



WAR ON WASTE

A UNILEVER MISSION



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Basics on food waste and loss



Our motivation

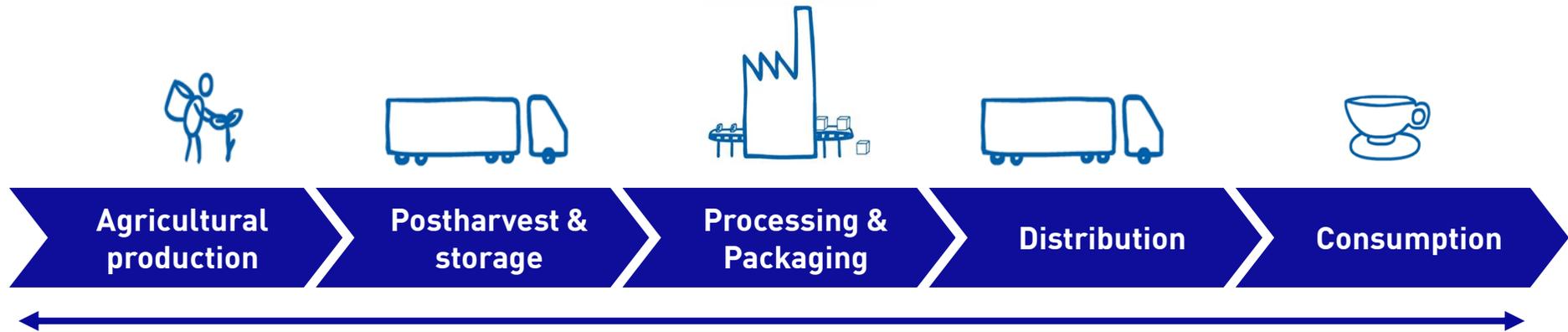


Unilever's food waste program



Team & contact

Unilever is working on food loss and waste as defined by the FAO



Our definition of food waste includes food loss and food waste as defined by the FAO

- **Food loss:** Decrease in edible food mass at the production, post-harvest, processing and distribution stages in the food supply chain. These losses are mainly caused by inefficiencies in the supply chains
- **Food waste:** Edible food being discarded, usually at retail and consumption level
- **Volume** used in this document are the **fresh equivalent** of their raw commodities at agricultural production. For example, 1kg of tomato powder procured is converted to ~18kg of fresh tomatoes. This data alignment is required to adopt the FAO methodology and use their data to estimate Unilever's overall food waste footprint

Reducing waste can have major impact in bridging the gap between food demand & supply

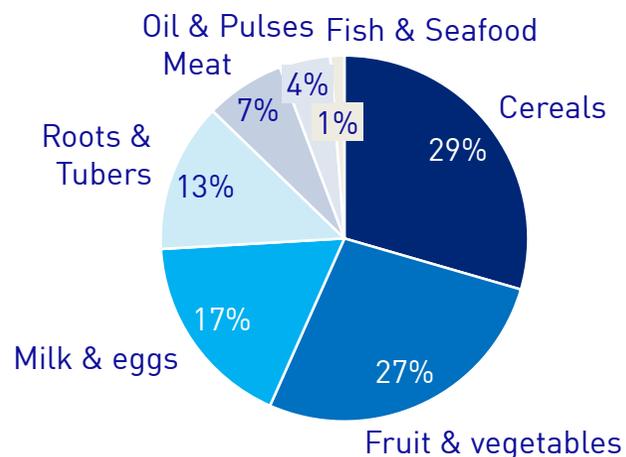


- The world's population is growing and consumption habits are changing; both contributing to additional pressure on the agricultural systems
- On the supply side, there is uncertainty that increasing agricultural efficiencies can be sustained and water scarcity and infrastructure are major challenges.
- While we see the breach between supply and demand, we are aware that over 1/3 of food is wasted along the value chain

4.0bn ton or €1.6tn of food is produced for human consumption every year and 1/3 is wasted

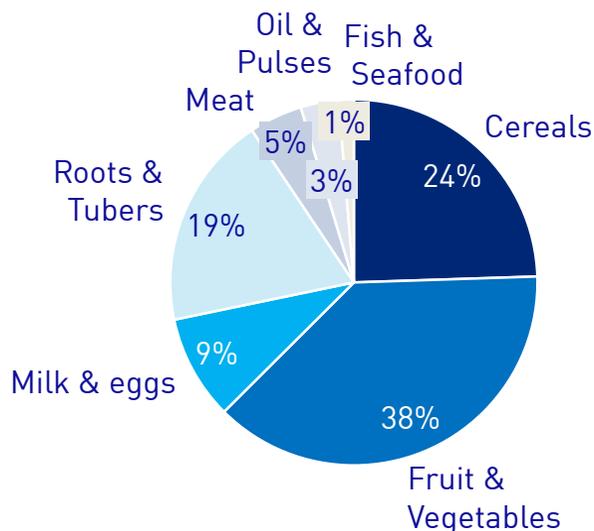


Global food production volume¹
-2009, in %-



4.0bn ton produced globally

Global food waste volume^{1,2}
-2009, in %-



1.3bn ton wasted (~32%)

