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# 3 Ways to Tackle Food Loss and Waste in Africa

January 25, 2022 By **Susan Chomba** Cover Image by: Seraphin Nayituriki/WRI

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## Commentary

*Topic* **Food Loss and Waste** *Region* **Africa**

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Around one-third of food produced globally is lost or wasted, resulting in economic losses of an [estimated \\$1 trillion a year](#). In sub-Saharan Africa, the estimate is roughly [37%\\* or 120-170 kg/year per capita](#).

Food loss and waste leads to reduced economic returns for farmers, and the water, fertilizers, energy and land used in production also go to waste. Such loss and waste drives expansion into fragile ecosystems, accelerates deforestation, species extinction and contributes to [8-10%](#) of annual greenhouse gas emissions. If food loss and waste were a country, it would be the [third-largest emitter](#) after China and the United States.

While considerable attention is given to the need to increase production to feed an estimated nearly [10 billion people by 2050](#), less attention is given to reducing food loss and waste — an action that would help feed more people using the same area of agricultural land while reducing environmental impacts.

## The Impact on Food Insecurity in Africa

Across Africa, an estimated [100 million people faced](#) catastrophic levels of food insecurity in 2020; the latest data show that 40.2 million people in Central and Southern Africa, 32.9 million in East Africa, and 24.8 million in West and Sahel Africa faced food crisis and starvation. This is due to conflicts, successive crop failures (as a result of climate change and extreme weather events), pre-existing and COVID-19 related economic shocks, and soaring food prices.

Yet, at the same time, significant volumes of food are lost after harvest in sub-Saharan Africa each year — [estimated at \\$4 billion](#) worth for grains alone. This exceeds the value of the total food aid received in sub-Saharan Africa over the past decade, and [equates to the annual value](#) of cereal imports.

In a continent where so many people are starving, and many more, particularly children and women, are [undernourished](#), it is unconscionable to lose and waste food at this scale. **Reducing food loss and waste could be one of the leading strategies for Africa, and globally, for achieving a sustainable food future.**



A cooperative leader giving a report in Rwanda. A more sustainable agriculture will require both restoring degraded farmland and limiting food loss and waste. Credit: Seraphin Nayituriki/WRI

Weaknesses in the food system have been exposed through the COVID-19 pandemic. Disruption of global and local supply chains due to lockdowns, travel restrictions and economic downturns has left producers and farmers with food rotting on farms. At the same time, people living in cities face food shortages. As a result, there is greater recognition that the food system needs to be made more sustainable, including tackling the issue of food loss and waste.

There are many ways this huge issue can be tackled, but **one of the most effective is to adopt the principles of circularity and zero-waste in all parts of the food value chain.** This thinking goes beyond the conventional definition of food loss and waste — where by-products of food such as bones, peels and seeds are not considered part of food. In circular food systems, these are key components that must be turned into useful products.



Shifting from extractive to regenerative models of food production can reduce the expansion of agricultural lands into forest frontiers, as well as reducing water and energy waste, and creating sustainable jobs for producers and small- and medium-enterprises along the food value chains. In fact, in circular food systems, there is a need to reframe the concept of “waste” — any wasted component of the food system represents wasted resources, material and value.

## Where Does Food Loss and Waste Happen?

Food loss and food waste are different problems requiring very different solutions.

Loss occurs when we don't consume the edible parts of plants and animals due to damage during production, in the supply chain or storage. It can also be due to spills, spoils, or abnormal reduction in quality.

Food waste refers to food that doesn't get consumed because it's discarded. It could result from negligence or a system failure — from poor planning for meals to poor portion control.

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### A Tool to Help Measure Food Loss and Waste

The [Food Loss and Waste Protocol](#) developed an accounting and reporting standard, known as the FLW Standard, which enables a wide range of entities — countries, companies and other organizations — to credibly, practically and consistently report how much food loss and waste is created and identify where it occurs. The standard is designed to help answer questions such as “how much food is being lost or wasted?” and “where is the loss or waste happening?”

This enables targeted food loss and waste reduction efforts, which can improve food security, raise farmer incomes, lower costs for end consumers and companies in the food value chain, and reduce greenhouse gas emissions and demands on water and energy.

