

# Issues in Global Cold Chain Development

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# GLOBAL COLD CHAIN ALLIANCE



International  
Association of  
Refrigerated  
Warehouses



World Food  
Logistics  
Organization

The Refrigeration  
Research & Education  
Foundation



INTERNATIONAL REFRIGERATED  
TRANSPORTATION ASSOCIATION, INC.



International  
Association for  
Cold Storage  
Construction

# National Associations

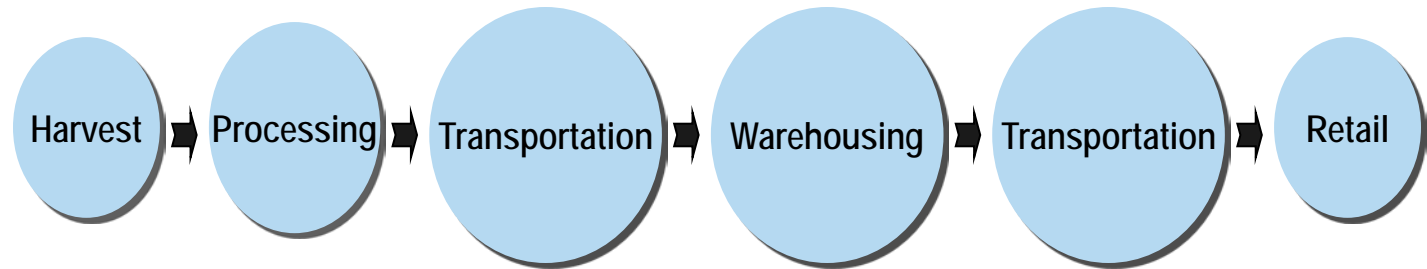


# GCCA Global Presence

- ▶ Members in 72 countries
- ▶ Offices in:
  - USA (headquarters)
  - China
  - India
  - Guatemala
  - Europe
- ▶ Development Projects:
  - Asia
  - Africa
  - Latin America

# What is a COLD CHAIN?

Like a chain, the cold chain is only as strong as its weakest link



"All the critical steps and processes perishable food must pass through to assure it reaches the end user in a safe, wholesome and high quality state."

# Global Cold Chain – Why it is Critical

- ▶ Economic growth
  - Food and agriculture significant economic drivers
  - Cold chain facilitates trade
    - TPP a good example
- ▶ Food Security
  - Almost \$800 million undernourished worldwide\*
  - One-third of all food lost or wasted
- ▶ Food Safety
  - Estimated 2 billion deaths due to foodborne and waterborne diseases\*\*

Sources:

\* *Food and Agriculture Organization*

\*\* *World Health Organization*

# Top Supply Chain Challenges



# Main steps in the product life cycle of perishable products

## VALUE CYCLE / STEPS

**Field / Farm** > bringing the product into the temperature controlled warehouse

**Primary Storage Center** > sanitizing, initial processing & packaging for proper preservation

**Domestic or Intl Transportation** to Processing Center > ocean, land or air freight to buyer

**Processing center** > manufacturing process & then packaging to ensure proper preservation

**Domestic or Intl Transportation** to Distribution Center > ocean, land or air freight

**Distribution center** (national or regional) > additional processing, re-pack for end consumer

**Domestic or Intl Transportation** to Retail sales point > ocean, land or air freight

**Retail sales point** > consumer chooses the product based on price, appearance, shelf life

Challenge

Minimize Steps and Align Logistics Cost to the Product Value Cycle



# Post Harvest



# Food Safety & Sanitation





# Temperature Abuse



# Packing and Packaging Materials

- ▶ Use of flimsy or rough packing containers.
- ▶ Lack of liners in rough baskets or wooden crates.
- ▶ Over-use of packing materials intended to cushion produce (causing interference with ventilation).
- ▶ Containers designed without adequate ventilation.





# Storage

- ▶ Poor sanitation
- ▶ Inadequate management of temperature and relative humidity.
- ▶ Over-loading of cold stores.
- ▶ Stacking produce too high for container strength.
- ▶ Mixing of inappropriate products



# Transportation

- ▶ Over-loading vehicles or marine containers.
- ▶ Use of bulk transport or poor quality packages leading to compression damage.
- ▶ Poor palletization practices.
- ▶ Lack of adequate ventilation during transport.





# Transportation











# Supply Chain Security

## Innovative Theft



# Infrastructure





# Rough Handling



# Supply Chain – Factors for Success

The Beginning	Critical factors	
Field / Farm	Plan for <u>seasonality</u> : ramp up & secure resources (labor, transport, storage)	Maximize <u>packaging &amp; stacking efficiency</u> : package thru to processing
Primary Storage Center	Determine <u>correct temperature</u> to preserve product from field / farm thru primary storage  Secure <u>proper sanitation</u> from onset  <u>Process as needed</u> (blast, sanitize etc)	<u>Minimize # times</u> product is “touched”  <u>Track</u> the product identification  <u>Minimize</u> length of time product is held in unprocessed stage: plan / secure timing of next steps in product life cycle (pre-sell/Transfer of ownership, technology etc)
Transport	Critical factors	
Domestic  Intl. Transportation	<u>Minimize # of transport movements</u> in taking product to retail: consolidate processing / distribution chain  Select <u>cost &amp; transit time appropriate</u> transportation  Ensure proper <u>carrier sanitation &amp; temperature integrity</u>	Maximize <u>stacking compatibly w/ packaging</u>  Ensure <u>product security</u> through transportation phase  Ensure proper <u>carrier transport documentation</u> – esp. export  <u>Insure</u> for loss / damage