Nutritional contribution

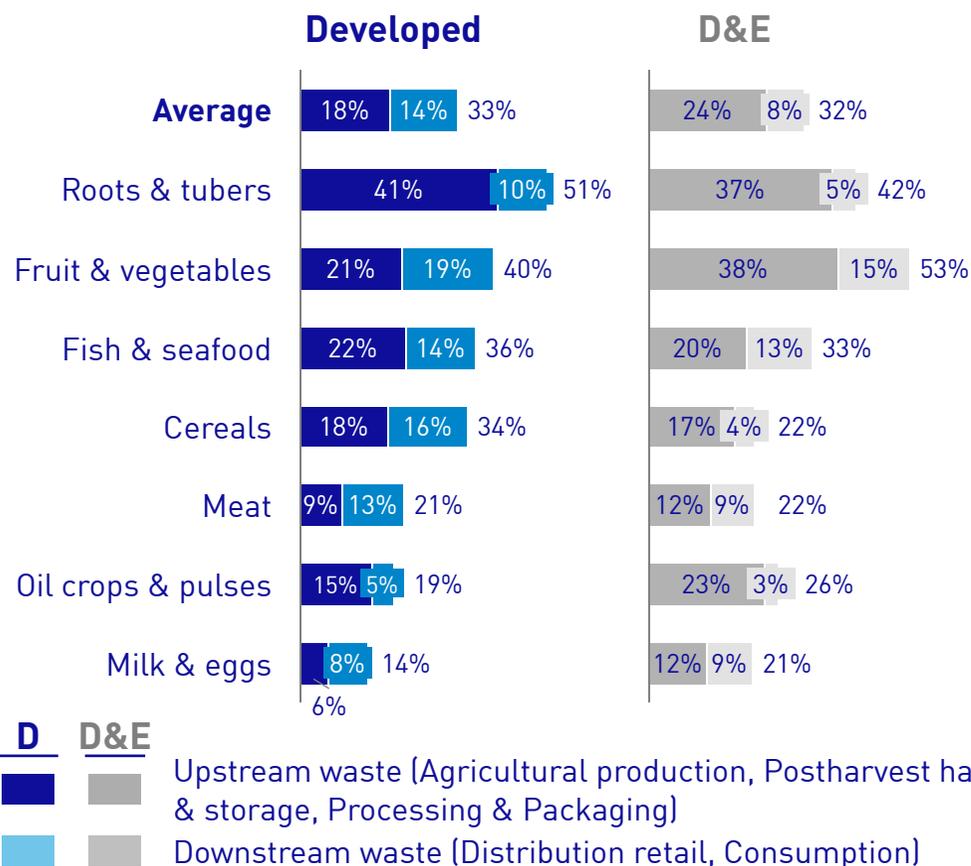
Fruits & Vegetables	Vitamins
Cereals	Carbohydrates
Roots & Tubers	Carbohydrates
Milk	Lipids & proteins
Meat	Proteins
Oilseeds & Pulses	Lipids & proteins
Fish & Seafood	Proteins

1. Edible part for human consumption only (excluding animal feed and seeds); Only the 7 commodities covered by FAO report 2. Estimated based on prices obtained from FAO by commodity by region. Assume all food reaches the consumption (i.e. no food loss) Source: FAO report "Global food losses and food waste"; BCG analysis

D and D&E markets have similar levels of food waste, but at different value chain stages



Downstream and Upstream waste in Developed and D&E markets -% of production volume -



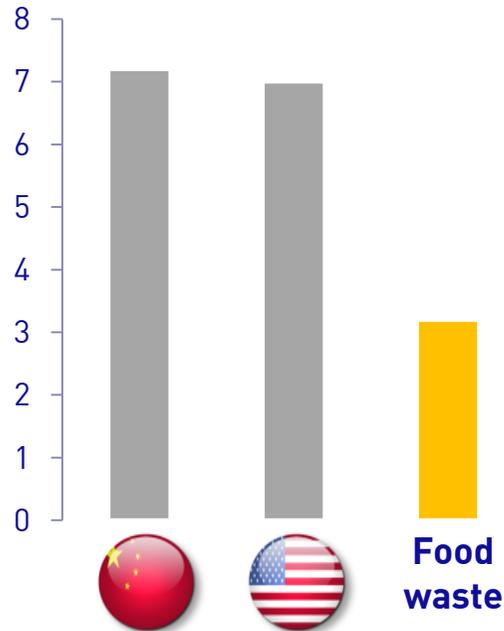
- In both D and D&E countries, **upstream waste** is **higher** than downstream waste
- **By commodity** group there are significant **differences in waste levels**
- **Animal products** have **lower levels** of waste (in volume), which might be driven by **higher value**
- **Higher waste** levels **upstream in D&E** markets is driven by **structural reasons, poor infrastructure** and agricultural practices

(1) Note: Developed markets defined by North America, Europe and Industrialized Asia
 Source: FAO Balance Sheet (2009) data and Global food losses and food waste report (2011)

If global food waste was a country, it would rank in the top 3 in environmental footprint

