

Food waste in South Africa/ Africa: Opportunities and challenges

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Competency Area: Solutions for a Green Economy

Operating Unit: Natural Resources and the Environment

The logo for the Council for Scientific and Industrial Research (CSIR) of South Africa. It features the letters 'CSIR' in a bold, blue, sans-serif font. The 'C' is a large, rounded shape, and the 'S' is a vertical bar with a small horizontal bar at the top. The 'I' is a vertical bar with a small horizontal bar at the top, and the 'R' is a vertical bar with a small horizontal bar at the top and a diagonal bar at the bottom.

our future through science

Motivation for the research

- Food is treated as a disposable commodity
- Almost one in seven people globally are estimated to be undernourished
- Food waste has a triple negative effect:
 - It impacts on food security
 - Resources used in food production and distribution are wasted
 - Environmental impacts throughout the supply chain

It is estimated that globally between 30-50% of food produced is wasted before reaching consumers

Magnitude of food waste in SA

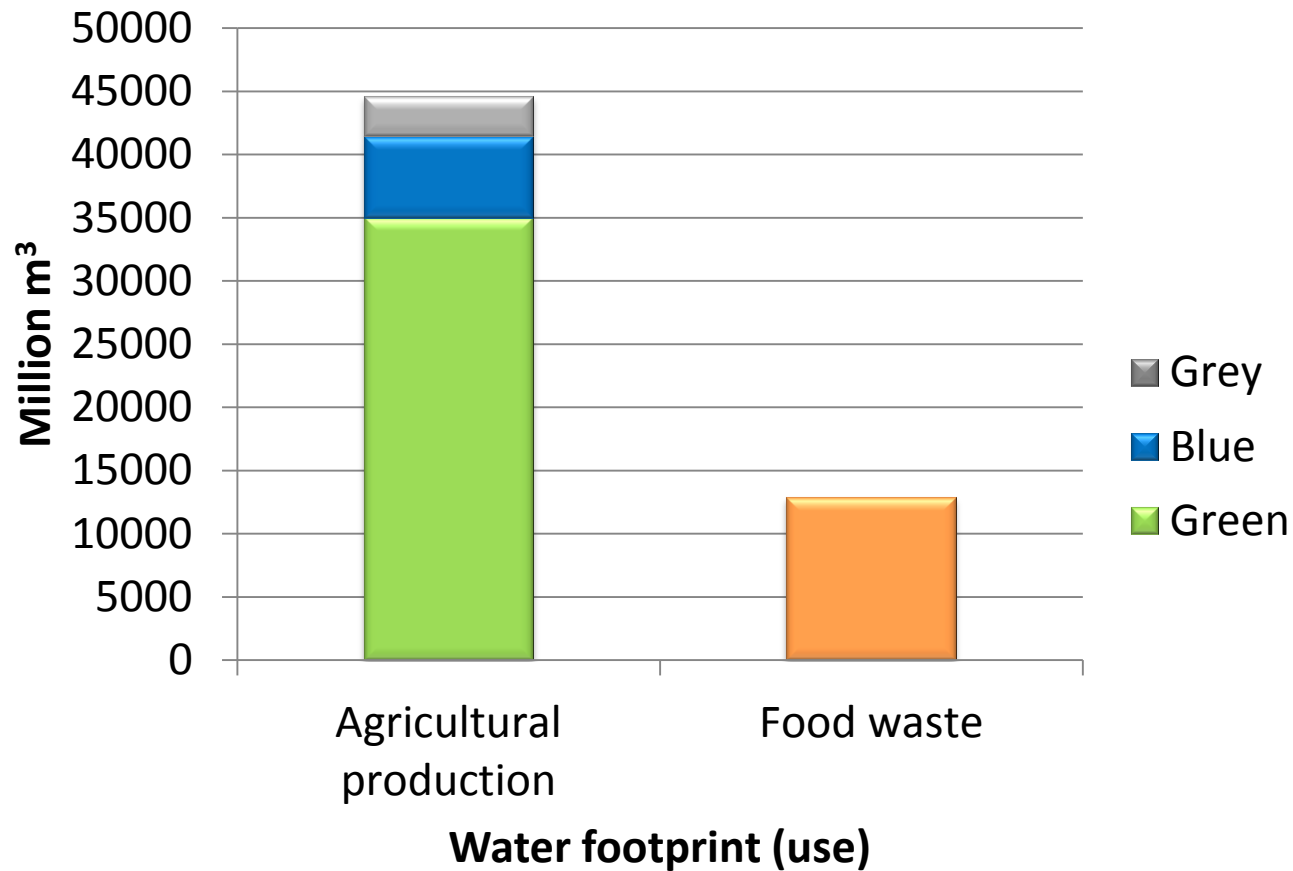
Food waste from local production only
= 9.04 million tonnes per annum
= 31.4% of average annual production