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Such loss and waste occurs globally and throughout the food value chain. The main problems will be different in different countries. Across Africa, most loss is likely to occur during handling and storage although loss and waste will also occur at all other

stages of the supply chain. Lack of up to date, accurate data is a problem which needs to be addressed.

There are some recent studies which provide some insights. For example, a 2021 [United Nations Environment Programme report](#) on food waste argues that household per capita food waste is broadly similar across high- to low-income countries. Another [report by WWF-UK](#) in 2021 studied loss and waste at the farm stage and concluded that around 15% of food produced was lost or wasted at or close to the farm and that close to 60% of it occurred in high and middle income countries. The lack of coherence in findings makes it difficult for national governments to make appropriate policies and actors — such as private sector, producers and consumers — to take the right actions.

### 3 Ways Circularity Can Help Address Food Loss and Waste

A circular economy concept aims to overcome the linear pattern of “take-make-dispose” by adopting circular strategies of “closing the loop.” Most importantly, it promotes sustainable and resource-efficient policies and actions for long-term socio-economic and environmental benefits.

Embracing circularity generates multiple benefits for people and the planet. Compared to other methods that only aim to avoid or cut food loss and waste alone, circularity can provide additional benefits such as green job creation, increased value of locally-sourced materials, and revitalizing cottage industries while protecting biodiversity.

Here are three ways circularity can help address food loss and food waste in Africa:

#### 1. Produce Food in a Way That Commonly Wasted Resources are Sustainably Used and Recycled

We must change the way we grow food by ensuring the key production resources, such as land, water and energy, are used in an efficient and regenerative way.

Take commonly used fertilizers, for example. [About 96%](#) of phosphate production is used to make fertilizer to enhance agriculture. Excessive use of phosphorus, where the additional amount of fertilizer has little or no effect on yield, pollutes the soil, air and

water and can have a hugely detrimental impact on marine and other ecosystems. Similarly, human activities convert more nitrogen from the atmosphere into reactive forms than all of the earth's terrestrial processes combined. Excessive use of these synthetic fertilizers pollutes soil, air and oceans and [accelerates biodiversity loss](#).

Circularity requires significant changes in food production from relying largely on such linear models to nutrient cycling.

Nutrient cycling is a natural method where plants absorb nutrients in the soil and then return them back when they decompose. However, these natural bio-geochemical cycles are often disrupted through linear models of farming where plant biomass is not returned to the soil. Circular models integrate composting of plant biomass, including kitchen waste, as a powerful way of recycling nutrients absorbed by plants during growth back into the soil. This is a low cost and easy to apply technology on many small farms, and would have a spin-off effect of reducing costs by not needing synthetic fertilizers.

Additionally, wastewater discharged from food and non-food industries — such as abattoirs, breweries and tanneries — can be treated and reused for irrigation or other economic generating activities. In Namibia, [the Ujams](#) industrial wastewater treatment company can treat [5,000 cubic meters a day](#) which is used in irrigating plantations or discharged back into the river to join the underground water recharge system.

## 2. Transform By-products into Useful Agricultural Products

Currently, less than [2%](#) of valuable nutrients in food by-products and waste are recycled, and most of them end up in landfills where they are left to rot and produce greenhouse gases, or else be incinerated. Besides, landfills produce methane, which is a more potent greenhouse gas than carbon dioxide.

There are endless opportunities for turning this “waste” into useful products, which can drive innovation and create sustainable jobs. Take bonemeal, for example, an important organic fertilizer for crops that can also be used as animal feed. In addition, skins and hides can be turned into useful household products and accessories.



Similarly, insect-based bioconversions offer an economically lucrative solution for reducing food waste while generating jobs. Industrial insect rearing can efficiently convert several tons of food waste into valuable products, including human food, animal feed, fertilizer and secondary industrial compounds — like biofuels, lubricants, pharmaceuticals and dyes.

To create such circular economy loops, food by-products generated during production, transport and storage, consumption, food processing and human waste, can be turned into useful products. This would generate positive economic and environmental outcomes.