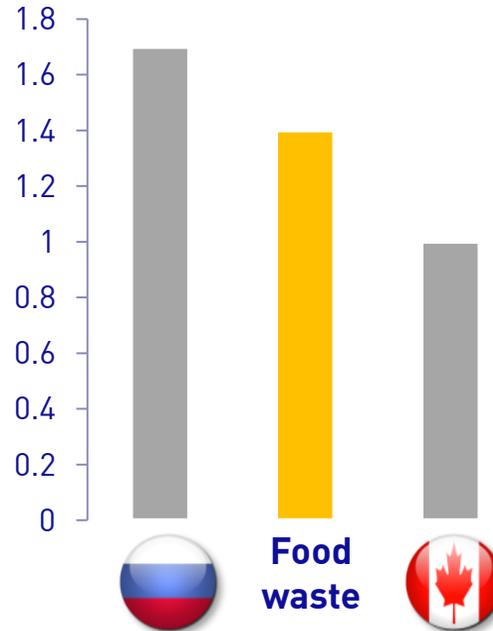
GHGs emissions¹

- G tonnes CO₂ eq -



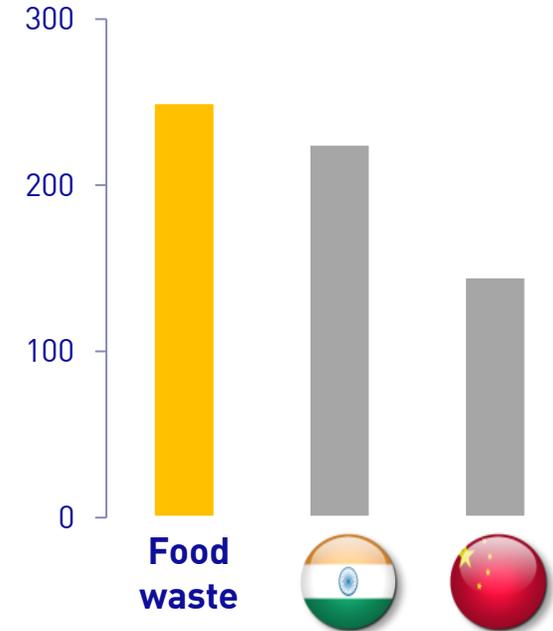
Agricultural land area

- Billion hectares -



Blue water consumption²

- km³ of blue water -



(1) Source: FAO, Food wastage footprint, Impacts on Natural Resources, April 2013

(1) Total GHGs emissions excluding LULUCF

(2) Total blue water footprint (consumption of surface & ground water) for agricultural products (yearly average 1996 - 2005)

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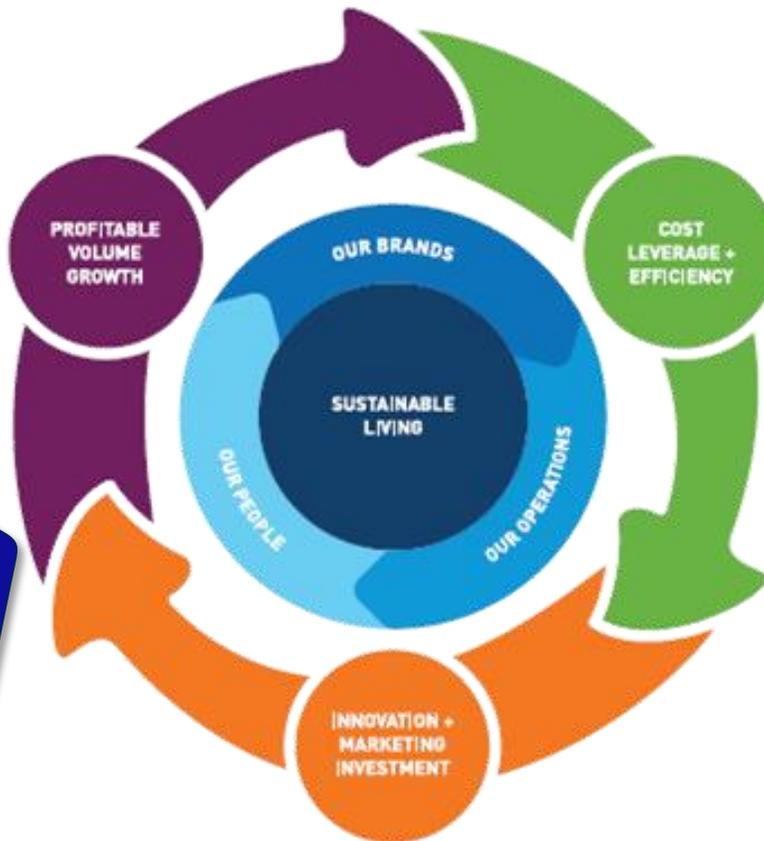
Team & contact

The War on Waste fits in the vision and strategy of Unilever's Sustainable Living Plan...



