BBVA
Open Innovation

No more food waste: innovation and technology to prevent food from ending up in the bin

On average, each person throws away **121 kilograms of food** per year globally. With challenges that we can no longer turn a blind eye to, including hunger and climate change, reducing that number is crucial. Technologies such as artificial intelligence (AI) or blockchain and startups dedicated to redistributing or reusing food are essential in the fight towards **more efficient, resilient and sustainable food systems.**

A WASTE OF ENORMOUS PROPORTIONS

Food waste is throwing away food that is fit for consumption after it has gone through the production and processing stages.

931 M
tonnes wasted
each year

17%
of the world's food production ends up in the bin

811 M
people suffer from hunger around the world

M: million

Households, the biggest food waste offenders

Poor food shopping planning, confusion about best-before and use-by dates, and inadequate storage lead to food being thrown away at home.

Food waste distribution

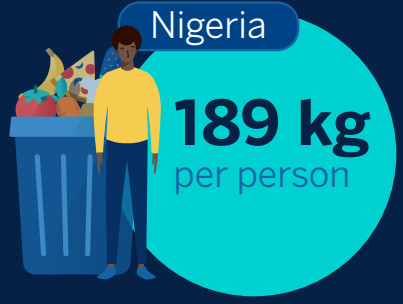
Households	Food services	Retail sales
61%	26%	13%

A problem that knows no borders

The amount of food that is thrown away is not related to the wealth of a country.

Country that wastes the most food

Other countries that waste a lot of food



Food waste has a major impact on the environment:

- Transport of waste
- Waste of resources
- Energy cost of waste management

≈10% global greenhouse gas emissions related to food that is not consumed.

OBJECTIVES ON THE TABLE

The **United Nations 2030 Agenda** aims to **reduce** retail and final consumption **food waste by half**, in addition to reducing waste in production and supply chains.

The **European Commission** is promoting it with the Farm to Fork strategy.

Spain has just passed a bill to prevent it.

Chile and Argentina have national strategies.

TECHNOLOGICAL SOLUTIONS TO ADEQUATELY STORE FOOD

The application of **new technologies** makes the food chain more efficient.

IoT (internet of things)
To monitor food and prevent food waste.

Samsung
Its smart refrigerators allow you to view food, plan recipes, receive expiration date alerts and communicate with other devices.

AI and data analytics
To make better decisions.

Winnow Solutions
A platform for restaurants that uses artificial vision to identify food waste and improve purchasing.

Blockchain
To provide traceability, security and transparency

IBM Food Trust
Blockchain-based system that provides food location information to all stakeholders.

Cloud storage
To centralise information from various sources

Plant on Demand
SaaS (software as a service) solution that offers direct sales tools to agricultural producers and cooperatives.

THE INNOVATIVE AND SUSTAINABLE ROLE OF STARTUPS

The transition from a linear food economy to a circular economy.

A) From production to prevention

Preventing food waste as the first step.

SPAIN

Biotech company that has developed a smart label that changes colour as food loses freshness.

USA

Its plant-derived coatings keep products such as fruits and vegetables fresher for longer.

KENYA

It has created a network of thousands of producers and farmers in Africa to improve the supply chain and prevent food waste.

B) From consumption to redistribution

Give food a second chance before throwing it in the bin.

THE NETHERLANDS

An app that connects establishments that have surplus food with users who purchase packs at reduced prices.

SPAIN

Its technology allows companies, including BBVA, to safely donate their surplus food to non-profit organisations.

SPAIN

E-commerce platform that sells boxes of wonky fruits and vegetables. Quintanes/BBVA Entrepreneurship Award runner-up in 2021.

MEXICO

Similar to Talkual, an online store that offers customers fruits and vegetables that have been thrown away due to their appearance.

SPAIN

Prosalus NGO platform to raise awareness. Financed by BBVA's Territorios Solidarios project.

Residuo Cero AENOR conform

BBVA has received the certificate Towards Zero Waste from AENOR, which recognises the **contribution to the circular economy** and values, among other things, the bank's approach to reusing food products.

C) From waste to reuse and transformation

Food can also be converted into other products.

SPAIN

Biotechnology that combines a fermentation and AI process to transform agricultural waste into proteins.

USA

Thanks to a pyrolysis process, biogas is produced from food waste and other materials.

SPAIN

Transforms agri-food waste into biomass from a degradation process involving insect larvae.

Investing in startups that reduce food waste

2020

2021

*Millions of dollars

FROM PRODUCTION TO THE TABLE AND TO OTHER POSSIBLE LIVES

Innovation and entrepreneurship come together along with personal, corporate and governmental measures to ensure that leftover food does not end up in the bin. **The menus of the future must be fully taken advantage of to move towards sustainable and affordable food for everyone.**

Sources: United Nations, FAO, BBVA, Ellen MacArthur Foundation, European Council, AgFunder, El País, La Moncloa, Less Waste and EIT Food.