies between energy, food, and material provisioning systems call for greater collaboration across industries, companies, and businesses using circular economy approaches. Participants identified critical areas in the food system where clean energy linkages can be enhanced, including input production (e.g., fertilizer, feed, and packaging materials); production (e.g., land preparation and irrigation machinery, harvest/post-harvest handling); primary processing (e.g., drying, cooling, value addition, and transportation); consumption (e.g., refrigeration); and end-of-life processes (e.g., waste collection, sorting, processing, and upcycling/treatment, transportation).

The value proposition in resource recovery from food waste is further supported by the fact that such practices can ease pressure on the food-energy nexus. The demand for clean energy—particularly for cooking and cooling—is slowly increasing, with renewable energy sources such as solar and biogas/biomass from waste feedstocks as viable options. The participants' discussions on the current and future states, as well as the necessary steps to achieve these goals within the energy-food circularity nexus, are summarized in Table 6.

### BOX 1 | Key Takeaways

Key takeaways from the discussion on the food-energy nexus included:

1. closing the energy access gap requires concerted efforts through partnerships, participatory dialogues, and demand-side interventions to incentivize renewable energy investments, particularly in rural areas where increased energy access is most needed to unlock opportunities;
2. a more enabling policy environment, along with fiscal and market incentives and technological interventions, is necessary to attract investments from energy investors, companies, and businesses to improve energy coverage; and
3. regarding packaging, improved product information for consumers is essential, and appropriate regulatory and technical frameworks should be created and enforced.

**TABLE 6 | Current and Future State, and Remedies for Energy in Circularity**

CURRENT STATE	→	REMEDIES	→	FUTURE STATE
<ul style="list-style-type: none"> <li>Production: Indirect energy use for inputs (e.g., fertilizer, seeds); fossil fuels power tractors for tilling and irrigation.</li> <li>Post-Harvest: Fossil fuels used in transport and processing/ value addition.</li> <li>Marketing: High energy consumption in producing packaging materials.</li> <li>Consumption: Common energy sources for food preparation include firewood, charcoal, LPG, and electricity.</li> </ul>		<ul style="list-style-type: none"> <li>Raise awareness and educate stakeholders.</li> <li>Develop policies and incentives, including a regulatory framework to support innovation, financial incentives, and standards harmonization.</li> <li>Build institutions and infrastructure to support the food-energy nexus.</li> <li>Promote cross-sector dialogue, knowledge sharing, and link circular economy to other industries.</li> <li>Ensure inclusion by involving all actors in designing clean energy solutions, simplifying access to finance, and encouraging big food producers to innovate in renewable energy.</li> </ul>		<ul style="list-style-type: none"> <li>Increased advocacy for renewable energy sources like solar and bioenergy.</li> <li>Organic waste and by-products used in waste-to-energy initiatives.</li> <li>System where packaging is minimized or eliminated, reducing energy use.</li> <li>Innovation in sustainable packaging from by-products.</li> <li>Systematic changes in the food and energy sectors to ensure sustainability.</li> </ul>