DOUBLE THE SIZE OF THE BUSINESS, WHILST REDUCING OUR ENVIRONMENTAL FOOTPRINT AND INCREASING OUR POSITIVE SOCIAL IMPACT

Connects with our consumers and customers

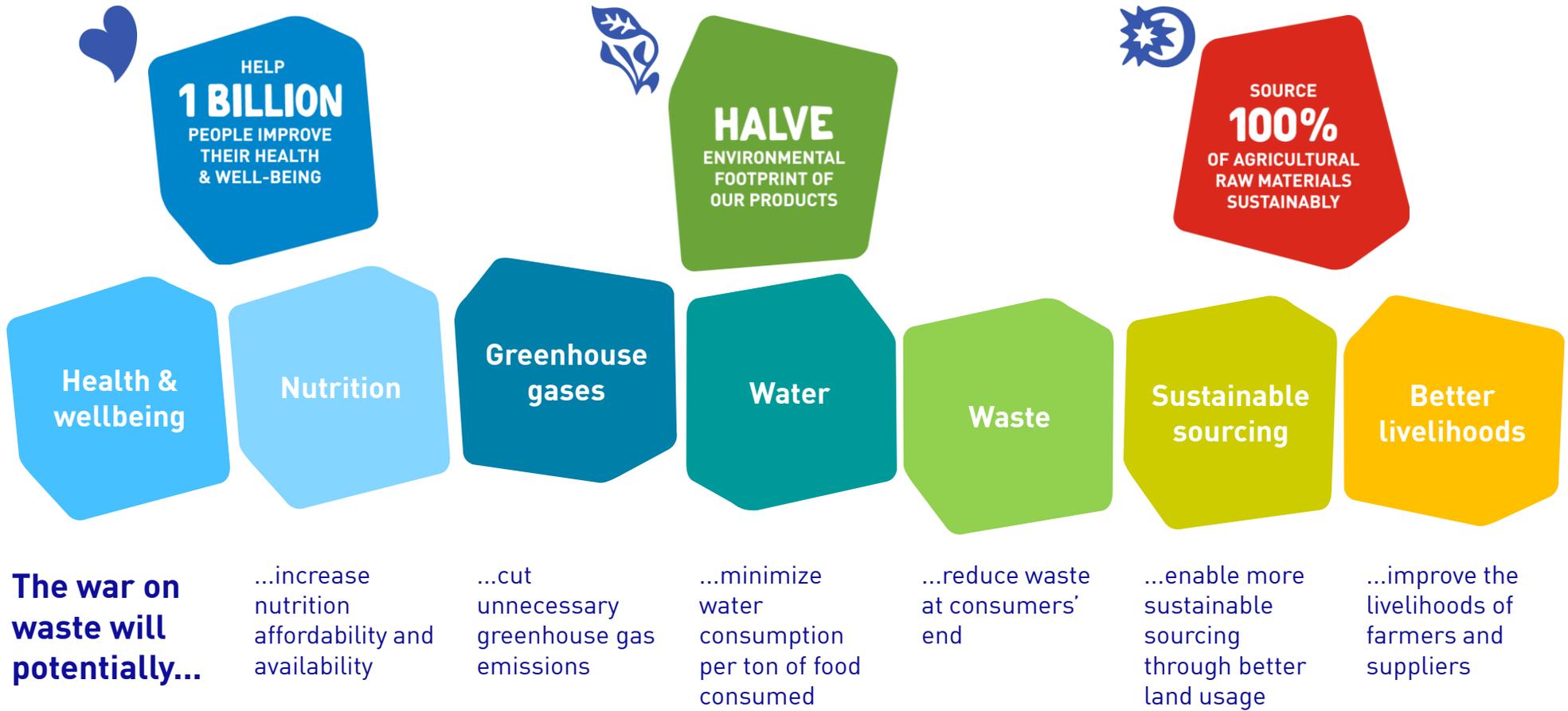


Diminishes CO2 footprint, deforestation, water usage and other environmental damage

