

Reducing Food Loss and Waste Through Circular Strategies

Rosa Rolle, PhD
Team Leader, Food Loss and Waste
Nutrition and Food Systems Division

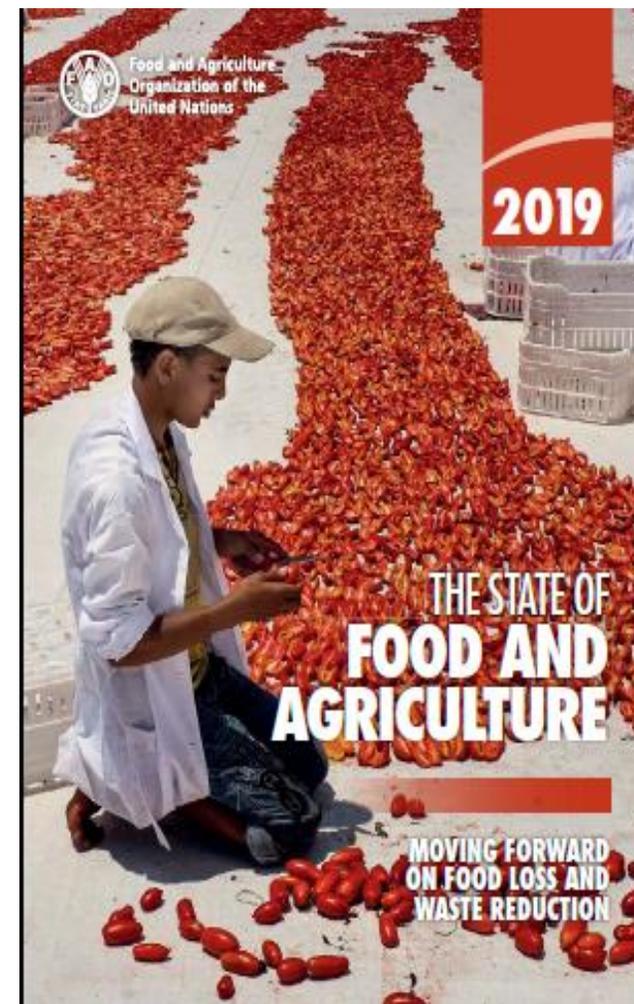


Global Facts and Figures

- **Increasing food insecurity, hunger and deteriorating public health globally (FAO- SOFI,2020).**
- **14 percent of food produced globally is lost from post-harvest up to the retail level (SOFA, 2019).**
- **Approximately 17 per cent of food was wasted at the consumer level in 2019 (UNEP, 2021).**
- **Food loss and waste account for approximately 6 per cent of global greenhouse gas (GHG) emissions (FAO,2015).**

Definitions

- ▶ **Food loss** is the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers in the chain, excluding retail, food service providers and consumers.
- ▶ **Food waste** is the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food services and consumers.