## CROSS-CUTTING LEVERS

### (a) Policies

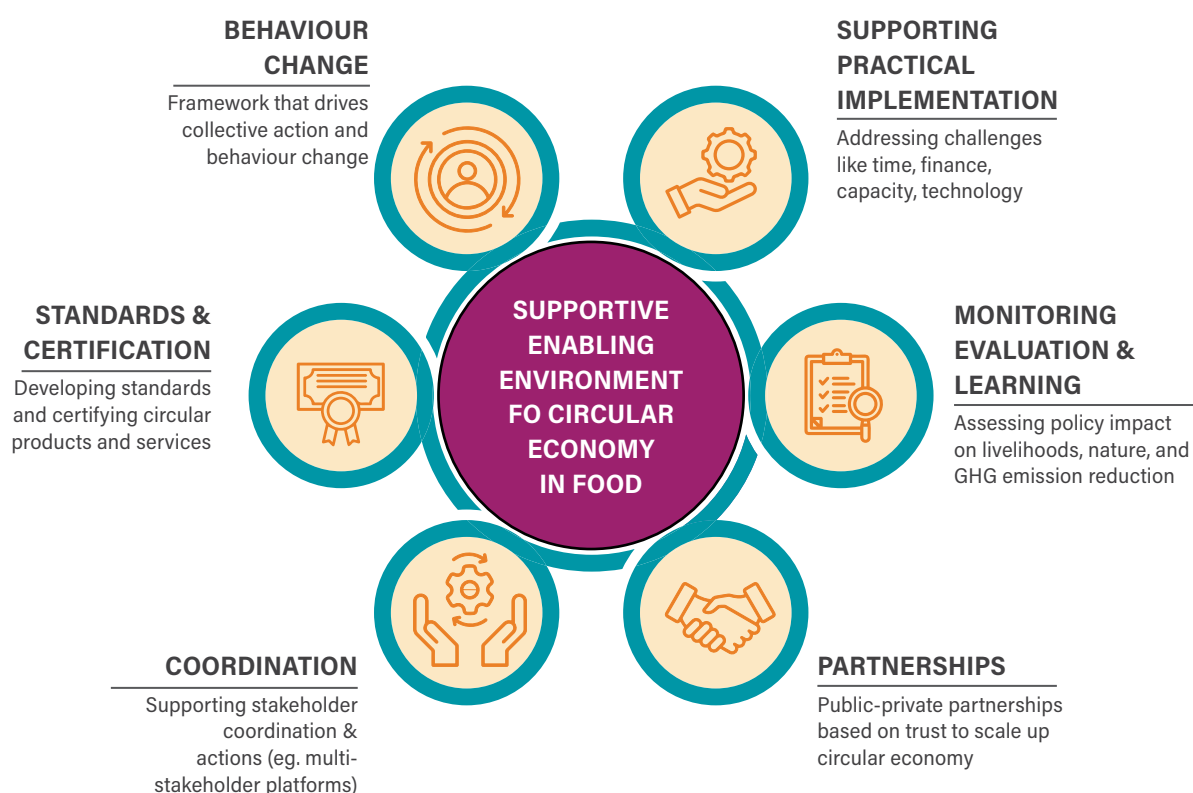
Circular food system solutions intersect multiple sectors – agriculture, environment, trade and industry, energy, etc – and require cross-sectoral policies and frameworks to address the specific needs in finance, markets, and technology necessary to spur circular businesses. Participants in the ACE4Food co-creation workshop identified policy as a critical cross-cutting lever to support the transition to an agri-food circular economy. Out of 394 individual responses, 57 (14.5%) identified “policy” as a key cross-cutting theme. Participants envisioned a future where supportive cross-sectoral policies encourage sustainable practices and provide the necessary incentives to advance a circular economy in food (Figure 5).

Across all pillars, regulatory frameworks and guidelines are needed to enhance technology and innovation, strengthen awareness creation and ecosystem building, and promote the development of finance and markets. Policy was also recognized as an essential tool for promoting gender equity and social inclusion (GESI), which is vital for circularity. Feedback mechanisms regarding the state of finance, markets, and GESI would inform the development of policies necessary to achieve collective impact. Therefore, frameworks for data collection, monitoring, and evaluation across the pillars are crucial. Like systems leadership, policy is integral to delivering collective impact goals by ensuring the alignment of resource allocation, education and awareness creation, behavior change, and infrastructure development.

### (b) Finance and Markets

In Africa, low-income actors in the agriculture and food systems space –particularly farmers and MSMEs –struggle to access the finance needed support their initiatives. Bank interest rates in Kenya average 15.4%, in Rwanda 16.6%, and in Ethiopia even higher at 18%. This difficulty in accessing finance has stunted the growth of businesses in the agri-food sector, limiting their potential to drive innovation and economic inclusivity in the region. Poor access to markets for products and services also presents a significant barrier to economic growth in this sector.

**FIGURE 9 | Creating a supportive policy environment for agri-food circularity**



During the ACE4Food co-creation convening, “Finance and Markets” was mentioned in 38% of the discussions about cross-cutting themes related to creating circular food systems. The lack of access to finance was identified as the most significant bottleneck affecting the expansion of circular food systems in East Africa. As one participant noted, “there is a need to address the gap in demand and supply for finance in the region, where less than 5% of total lending for MSMEs goes to agriculture, and three in four MSMEs lack access.” Innovative approaches proposed to unlock finance for MSMEs in circular food systems included: providing technical assistance and capacity building to lenders and MSMEs; supporting lenders in developing financial products for the circular economy; offering impact bonuses and incentives to lenders; and creating activation tools and criteria for lenders to join programs supporting circular economies. Beyond traditional financing, participants suggested exploring financing circular food systems through carbon credits, given their contributions to carbon sequestration, bio-energy production, and GHG emission mitigation.

To address market challenges for circularity in the region, participants emphasized the need to create formal and fair linkages between suppliers, producers, processors, and retailers. They also stressed the importance of supporting farmers through market information systems, enabling them to make informed decisions. A participant highlighted the need for more demand-led initiatives and enterprises, particularly for products and services associated with circular food systems, such as those produced regeneratively. Introducing measures to discourage the use of synthetic inputs in food production, such as increased taxes, was also proposed.

