

Symposium on Human Resource Development in Food-related Area  
through Partnership with ASEAN Universities  
Jakarta, Indonesia, January 21, 2013

# **Cold Chain Infrastructure and related Industries -Contribution to food losses / waste reduction-**



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**Director, Executive Vice President**  
**Nichirei Foods Inc.**

# Corporate Profile “Nichirei Corporation”

Nichirei Corporation -Holding Company-  
**Group Statement: Networking “Good Taste” and “Freshness”**



**Nichirei Foods Inc.**  
 Processed Foods



**Nichirei Logistics Group Inc.**  
 Logistics



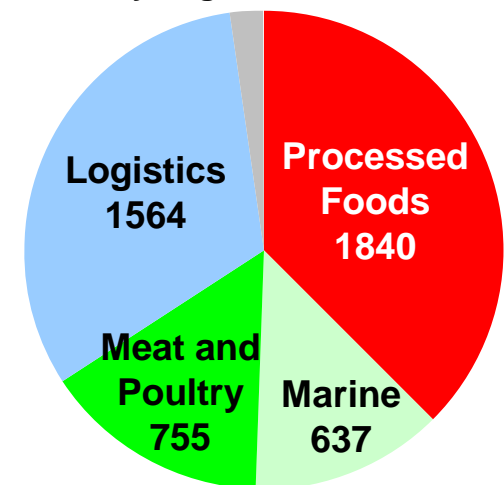
**Nichirei Fresh Inc.**  
 Marine & Meat and Poultry



**Nichirei Biosciences Inc.**  
 Biosciences

Net sales by Segment FY2012: Million \$

- Established: **December 1, 1945**
- Head Office: **Tsukiji, Chuo-ku, Tokyo**
- Paid in Capital: **\$303 million** (@JPY 100/\$)
- Net Sales: **\$4.7 billion** (FY2012 ended March 2013)
- Number of Employees (consolidated): **12,082**



## **1. Cold Chain Infrastructure - Key part of food supply chain**

**Well recognized in my past presentation, as below:**

- September 2012: Presentation at APEC Workshop on Food Security in Tokyo, Japan
- January 2013: Presentation at PPFS in Jakarta, Indonesia  
“A Cold Chain Proposal for Food Loss - Learning from the Past and Present of Japan -”
- May 2013: ABAC Japan Forum of Mid-Year Activities in Tokyo, Japan  
“Building of Cold Chain Infrastructure through PPP”
- June 2013: Presentation at PPFS 2<sup>nd</sup> Meeting in Medan, Indonesia  
“Cold Chain Infrastructure -Suggestions from Japan as Solution Provider-”
- August 2013: APEC Seminar on Strengthening Public-Private Partnership to Reduce Food Losses in the Supply Chain, in Taipei  
“Cold Chain Infrastructure -Suggestions of the public role in the PPP-”

## **2. Establishing the Cold Chain Infrastructure**

- Requires a strong Policy Partnership of Public and Private – Japan case

## **3. Contribution to food losses / waste reduction by Cold Chain Infrastructure & related industries**

- Technology of cold logistics
- Cold chain infrastructure for social / environmental sustainability
- Efforts to reduce food losses / wastes
- Case of business model

# Current Food Loss / Waste in the World

## ■ Rapid Growth of World Population

- 2011: 7 billion      2050: 9 billion

## ■ Starving and Malnourished people

- World: 900 million people are starving
- South-East Asia: 64.5 million of people undernourished\*

\*Source: FAO "The state of food insecurity in the world 2013"