Food waste from local production + imports – exports
= 10.2 million tonnes per annum

Water related issues

- South Africa is a water scarce country (30th driest in the world)
- 62% of available water is used for irrigation
- 30% of crops is produced through irrigation
- About 90% of fruit, vegetables and wine are produced under irrigation
- Water availability is the limiting factor to agricultural production in South Africa
- The total water loss as a result of food waste in South Africa is equivalent to nearly 22% of the total water used for crop production in SA

Water loss due to food waste compared to the water footprint of crop production in South Africa

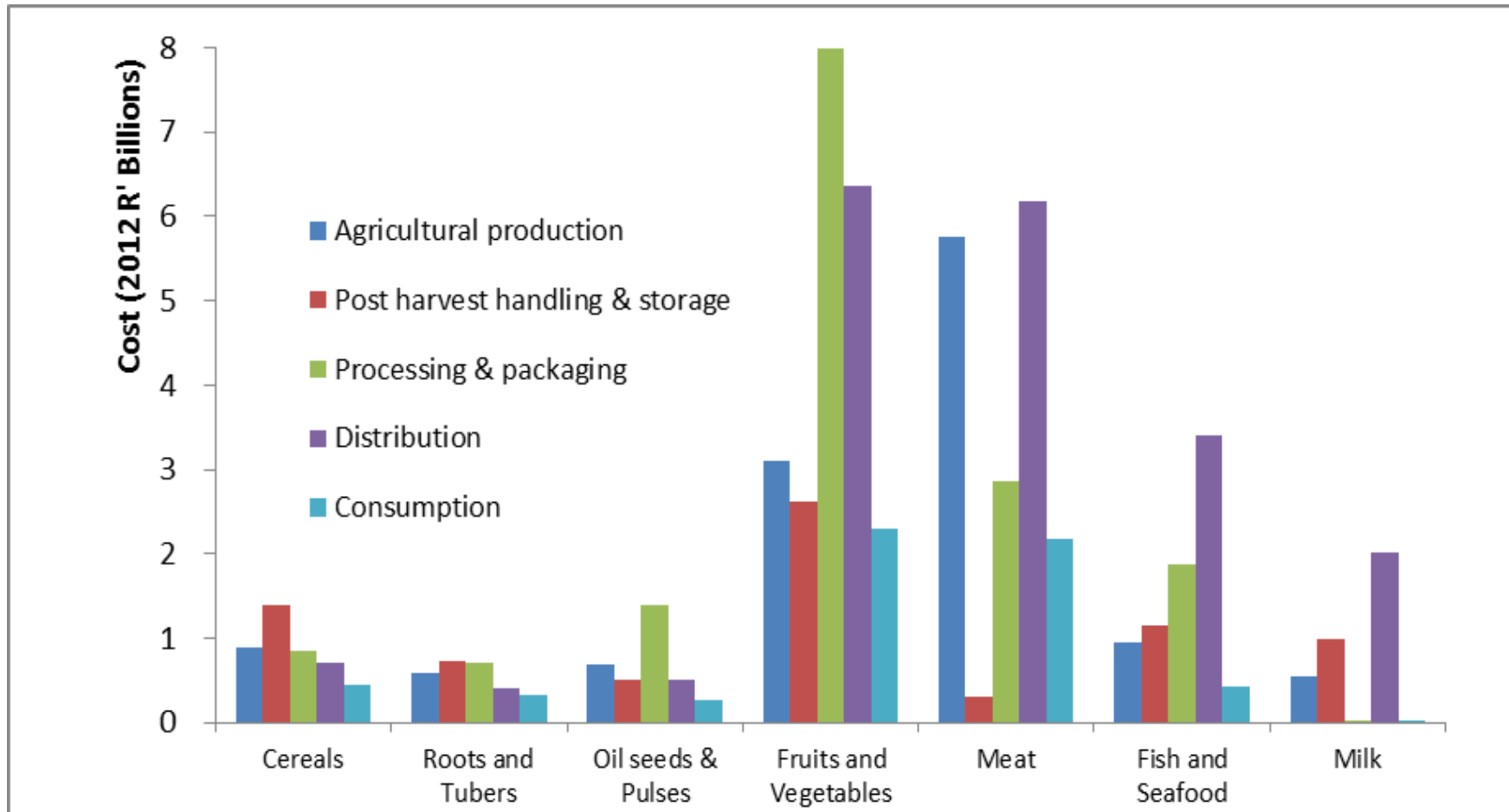


Cost of food waste in SA

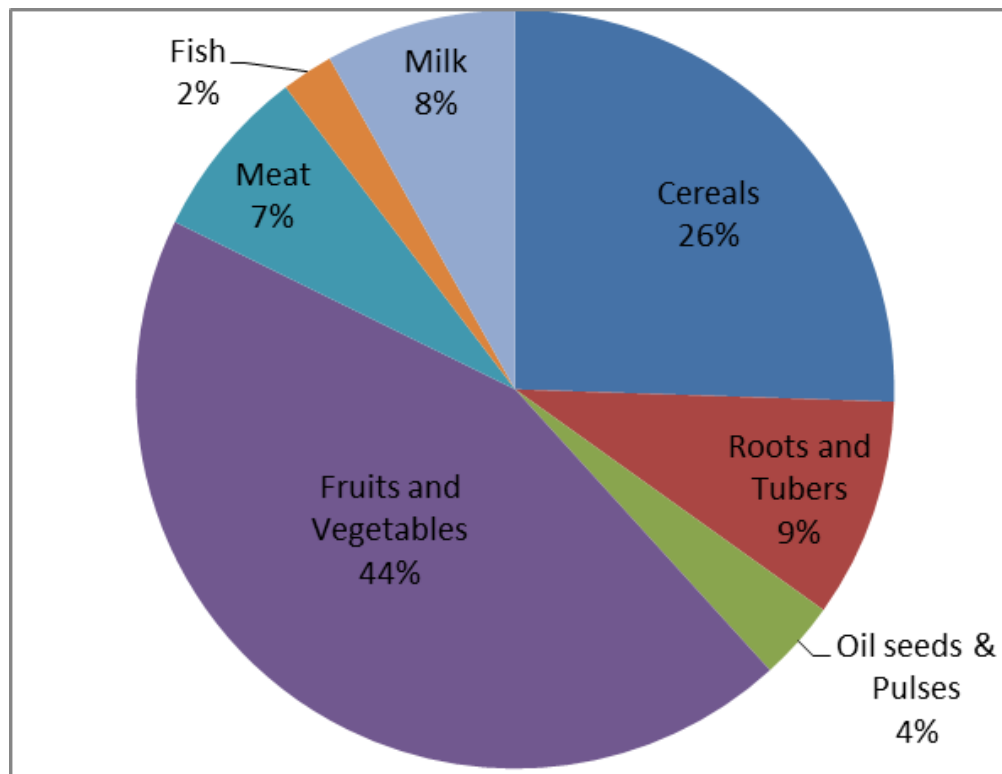
Total cost throughout the value chain = R 61.5 billion
Equivalent to 2.1% of South Africa's GDP

- Costs are purely based on market prices
- Disposal costs are not included in this total