Improves Livelihoods through higher revenues

Reduces costs throughout the value chain

...and supports our three big goals

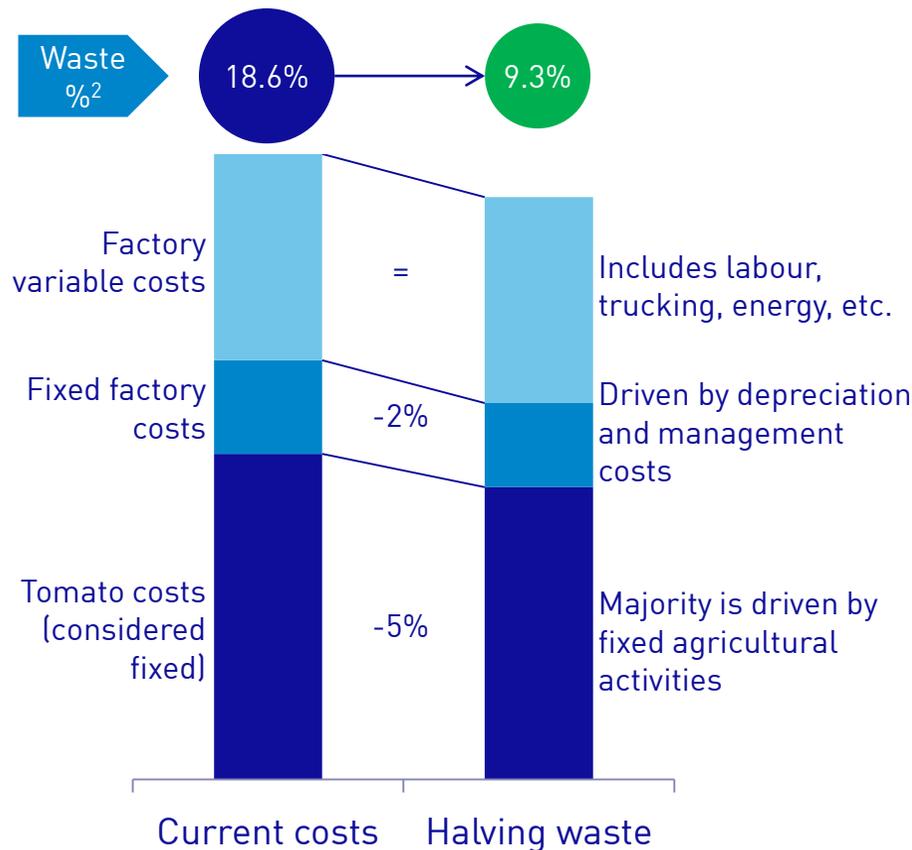


Pillars on which the War on Waste will have a direct effect

By reducing waste, more output is reached with the same activities, leveraging fixed costs (~67%)

Tomato cost breakdown

(% of harvesting and processing cost, 2013 estimates)¹



Examples of volume independent activities



Field irrigation



Field preparation



Crop harvesting

Reduced waste impact on fixed cost



(1) Source: Morningstar 2013 Tomato Paste and Processed Tomato Statistics
 (2) Waste in harvesting, post-harvesting and processing

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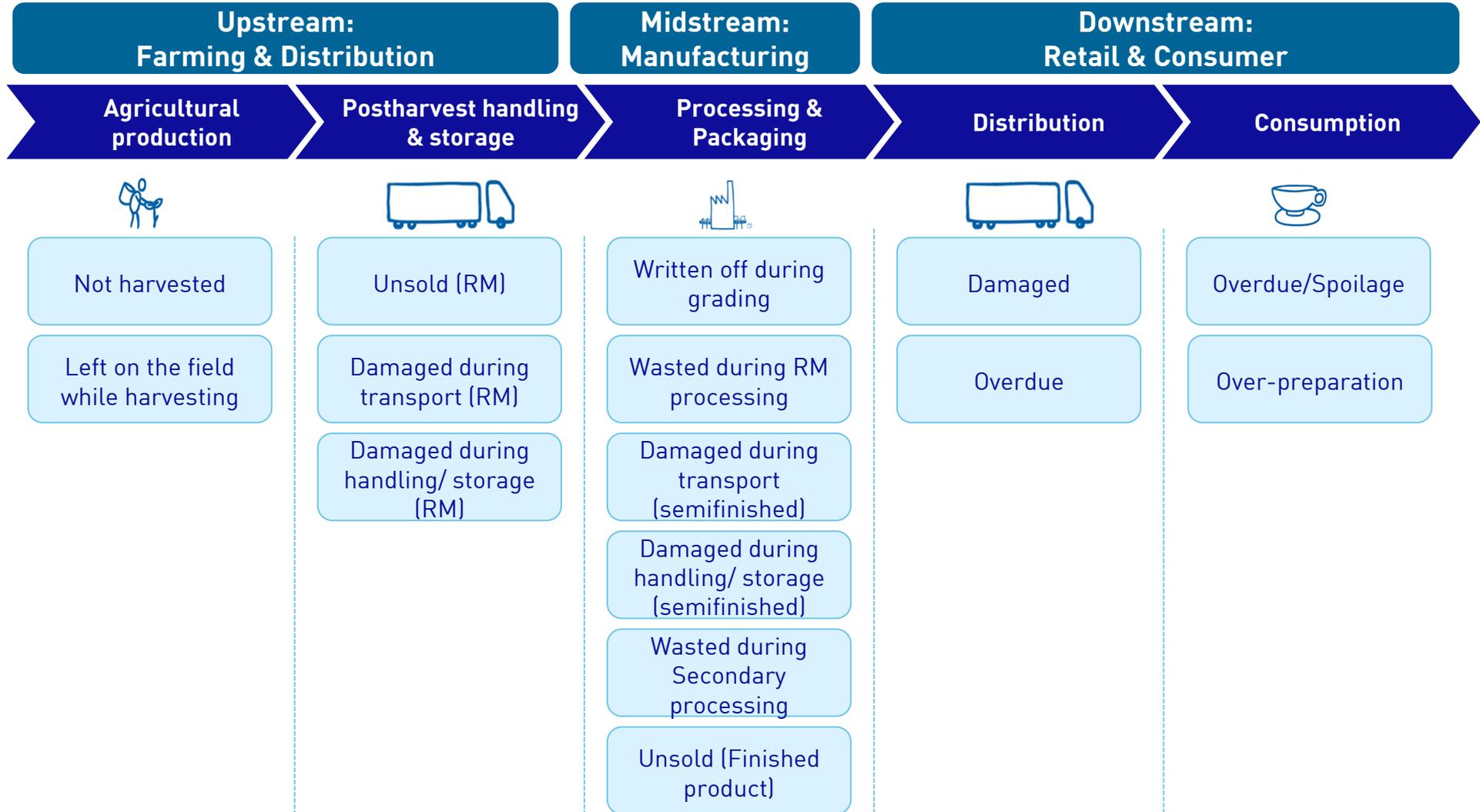
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Unilever's food waste work aims to give us a big picture in order to reduce it

