# Global Food Cold Chain Council

Expanding the food cold chain for a healthier planet

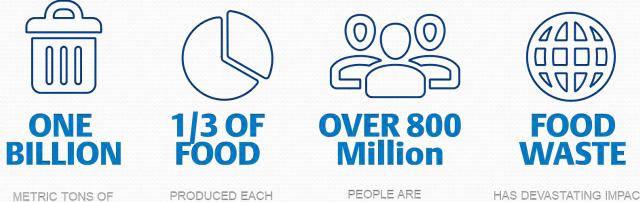
Challenges and Business Opportunities for Cold Chain Development International Conference on Sustainable Cooling Washington D.C. November 29, 2018



### Global Food Cold Chain Is Complex: Inadequate or Inefficient Links Lead To Waste



"...if food waste was a country by itself, it would be the third-largest emitter of greenhouse gases behind China and the United States."



FOOD IS LOST OR WASTED, NEVER MAKING IT FROM FARM TO FORK. PRODUCED EACH YEAR IS NEVER EATEN. PEOPLE ARE CHRONICALLY HUNGRY.

HAS DEVASTATING IMPACT ON THE ENVIRONMENT

Water waste Creation of greenhouse gas emissions

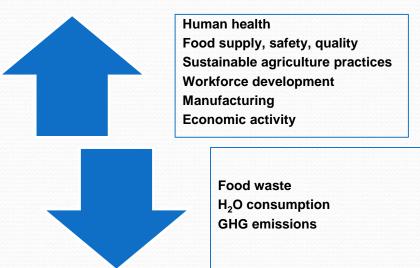


# An Industry-led Initiative



- UNSG Climate Summit, New York City, September 2014: a coalition of major companies from around the world launch the Global Food Cold Chain Council (GFCCC)
  - to reduce greenhouse gas emissions in the processing, transportation, storage and retail display of cold food and
  - to stimulate global demand for energy-efficient low-GWP technology

- GFCCC committed to work with UNEP's
  Climate and Clean Air Coalition (CCAC)
  to advance broad-based public-private
  collaborative solutions to reduce HFC
  emissions in the food cold chain
- Successful implementation will generate economic and social value from:





### A Sustainable Food Cold Chain: An Economic, Social and Environmental Net-Positive

Food Loss Prevention (Pre-consumer)

Wider use of refrigeration equipment

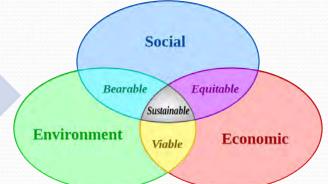
#### Equipment Enhancement

Improvement in refrigeration equipment energy efficiency Reduction in refrigerant GWP

Improvement in energy efficiency of transportation used to move food

Food Waste Prevention (Post-consumer) Food Safety Food Quality

Food Preservation to meet people's needs and reduce environmental impact





## DELOITTE Food Cold Chain Research

#### Description of methodology

A three-step approach to estimate the potential GHG emissions 'savings' through the development of cold chain

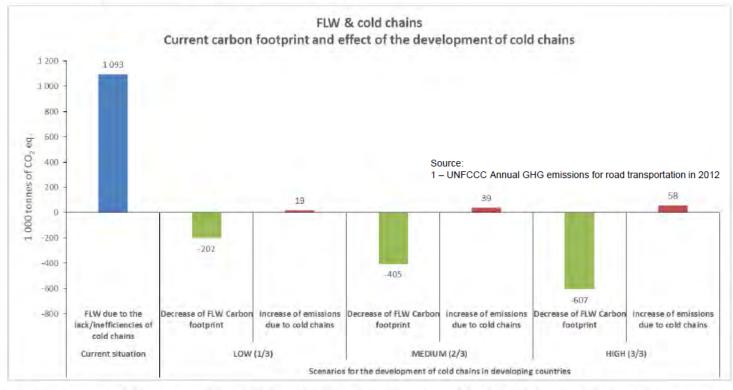
| Steps                                                                         | Tasks                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Definition of scenarios                                                    | <ul> <li>Characterise the baseline scenario and the 3 prospective scenarios with<br/>increasing market penetration rates of cold chains in developing countries</li> </ul>                                                                                   |
| 2. Estimation of the gross GHG emissions 'savings'                            | <ul> <li>Model, for these 3 scenarios, how the development of the cold chain sector could help reduce the carbon footprint of FLW</li> <li>Estimate resulting GHG emissions 'savings' for the 3 scenarios</li> </ul>                                         |
| 3. Estimation of<br>additional GHG<br>emissions from<br>transport and storage | <ul> <li>Model, for these 3 scenarios, the increase of transportation distances and energy consumption due to the use of refrigerated trucks and cold storage</li> <li>Estimate the supplementary GHG emissions due to cold storage and transport</li> </ul> |