UPstream

Farm

DOWNstream



Consumer



water



land



energy

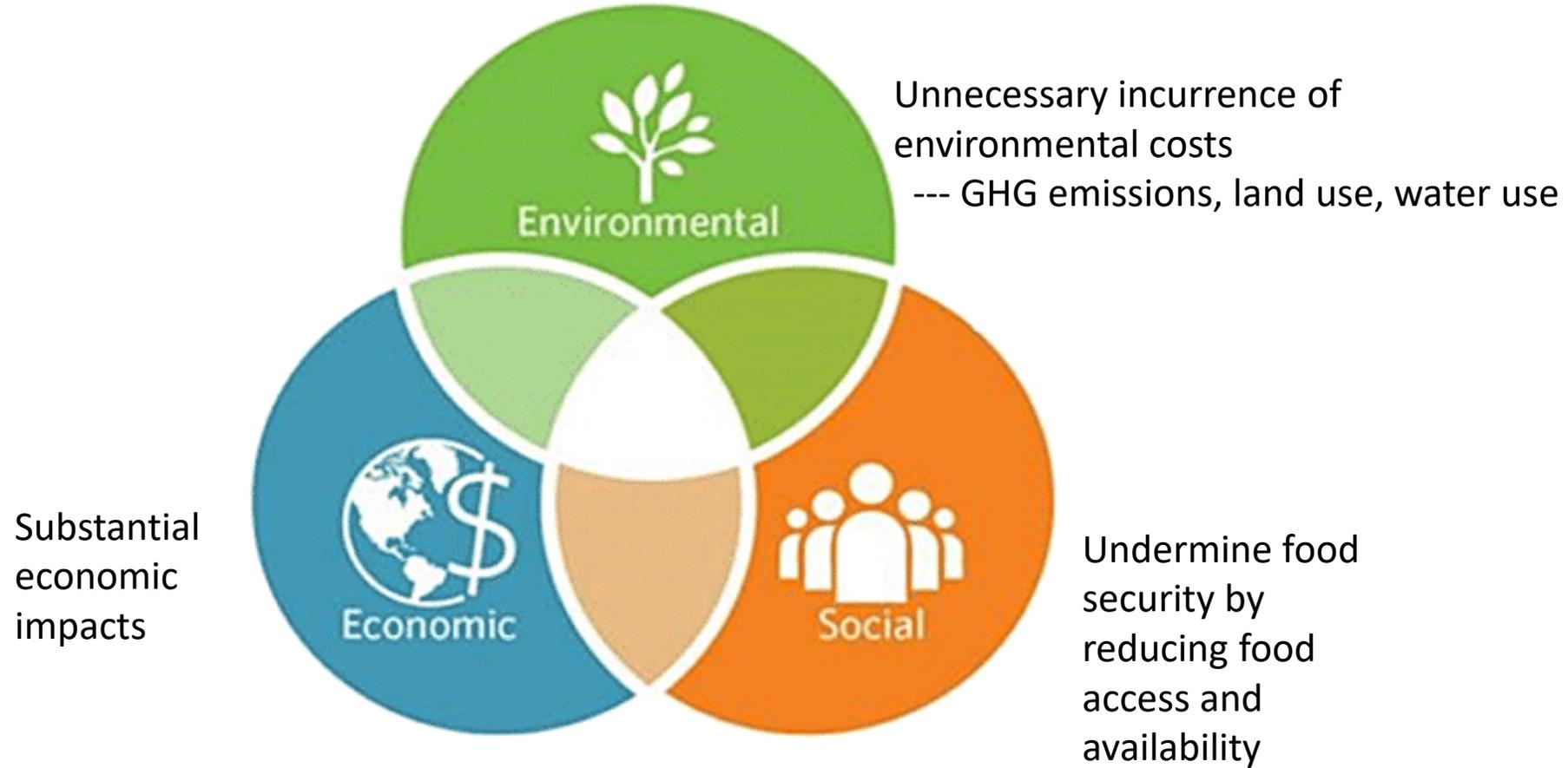


labour and
capital



GREENHOUSE GAS EMISSIONS

Food Loss and Waste Impact Sustainability





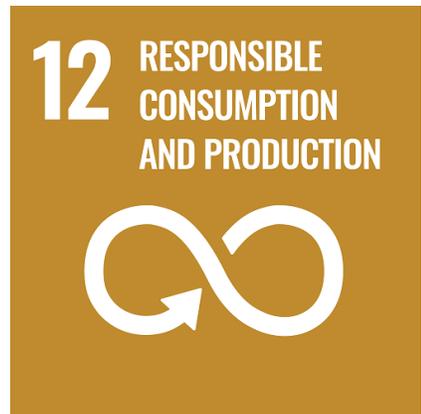
Food and Agriculture
Organization of the
United Nations