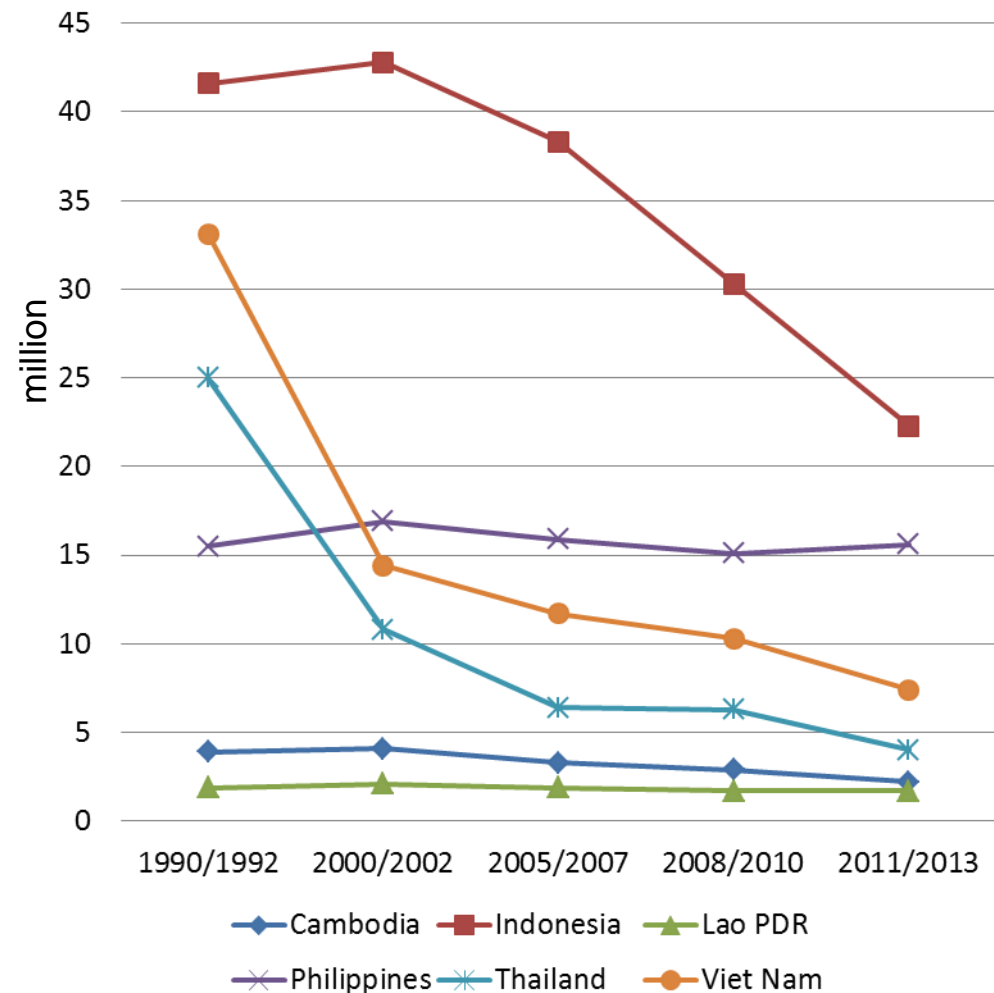
## ■ Food Losses & Waste

- About 1.3 billion tons a year in the world
- 1/3 of total food production in the world
- Largest for fruits & vegetables (Around 20% at Producing Level)
- Substantial gaps in knowledge throughout the food chain
- Loss reduction as an important option to increase food availability

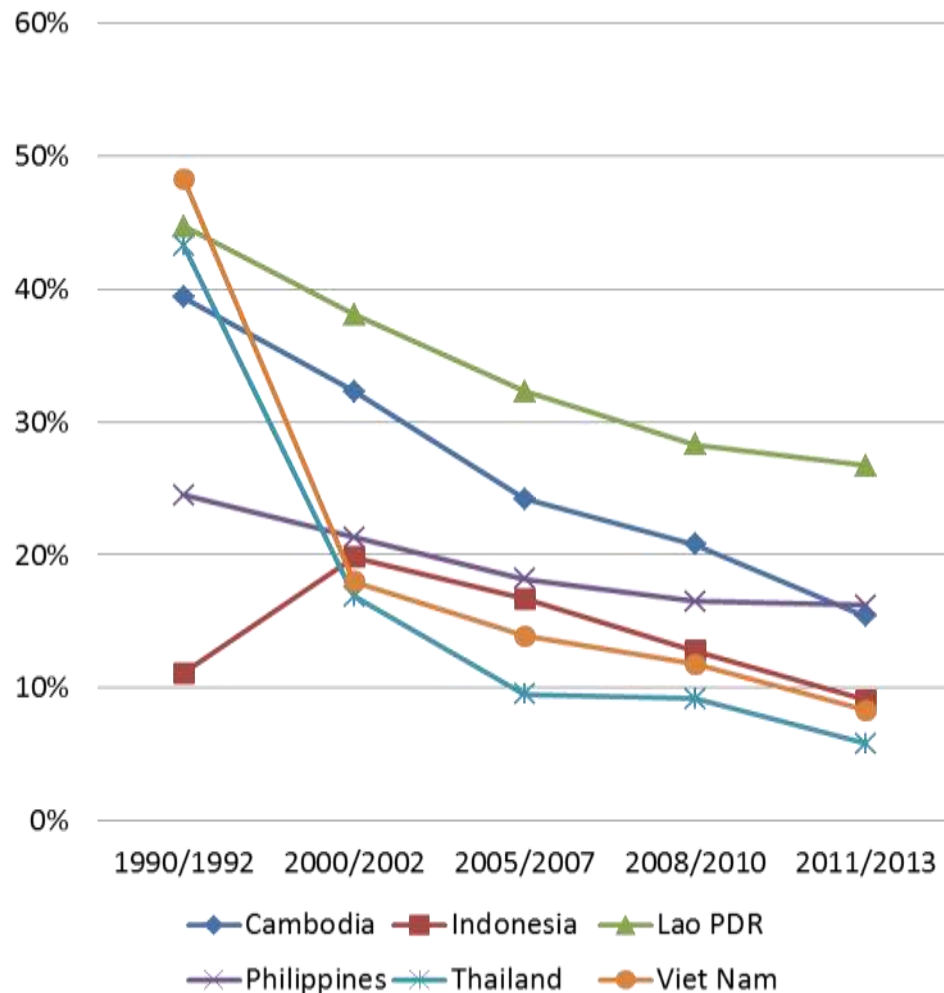
Source: Save Food Congress, Dusseldorf, 16 May 2011