### DELOITTE Food Cold Chain Research

#### Results from the model (1/3)

According to the model used, in all prospective scenarios, the decrease of FLW carbon footprint from cold chain expansion clearly outbalances the newly created emissions, by a factor 10 approximately.



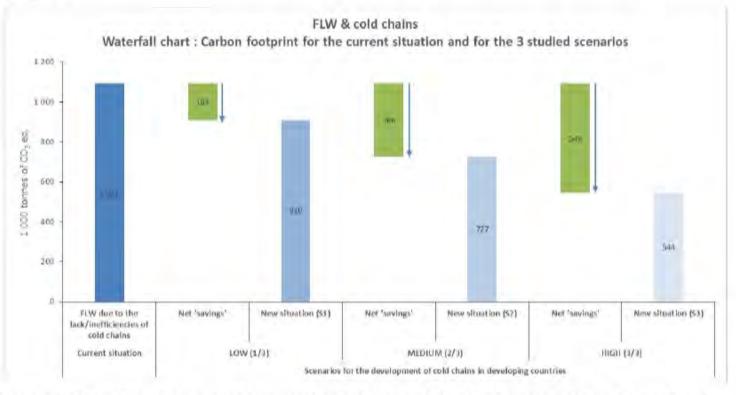


The total amount of food wastage in 2011 has generated about 1 Gtons of CO<sub>2</sub> equivalent, an amount comparable to the total GHG emissions of road transportation in the EU (0.9 Gt)<sup>1</sup>.

### DELOITTE Food Cold Chain Research

#### Results from the model (2/3)

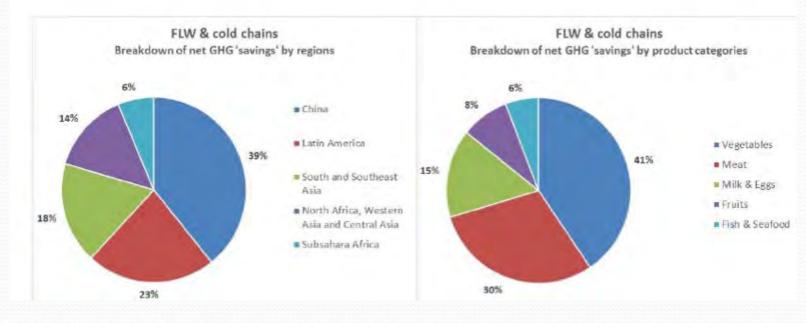
According to the model used, net GHG 'savings' are observed for the 3 prospective scenarios





In scenario 1, the net GHG 'savings' would represent circa 180 Mtons of  $CO_2$  eq. In scenario 3, the net 'savings' would represent circa 550 Mtons of  $CO_2$  eq. As an illustration of the magnitude of these results, they can be compared to the total emissions of France – i.e. circa 450 Mtons of  $CO_2$  eq. in 2012<sup>1</sup>.

### DELOITTE Food Cold Chain Research Results from the model (3/3) Breakdown of net GHG 'savings' by regions / product categories





## Cold Chain Customers Want\*





\* Emerson's supermarket owners/operators market research, 2017

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