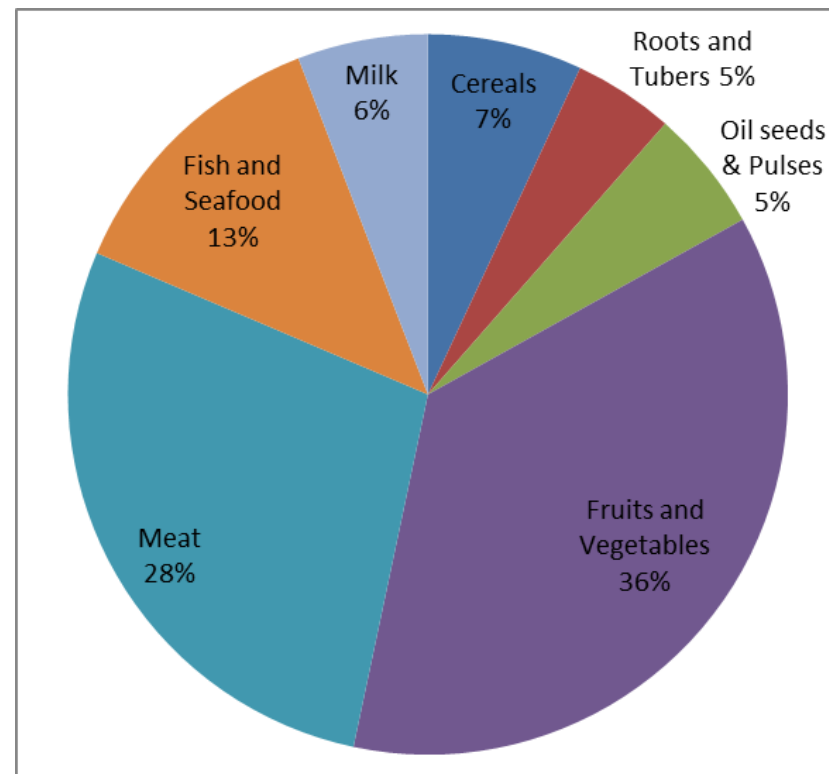
Cost of food waste in each stage of the value chain for each commodity in SA



Relative contribution of each commodity group to total food waste generated in SA