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION

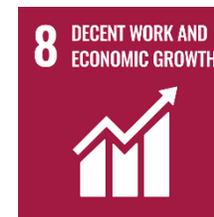


SDG 12.3: By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

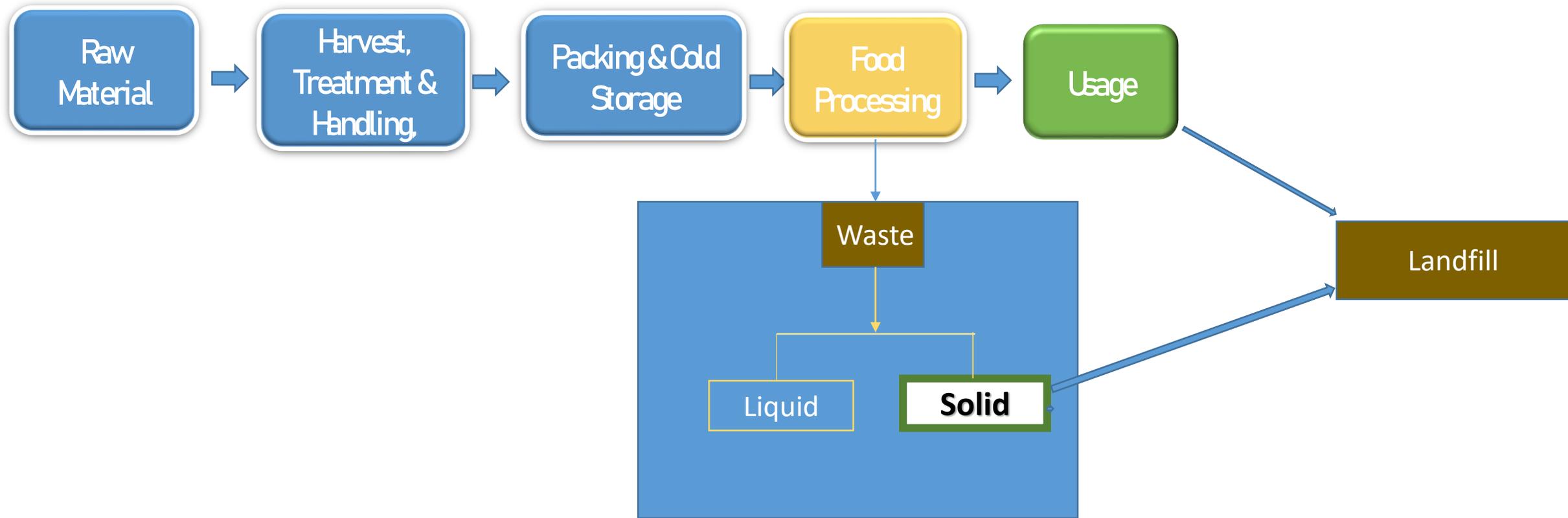
