

OPPORTUNITY #38

WHAT IF WE DIDN'T NEED TO REFRIGERATE FRESH FOOD?

ZERO-WASTE FOOD

What we eat stays fresh
— no matter what.

Around

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refrigeration

WHY IT MATTERS TODAY

Around 13% of food is wasted each year because of a lack of refrigeration.³⁸⁰

Even if refrigeration was an option through increased access to energy,³⁸¹ refrigerators, along with air conditioners, account for a tenth of total CO₂ emissions.³⁸²

Poor handling or processing of food products causes foodborne diseases that affect around one-tenth of the global population with an annual death toll of 420,000.³⁸³ Food waste totals around 930 million tonnes each year, the majority of which occurs at the household level.³⁸⁴ Perhaps surprisingly, the global average of 74kg per capita of food wasted each year is similar in both lower-middle income and high-income countries.³⁸⁵

Putting waste into perspective, between 720 and 811 million people in the world faced hunger in 2020 and one in three people in the world (2.37 billion) did not have access to adequate food in 2020.³⁸⁶

SECTORS

AGRICULTURE & FOOD · ADVANCED MATERIALS & BIOTECHNOLOGY · HEALTH & HEALTHCARE ·
LOGISTICS, SHIPPING & FREIGHT · MANUFACTURING



THE OPPORTUNITY TOMORROW

The prospect of a zero-waste food industry has been raised by new technologies such as bio-based smart packaging that keeps foods fresher for longer without the use of harmful chemicals and regulates temperature variations during transit.

These and other changes in the food industry can help improve access to fresh produce worldwide and have a significant impact on global health and well-being. Bio-based packaging technologies may provide answers to a variety of issues faced by people without electricity or safe storage conditions while still supplying high-quality food.

As well as smart packaging, advances in gene editing crops facilitates more resilient varieties, removing the need for a chilled supply chain.

BENEFITS

Producers of fresh food earn more income, while consumers – particularly those living in hot and humid climates – have a wider choice of safer, nutritious and more affordable fresh food.

RISKS

Risks include unintended consequences from genetic modification and hoarding of IP or knowledge, limiting the benefits of these new technologies. The waste disposal system itself may be inefficient and force a return to the old ways of rubbish collection and recycling.

UNINTENDED CONSEQUENCES

Excess fresh produce drives down prices for producers and eventually goes to waste.