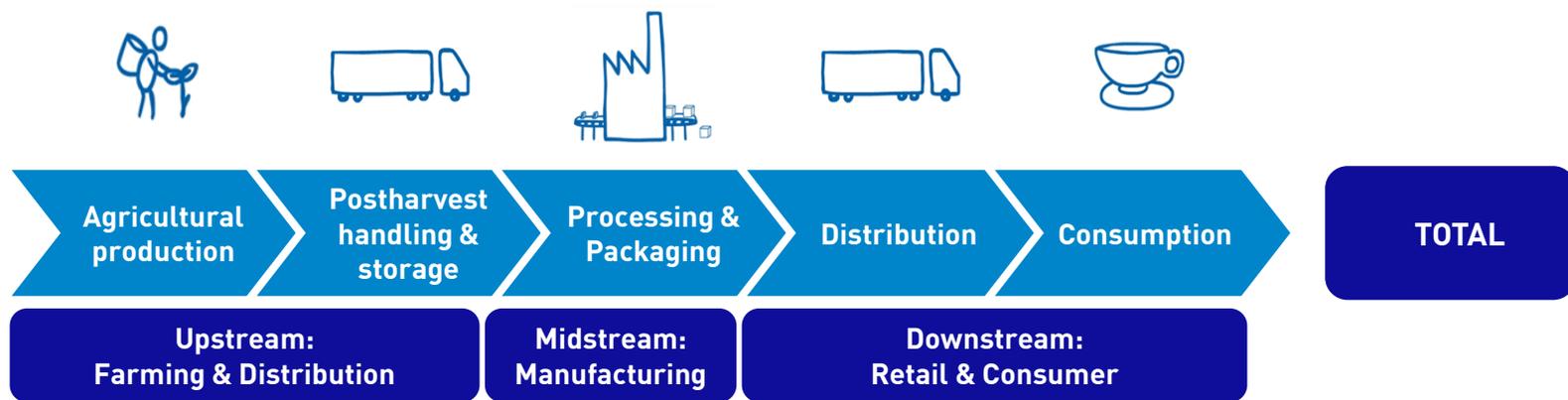


- 1 Measure footprint
- 2 Prioritize commodities
- 3 Obtain Unilever's detail commodity footprint
- 4 Benchmark and identify best practices
- 5 Drive change
- 6 Improve Continuously

We propose a comprehensive framework that splits waste into 15 critical waste points



Food waste occurs at all stages the value chain however the majority is found upstream



% of End-to-end waste at each stage²

32%	18%	21%	11%	18%	100%
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Example causes of waste

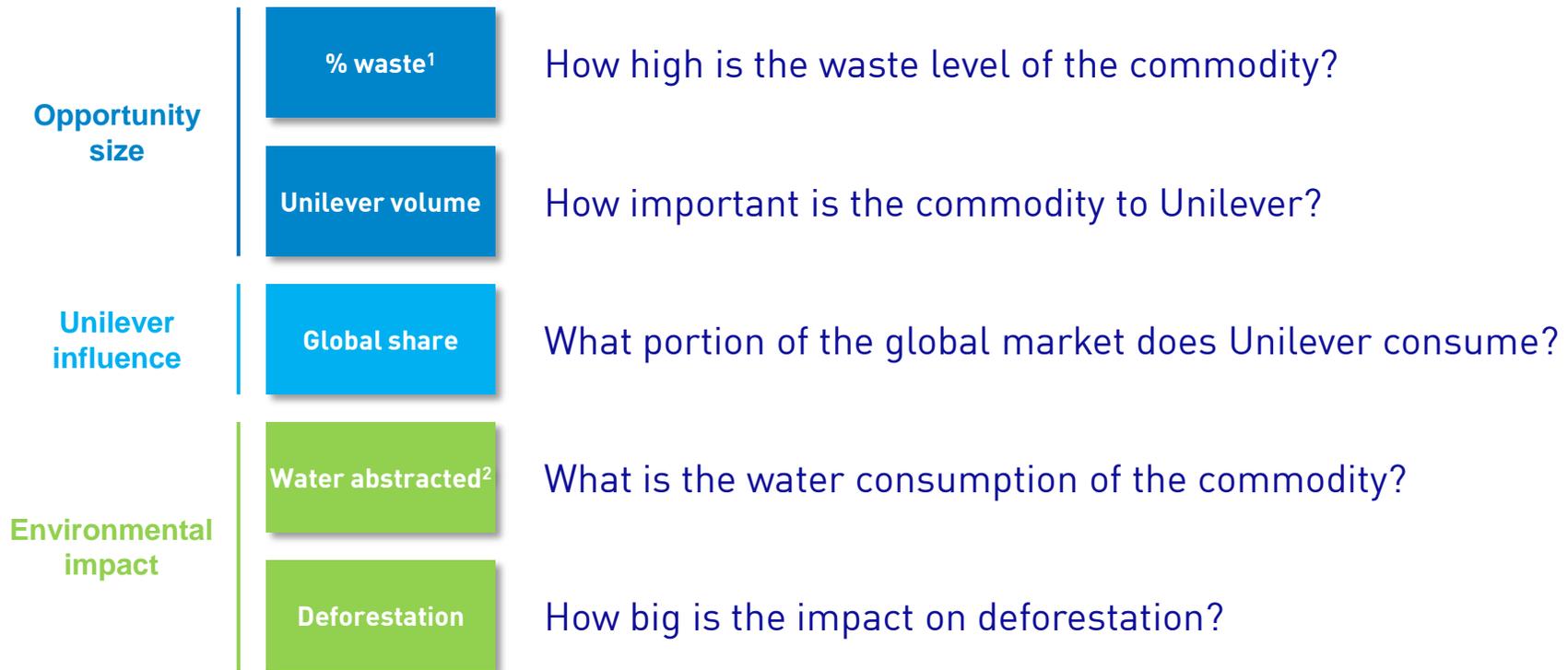
Crops left on field during harvesting	Long time between harvest and processing	Inefficient processing equipment	Poor infrastructure damages food in transit	Over-preparation by consumers
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(1) 1. Unilever analysis based on FAO report (FAO, Global food losses and food waste, 2011)
 2. Extrapolation of waste % provided by FAO per commodity group (source: FAO, Global food losses and food waste, 2011) to Unilever volumes. Unilever waste footprint is lower than the global avg (32%) due to the commodity mix and the focus on processed food