Why Reduce Food Loss and Waste?



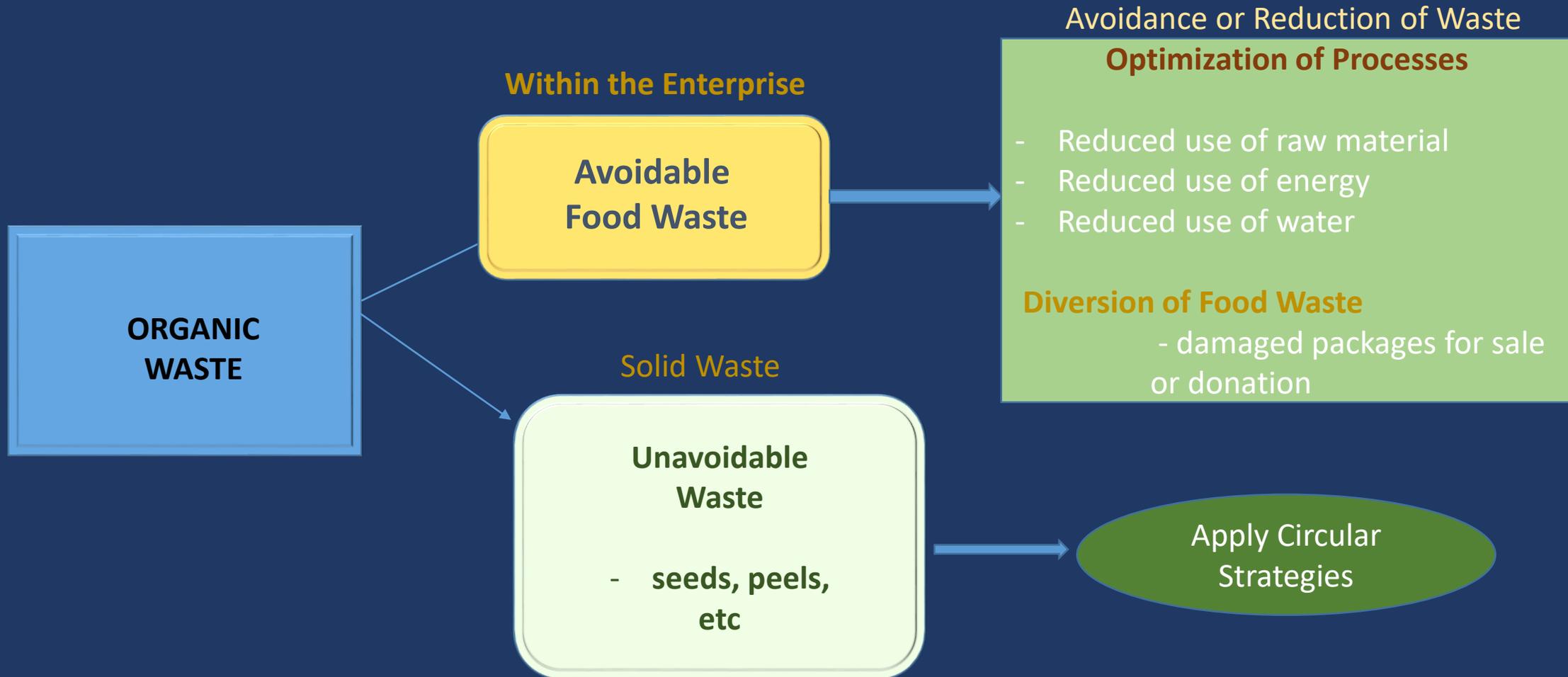
- Improved food security and nutrition
- Reduced natural resource use and GHG emissions
- Improved productivity and economic growth