Women farmers harvesting crops near Mulindi Village, Rwanda. Photo by Dow Maneerattana, World Resources Institute

### 3. Improve Transport and Storage Facilities to Prevent Food Loss

Embracing circular models can drive innovations in the transport and storage sectors, establish new business models. However, a major challenge across Africa is a lack of effective transport and storage facilities due to poor access to energy to power cold

storage, poor infrastructure such as roads and railway networks, access and affordability, among others. If these were improved, they could help prevent post-harvest losses.

Furthermore, many innovations in managing post-harvest losses, such as use of hermetic bags for grain storage, cold room facilities for perishable foods, etc., have very low adoption rates in Africa. Solving this remains a big headache for many development and funding agencies.

To help shift these low adoption rates, it's important to co-design such innovations with local farmers and entrepreneurs at the center, while investing in local small- and medium-sized enterprises to help scale businesses. These enterprises also need government support, including public investments, tax incentives and policies to scale. A good example to follow is how [early government support](#) helped increase energy efficiency and reduce waste in countries like the United States, and is enabling the renewable energy sector to take off across the developing world.

However, across Africa, circular food businesses face a myriad of challenges, including unsupportive policy and regulatory frameworks, poor access to finance, and capacity gaps to develop and present viable business plans for funding. With a rapidly growing population and limited job opportunities, circularity in food systems presents a great opportunity for new business models to address the challenge of food loss and food waste.

## Moving Towards a Sustainable Food Future

Sustainable Development Goal 12.3 aims to “halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses by 2030.”

[Champions 12.3](#) is a coalition of public and private sector actors that realize the vision of this SDG goal by mobilizing governments and businesses to address food loss and waste. Through the “[Target-Measure-Act](#)” approach, countries and businesses are encouraged to set “targets” that align the goal of halving FLW by 2030, “measure” to



identify hotspots of food loss and waste and monitor progress over time and take “action”. One of those key actions is embracing principles of circularity in food systems.

However, recognizing that the world is far from achieving this goal, the UN food systems summit held in September 2021 delivered a strong call to build on the work of Champions 12.3 and accelerate action. It proposed a range of policy and programmatic interventions, delivered through public-private partnerships which work across the food value chains and combine multiple interventions tailored to local contexts.

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### Transforming Food Systems in Rwanda

A new project, funded by the IKEA Foundation, to catalyze food systems transformation in Rwanda through circularity, presents an opportunity to translate global ambitions of a circular economy on food systems into real outcomes. By focusing on Rwanda, it is recognition of the country's leadership role in circularity, and a reminder that Rwanda was the first country in the world to ban single use plastics. Rwanda is also founding member of the African Circular Economy Alliance and GACERE and continues to use the platforms to build interest and momentum on circularity in Africa and beyond.

The project consists of two components: a development track that provides technical and business development support to small- and medium-sized enterprises to improve their ability to utilize circular business models; and a policy track, which aims to create an enabling regulatory framework, and stakeholder engagement, for catalyzing circularity in food systems transformation. This approach is positioned to deliver solutions that bundle technological innovations (like circular business models) with social innovations (such as policy and regulatory changes). It aims to build upon the momentum created by the UN Food Systems Summit, and the findings of the [6th IPCC report](#) on climate change in the quest for sustainable food systems for people and the planet.

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*The Circular Food Systems project is a partnership between WRI, the [Platform for Accelerating the Circular Economy \(PACE\)](#), [Africa Circular Economy Network](#), [Africa Circular Economy Alliance](#) and the [Cleaner Production and Climate Innovation Centre](#).*

### ENDNOTE:

\* There are significant variations on this number, depending on the methods used.

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## Relevant Work

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### FOOD

#### The First Cohort of Entrepreneurs Driving Rwanda's Circular Food Systems

Update JANUARY 19, 2024

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### FOOD

#### Championing Rwanda's Circular Food System: Meet the Second Cohort of Entrepreneurs Leading the Change

Update DECEMBER 30, 2024

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### FOOD

#### Why Africa Needs to Look to Its Cities to End Hunger

Insights JULY 2, 2015

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### FOOD

#### How Cacao Can Do So Much More Than Make Chocolate

Insights FEBRUARY 13, 2024