Commodities are prioritized based on current waste levels, Unilever's scale and their environmental impact



Points of consideration



[1] 1. Estimated by FAO, Global food losses and food waste (2011)
2. Consumption in water scarce countries

Our approach follows a continuous cycle of identification, engagement and implementation

Commodity overview

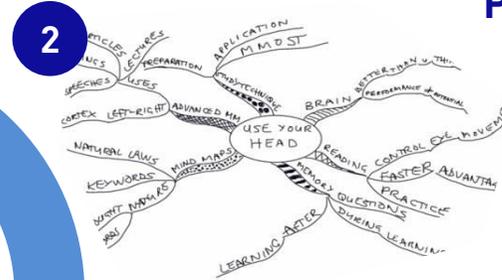
- Map global and regional production
- Identify industry trends
- Map UL sourcing origin & destination



1

Process mapping

- Map detailed process (farm to UL SU)
- Develop and review waste assessment



2

Opportunity identification

- Benchmark suppliers
- Identify, quantify & value waste opportunities through analytical work and simulation



3

Supplier engagement

- Confirm hypothesis on waste reduction potential



4

Action plan

- Summarize conclusions and recommendation
- Agree on action plan and targets



5

(1) Total estimated time of the project for one commodity, including value added time and waiting time for inputs from external and internal stakeholders

Our approach follows a continuous cycle of identification, engagement and implementation

Commodity overview

- Tomatoes have the highest expected waste at 45% (FAO estimate)
- Volumes are second highest in Unilever at 1,310 kt (fresh equivalent)



1

Illustration for tomato

Process mapping

- Big differences in practices (e.g. Manual vs. mechanical harvesting)
- Farmer engagement varies significantly



2

Opportunity identification

- SC segmentation (fresh vs. processed)
- Sorting strategy (on field vs. in factory)
- Time from harvest to process



3

Supplier engagement

- Alignment on opportunities with suppliers
- Collaboration on data collection
- Workshops to confirm hypotheses



4



5

Action plan

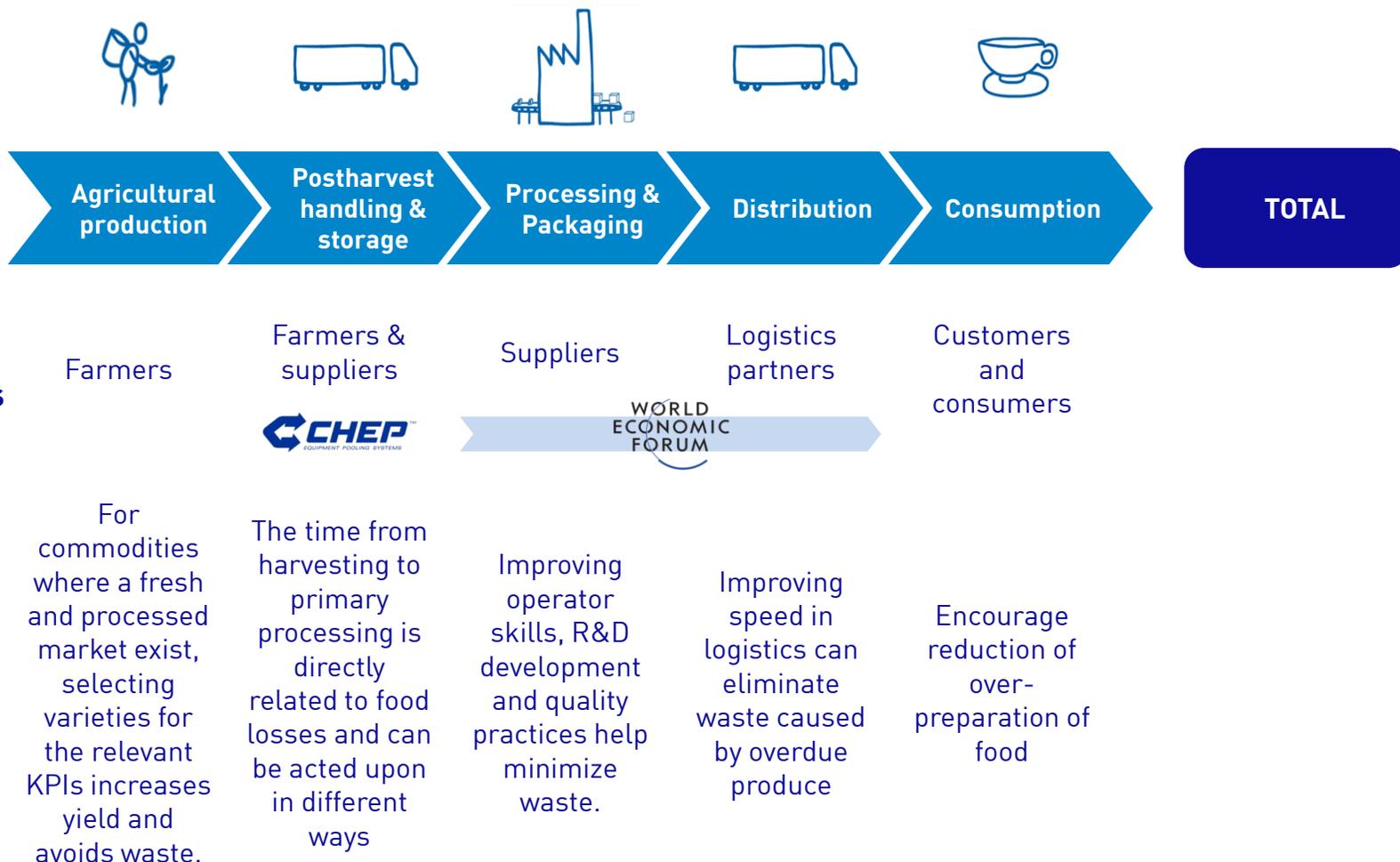
- Agreement on trials of new equipment and practices for next crop season (e.g. new crates in India)
- Develop business cases to confirm potential waste reduction prize