Food Processing - The Linear Model of Operation



Categories of Food Processing Waste



Avoidable Food Waste Hotspots and their Underlying Causes in Fishery Processing in SMEs

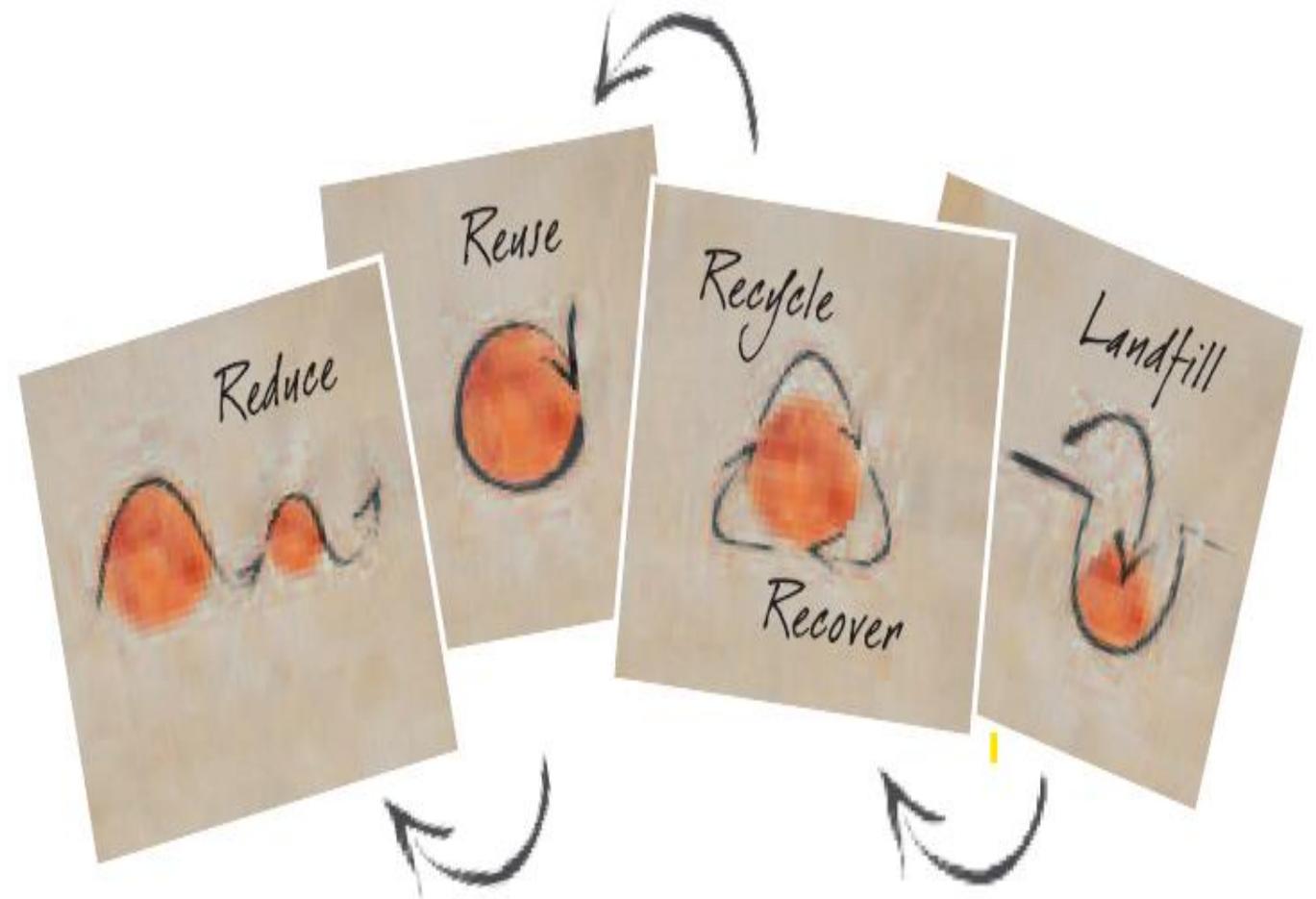
Point in food value chain	Hotspots	Identified causes	Underlying causes
In enterprises	Preparation of raw material (sorting, cutting)	Quality defect	Poor raw material quality control, product specification
		Unwanted parts	
	Processing (drying, fermentation, cooking)	Spoilage	Poor process control, product specification
		Quality defects	
	Cosmetic defects		
Packing	Cosmetic defects	Poor packing process control, product specification	
In distribution chain and retail		Spoilage	Poor product quality, improper product handling/ storage, improper packaging
		Cosmetic defects	
		Packaging damage	