Markets play a critical role in reducing food loss and waste. Supporting value addition enterprises through incubation and providing market incentives such as grants and tax breaks can significantly enhance market access for agricultural products. Moreover, investing in infrastructure, including proper storage facilities and efficient transportation networks, is crucial for minimizing post-harvest losses. In the regenerative agriculture sector, public procurement of regenerative products is a key strategy for expanding markets and fostering growth within the sub-sector.

The interaction between markets, policy, and gender is crucial to the success of circular economy interventions. While policies shape markets, market conditions and behaviors also influence policy-making decisions. Effective policymaking requires an understanding of market dynamics, while responsive markets depend on sound and adaptive policies. Inclusive and equitable markets can also offer better opportunities for youth and women, playing a crucial role in the long-term success and sustainability of circular economy initiatives.

### (c) Gender and Social Inclusion

In many cases, strategies and innovations for the circular economy are developed without fully considering on-the-ground realities. To ensure a “just transition” in the circular economy for food, it is crucial to design and implement strategies that address the needs of all actors, particularly women and youth. These strategies should aim to integrate diverse stakeholders, simplify access to finance and technology, and provide targeted support to those most in need, such as MSMEs and smallholder farmers.

In addition, addressing inefficiencies in agricultural value chains and promoting labor-saving circular economy technologies are essential for creating opportunities for women and youth. Research into indigenous knowledge is also important for strengthening social inclusion. Ensuring increased access to productive resources—such as land, technology, and education—for women and youth is vital. Moreover, incorporating gender perspectives into the design of circular economy technologies will help ensure that both men and women benefit equitably from advancements. Direct support for youth-led circular economy initiatives is also critical to fostering inclusive growth.

## CONCLUSIONS AND RECOMMENDED ROADMAP FOR ACE4FOOD

Five years ago, the idea of gathering over 30 organizations actively working on circular food systems in East Africa would have seemed highly improbable. The concept of a circular food system was too new, too unproven.

Yet, thanks to the pioneering efforts of entrepreneurs, governments, and funders, dozens of players are now engaged across the region. As highlighted in the co-creation workshop, business models are being validated, governments are beginning to design policy frameworks, and investors are recognizing the potential of a circular food system that enhances food security, improves climate outcomes, and fosters inclusive prosperity.

While the progress made over the last half-decade in East Africa is encouraging, much more needs to be done to fully embed the circular food system in the region. The time has come to move beyond pilot projects and isolated activities toward a more systematic and sustained approach—one that leverages sound policy, innovation, entrepreneurship, and catalytic capital. Moving forward, the focus must be on unleashing the creativity, initiative, innovation, and drive of leaders and organizations across the region, all working toward the shared goal of an inclusive circular food system in East Africa. Based on the outcomes of the ACE4Food co-creation, we propose the following key next steps to accelerate the circular food system:

### Systems leadership for collective impact:

While a more coordinated strategy is essential, the nature of the circular food system—with its disparate but loosely integrated elements—means that a centralized, top-down approach is unlikely to succeed. Instead, systems leadership is required, where a constellation of leading, like-minded organizations forms a common agenda, utilizes shared metrics, fosters continuous communication, and designs activities that build on one another. This approach should be supported by backbone organizations to coordinate efforts, share learning, and build synergies. This will ensure that the transition to a circular food system is inclusive, as well as



climate- and nature-positive. Through this **collective impact approach**, **ACE4Food** will unlock the drive and initiative of organizations across the region, working toward the shared goal of an inclusive regional circular food system.

## Entrepreneurship and innovation driving circularity and job creation:

Circular food systems present an enormous opportunity for entrepreneurs and MSMEs to develop new products and services. **ACE4Food** will focus on supporting entrepreneurship and innovation by fostering the development of an ecosystem of actors—such as policymakers, incubators, accelerators, capital providers, and circular business development service providers—to unlock the vision and drive of entrepreneurs and MSMEs across the region. This will enable the development and scaling of circular business models that transform the food system while creating quality new jobs.

## Integration into regional and global supply chains to drive adoption and unlock carbon and nature markets:

While fostering new businesses, products, and services is key, market demand is a critical driver of adoption. **ACE4Food** proposes focusing on integrating the East Africa circular food system into regional and global supply chains to create a powerful “demand pull” to drive adoption. Additionally, as global and regional companies strive to achieve their climate goals, there is an opportunity to spur further investment in circular business models through carbon markets and emerging nature markets.