# Supply Chain – Factors for Success

Processing	Critical factors	
Factory/Warehouse	<p><u>Maximize shelf life</u> thru the manufacturing process</p> <p>Ensure proper <u>sanitation &amp; temperature integrity</u></p> <p>Minimize <u>waste / offal</u></p> <p>Maximize <u>packaging &amp; stacking efficiency</u>: package through to retail</p>	<p><u>Minimize # times</u> product is “touched”</p> <p><u>Track</u> product identification: from components thru ‘finished product’</p> <p><u>Minimize</u> level of inventory held</p>
Distribution	Critical factors	
National or Regional DC	<p><u>Ensure proper rotation</u></p> <p><u>Align product location w/ turns</u> &amp; Minimize # times product is “touched”</p> <p>Ensure proper <u>sanitation &amp; temperature integrity</u></p> <p>Maximize <u>packaging &amp; stacking efficiency</u>: package thru to retail</p>	<p><u>Track</u> product identification (recall)</p> <p><u>Minimize</u> level of inventory held</p> <p>Configure outbound pallet to reflect retail outlet layout</p>

# Lessons Learned from WFLO Development Projects

- ▶ Focus on the beneficiaries
- ▶ Work through groups
- ▶ Emphasize best practices
- ▶ Identify efficient investments in infrastructure
- ▶ Build local capacity
- ▶ Improve long term sustainability/adoption of interventions
- ▶ Need for government incentives and consistent regulations

# Regulatory Climate



# Global Government Response to Food Supply Chain Risks

- ▶ Food safety regulations and standards have evolved differently around the world due to factors including:
  - Past experiences with food safety
  - Inherent food safety risk levels in each country food supply (e.g., livestock host factors)
  - Countries' and industries' ability and willingness to allocate resources to control these risks
  - Differences in consumers' food safety perceptions
  - Economic policies/politics

# Private Sector Response

- ▶ Private sector attempting to drive improvements and consistency in food supply chain security
- ▶ Collective initiatives and consortia
  - Global Food Safety Initiative (GFSI)
  - British Retail Consortium (BRC)
  - Global Harmonization Initiative (GHI)
  - Global Food Traceability Center
  - Global Food Safety Forum



Global Food Traceability Center



国际食品安全协会



# Private Sector Response

- ▶ International Standards Bodies
  - International Organization for Standardization (ISO)
- ▶ Associations
- ▶ Individual companies
  - McDonalds
  - WalMart



# Associations Can Help

- ▶ Legislative, Regulatory, and Legal Affairs
- ▶ Education
- ▶ Best Practices
- ▶ Networking
- ▶ Industry Marketing, Reputation
- ▶ Technical Services
- ▶ Benchmark Organizational Performance



# GCCA Online Community

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## GCCA Committee Members drive the cold chain.

Learn how you can join the discussion and become an industry leader.



## Latest Discussions



### Update on Draft Revision

By: [Tori Liu](#), 2 days ago

Posted In: [Refrigerated Transportation Best Practices Task Force](#)

Hi! Just a quick update on our progress and when we'd like to meet again. Currently, Pat Brecht and Bud Rodowick are reviewing the full guidance document and making edits. We will then send those edits out to the full task force for review. I'm planning...



### Feedback on overtime

## Upcoming Meetings

### Construction/Codes Committee Meeting, 2015-Q4

Nov 7, 1:45 PM - 3:00 PM (PT)  
Las Vegas, NV, United States

## Announcements [Add](#)

### Sign up for 2015-2016 Association Programs Committee

By: [Megan Costello](#), 19 days ago

If you would like to continue to serve on the Association Programs committee, please be sure to volunteer online by August 10, 2015.

Finally, please take a moment to provide us with feedback on your committee experience. Your feedback is important... [more](#)



# Discussions

## 3PL Supply Chain Forum

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### Topic: CCP Monitoring & Verification Frequencies

**Sripriya Agaram**23 days ago [Hello all, Curious to know common practice across the industry when it comes to CCP Monitoring &...](#)**Olivia Ginn**19 days ago [Hi Sripriya, Thank you for using the forum to pose this interesting question! I am excited to ...](#)**Constance Johns**18 days ago [Greetings : I have a CCP for our cooler as well, and the inline monitoring that our engine...](#)**Sripriya Agaram**18 days ago [Thanks Constance for taking the time to share your practices. It certainly makes sense. Hoping/...](#)**Michael Jahncke**18 days ago [Hi Sripriya: The FDA Regulations for Seafood Products 123.8 Ve...](#)**Michael Jahncke**18 days ago [Hello, Since: The warehouse has "a software \(LOGIX\) & all alerts on any deviation is...](#)**Sripriya Agaram**18 days ago [Hi Michael, Thanks for sharing this information. Would please help me further by sharing th...](#)**Diane Busch**10 days ago [Hello, Sripriya! Storage is also a CCP within our HACCP Plan and we have temperature monitori...](#)

# Asia-Pacific Economic Cooperation Cold Chain Forum

- ▶ Joint effort between APEC, Japan MAFF and GCCA
- ▶ Will use the GCCA Community platform to host the forum
- ▶ Site development is underway
- ▶ Participants will register with the system and then have access to participate in forum discussions.

# QUESTIONS?