Avoidable Food Waste Hotspots and their Underlying Causes in Snack Food Processing Operations of SMEs

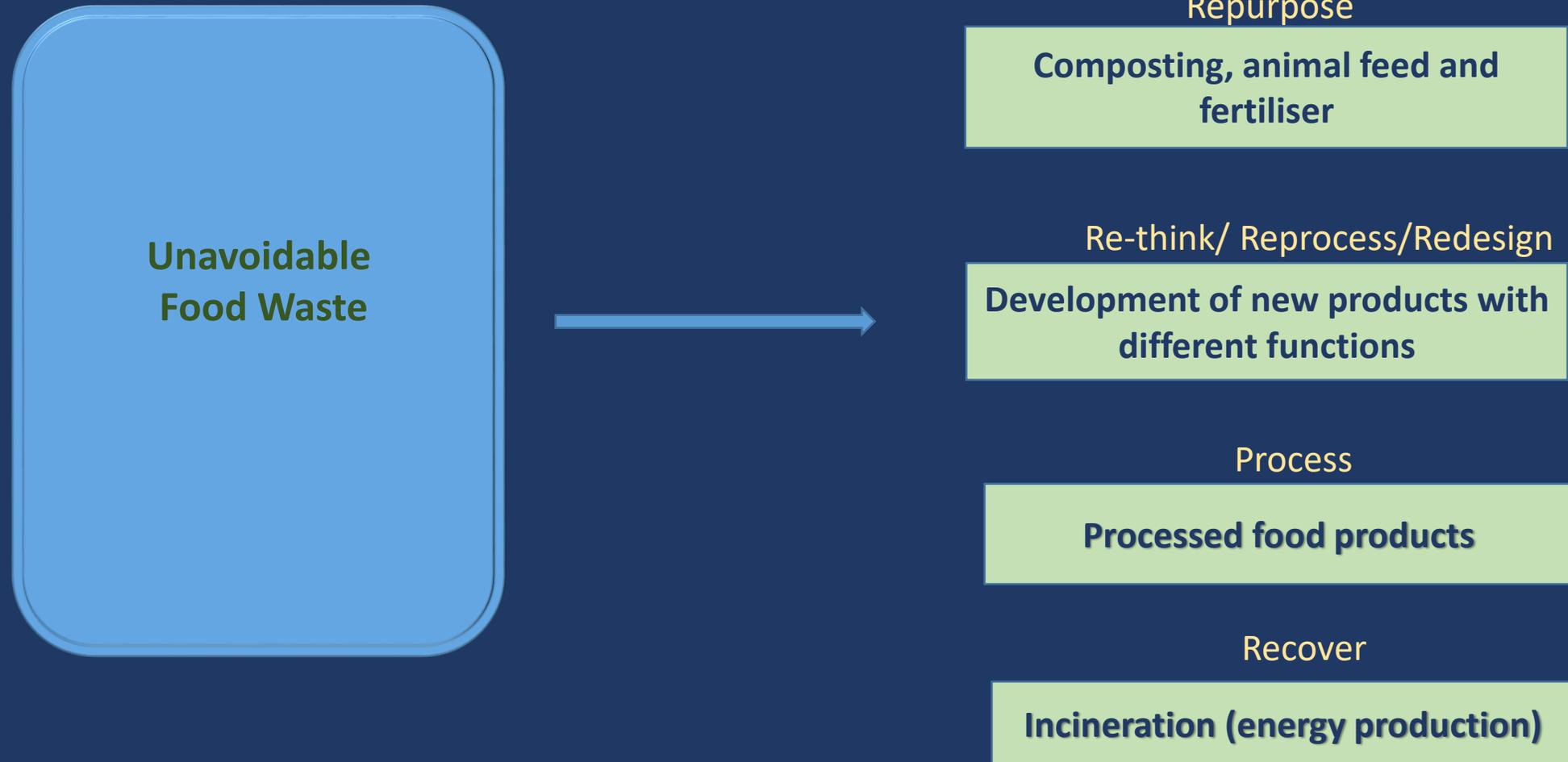
Point in food value chain	Hotspots	Identified causes	Underlying causes
In enterprises	Preparation of raw material (sorting, ripening, peeling, trimming, slicing)	Quality defects	Poor raw material quality control, product specification
		Trims	
		Spoilage	Poor ripening practice
	Processing (drying, frying)	Spoilage	Poor process control, product specification
		Quality defects	
		Cosmetic defects	
Packing	Cosmetic defects	Poor packing process control, product specification	
In distribution chain and retail		Spoilage	Poor product quality, improper product handling/storage, improper packaging
		Cosmetic defects	
		Packaging damage	
		Passing best before date	Product oversupply

Strategic Approaches to Enhancing Sustainability and Reducing FLW

- Identify opportunities where FLW occur.
- Identify where profitable **social and environmental objectives with large market potential** can be met.



Circularity Strategies to Reduce Unavoidable Food Processing Waste



Who will benefit?

From a Financial Perspective

- The food processing industry through value creation

Society

- New products for the food and health sectors, produced from unavoidable organic waste streams.
- Cleaner environment



Upcycled Foods, a Promising Solution to FW Reduction

- Consumers are willing to pay to pay less for upcycled (vs. conventional) foods.
- Messaging is effective in increasing willingness to pay for upcycled foods.
- Rationale (vs. emotional) messaging is more effective.

Innovative Non-Food Products that Enhance Shelf-Life

Opportunity to Use Fruit and Vegetable Processing Waste to Reduce Food Loss and Waste



Coating applied to the surface of produce:

- Increased shelf-life of fresh produce.
- Reduce produce goes to waste throughout the supply chain—from grower to retailer to consumers at home.

Disclaimer: This photo is used for illustrative purposes and does not imply an endorsement of this product by FAO.

<https://www.apeel.com/>

Realization of opportunities and benefits

- **Enabling environment to support circularity : Role of Governments**
 - Policy direction to drive the shift to circularity
 - measures to incentivize alternatives to landfill disposal
 - measures to incentivize businesses to invest in circular strategies
 - Regulations for foods made with up-cycled food ingredients to facilitate market entry.
 - Support for research into creating value from food waste.

Thank You



Food and Agriculture Organization
of the United Nations