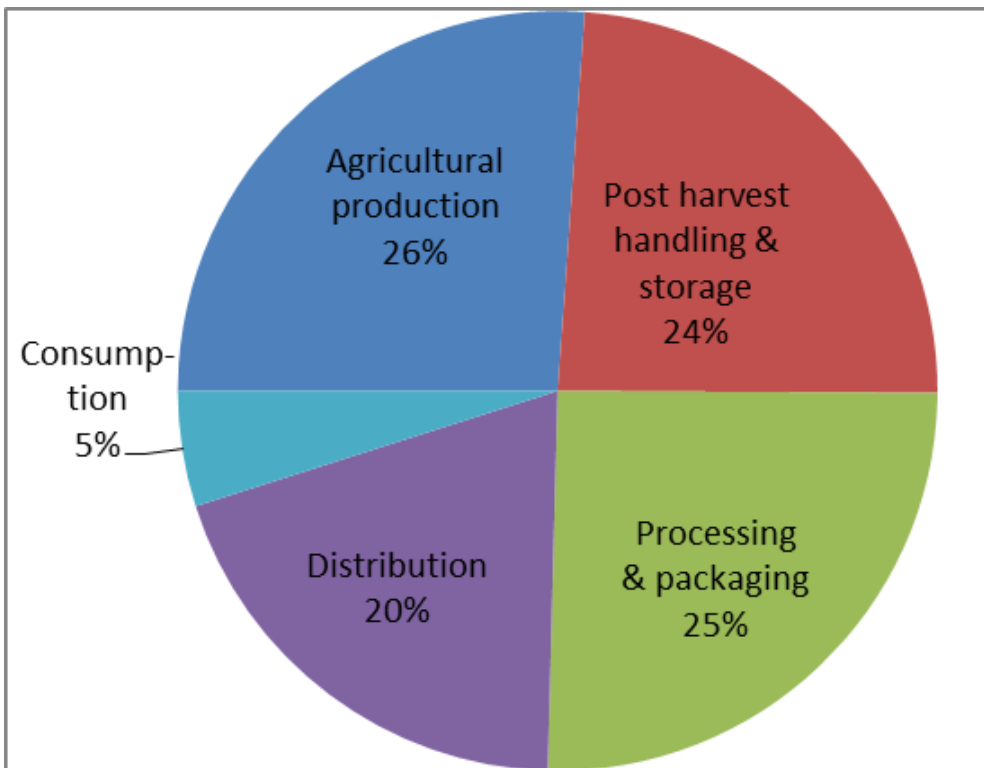


% of Waste

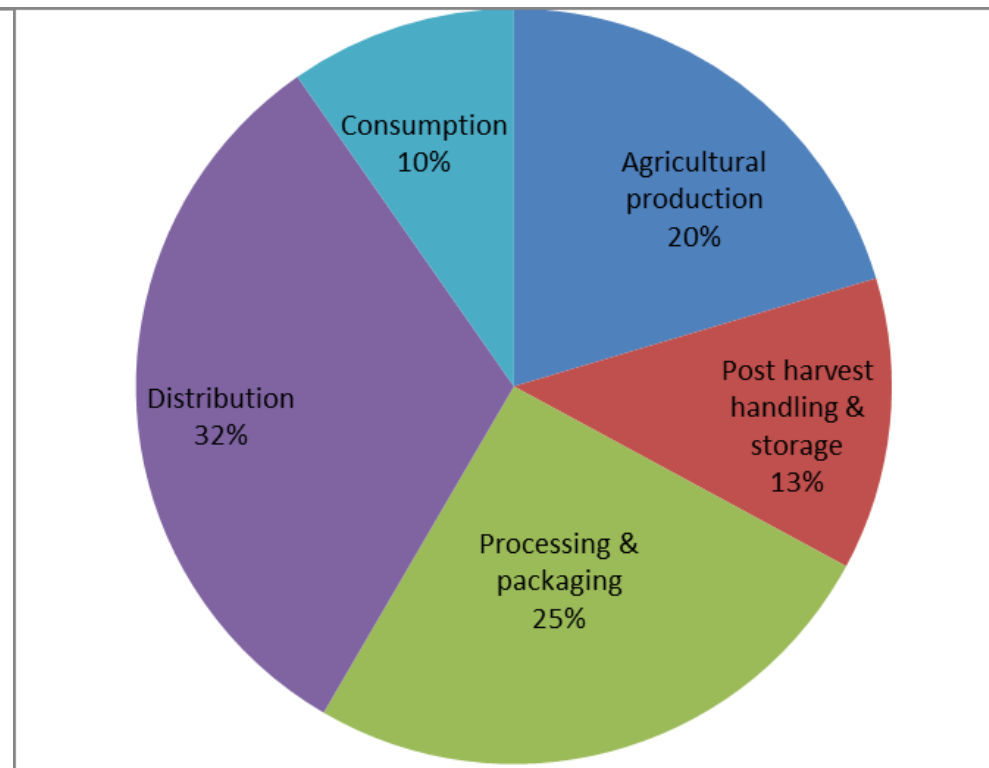


% of Cost

Relative contribution of each stage in value chain to total food waste generated in SA