[1] Total estimated time of the project for one commodity, including value added time and waiting time for inputs from external and internal stakeholders

Engaging with key partners at each stage is critical to ensuring implementation and continuous improvements



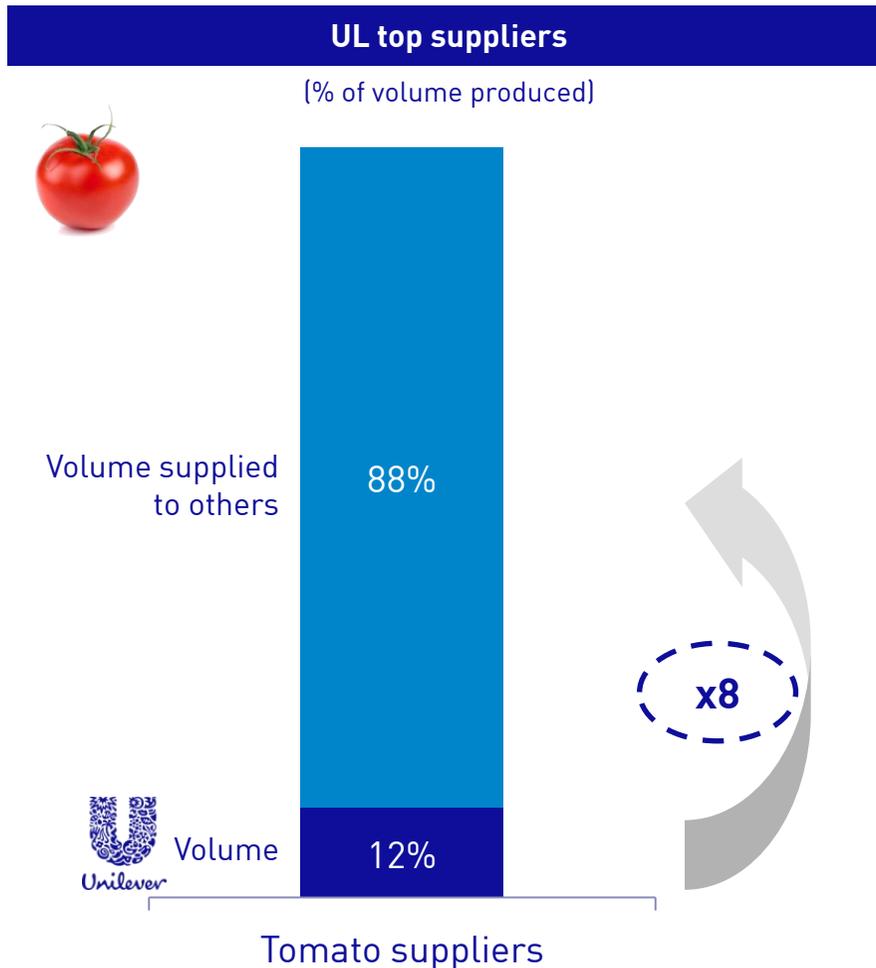
Unilever tomato example



TOTAL

(1) Source: Waste assessment questionnaires, SCS analysis

Additionally, there is a leverage ratio that makes the opportunity far bigger than just Unilever



- The **leverage ratio** refers to the **overall benefit** that our suppliers will see beyond their business with Unilever
- Since **Unilever is only a portion of our supplier volumes**, the **impact** of reducing their waste footprint is **extended to the market**

1. Top 15 of a total of 25 suppliers in 2012
Source: SCS Supplier questionnaires; BCG analysis