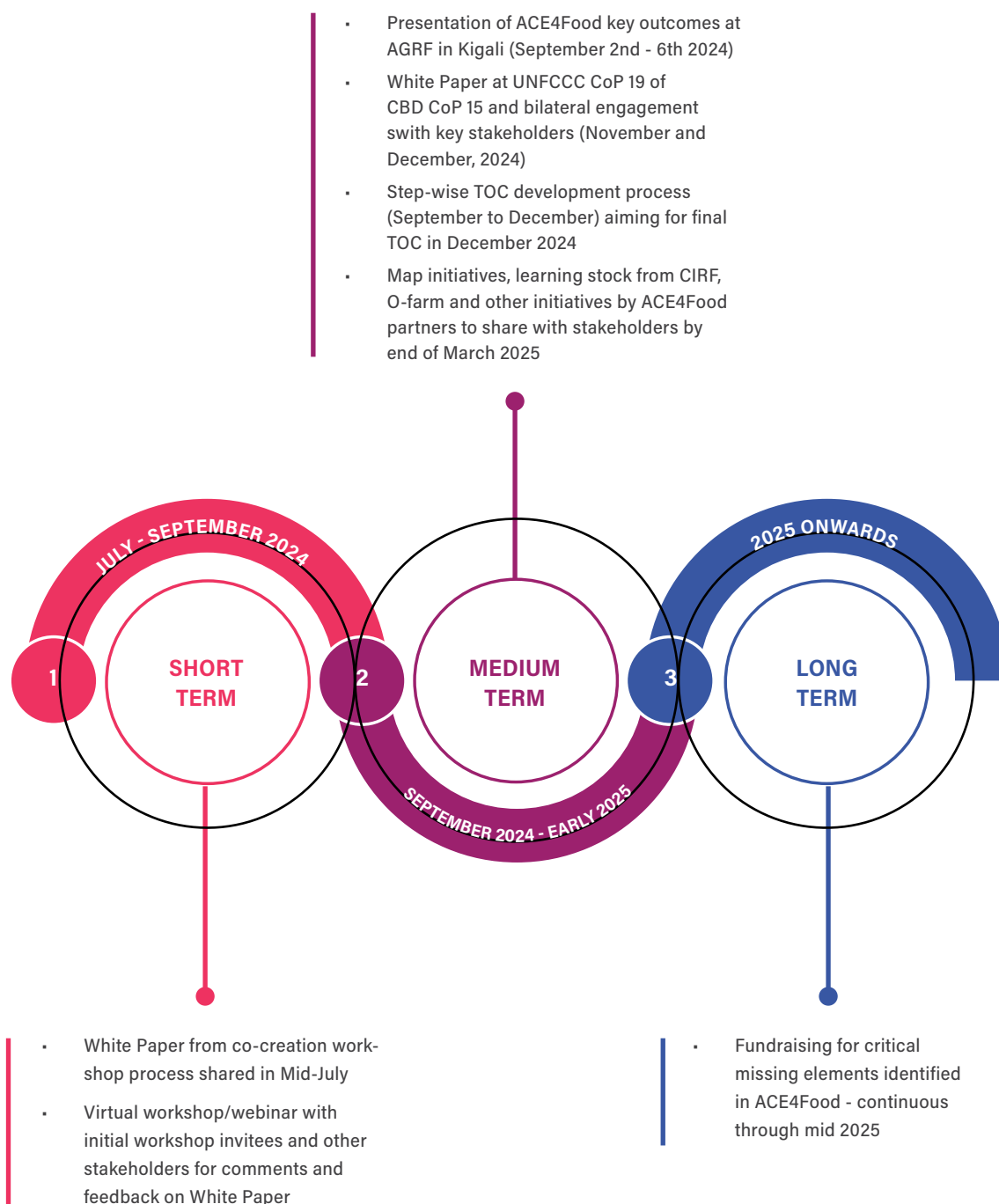
## Financing to drive scale:

There is a need to deploy the full spectrum of capital to catalyze the building and scaling of business models and policies while fostering a vibrant ecosystem across the region. Philanthropy and donor capital must be deployed to seed the initiative, providing funding for coordination, the development and measurement of shared metrics, and the support of policy frameworks at the regional, country, and, where appropriate, subnational levels. This patient capital will be blended with return-seeking commercial capital to grow circular food businesses and investments.



**FIGURE 10 | Future Steps**

The ACE4Food collective impact approach for circular food systems is an ongoing, iterative process. The co-creation workshop held in Nairobi represents the first step in a journey toward building ACE4Food as the catalytic platform for driving the growth and scaling of an inclusive circular food system in East Africa. From here, we propose the following next steps.



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## ENDNOTES

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