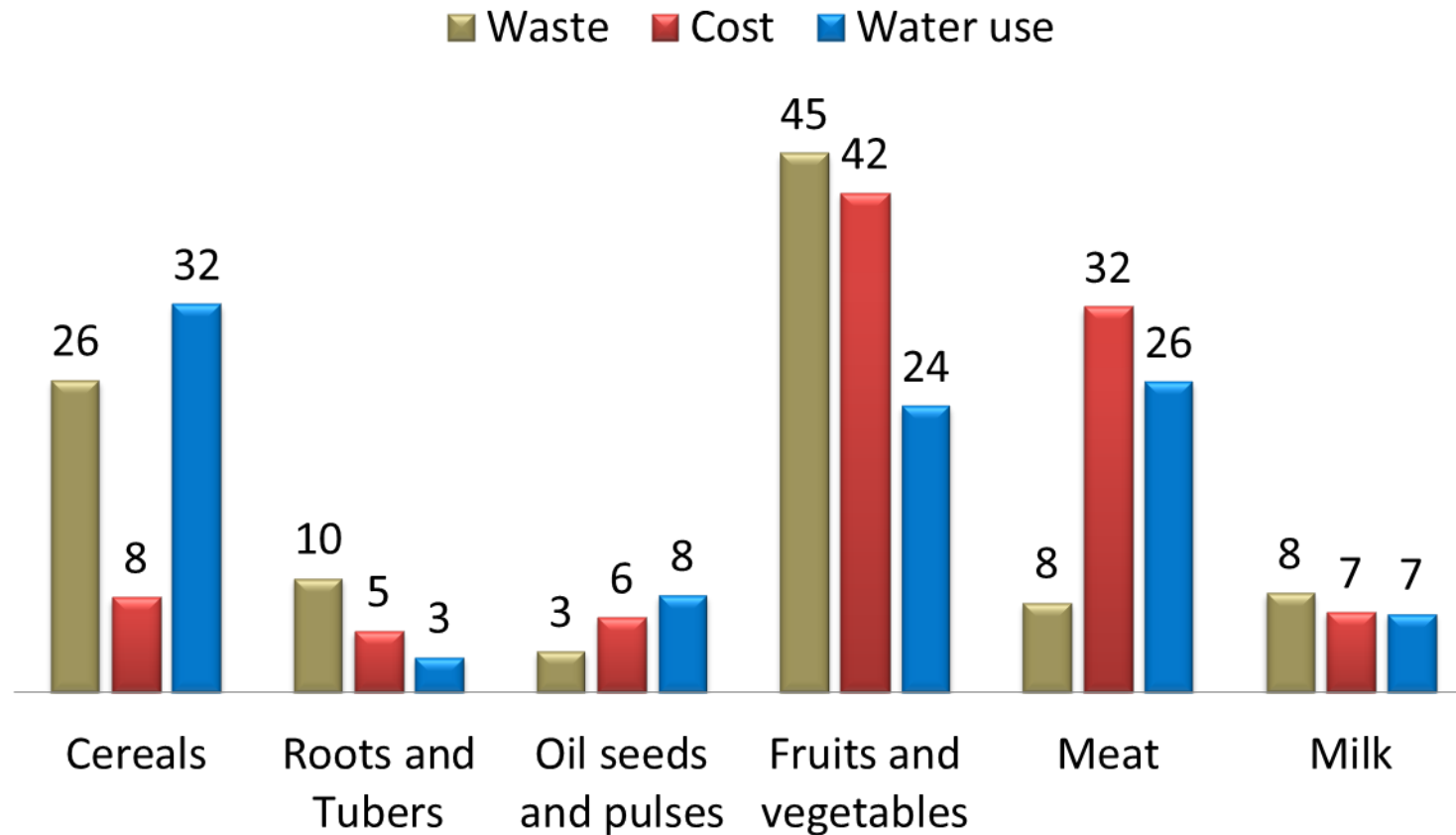
% of Waste



% of Cost

Percentage contribution per commodity group in South Africa

Relative contribution per commodity type



Responding to the problem

- Massive reductions in food wasted across the food supply chain is needed – Behaviour change



Source: NBS, 2013

Drivers for social/behaviour change

1. Motivation

People must have a reason to change behaviour

2. Ability

People must have the skills, confidence and knowledge required to change

3. Opportunity

People must have resources, relationships and environmental conditions needed to change

All three conditions must be met for people to change behaviour

Responding to the problem

- When considering cost, interventions should focus on:
 1. Processing and packaging of fruit and vegetables
 2. Distribution of fruit and vegetables
 3. Production and distribution of meat
- When considering water, interventions should focus on:
 1. Cereals;
 2. Meat;
 3. Fruits and vegetables
- Alternative waste treatment technologies must be considered
 - Energy production
 - Composting
 - Source of valuable functional compounds such as antioxidants

Opportunities

- Waste legislation require reporting of waste quantities into the South African Waste Information System
- The National Waste Management Strategy set targets for diversion of organic waste from landfill
- Large gaps in information and knowledge to be filled
- Potential for collaborative research
- High potential for student involvement on projects
- Potential for multidisciplinary approach to research

Challenges

- Funding for on-going research
- Lack of accurate data on food wastage at all stages of the value chain
- Robust quantification methods needs to be developed and standardised
- Published research are mostly high level global estimates based on assumptions which needs to be verified

Thank You

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