# Prevalence of undernourishment in South-Eastern Asia

## Number of people undernourished



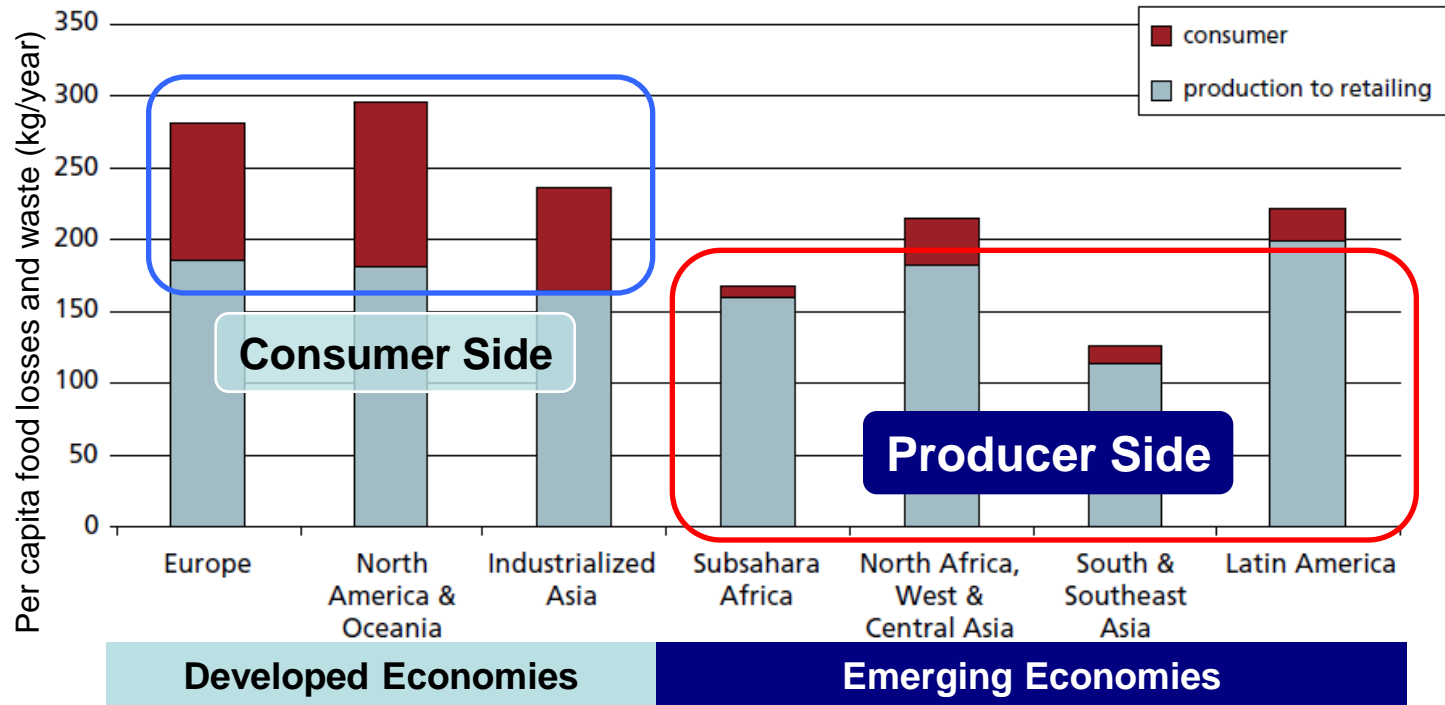
## Proportion of undernourished in total population



Source: FAO "The state of food insecurity in the world 2013"

# Causes of Food Losses & Waste by Region

Per capita food losses and waste, at consumption and pre-consumptions stages



**Latest Initiative – 5th June, 2013**

**USDA/EPA launched the U.S. Food Waste Challenge**, calling on others across the food chain

—including producer groups, processors, manufacturers, retailers, communities, and other government agencies - to join the effort to reduce, recover, and recycle food waste.

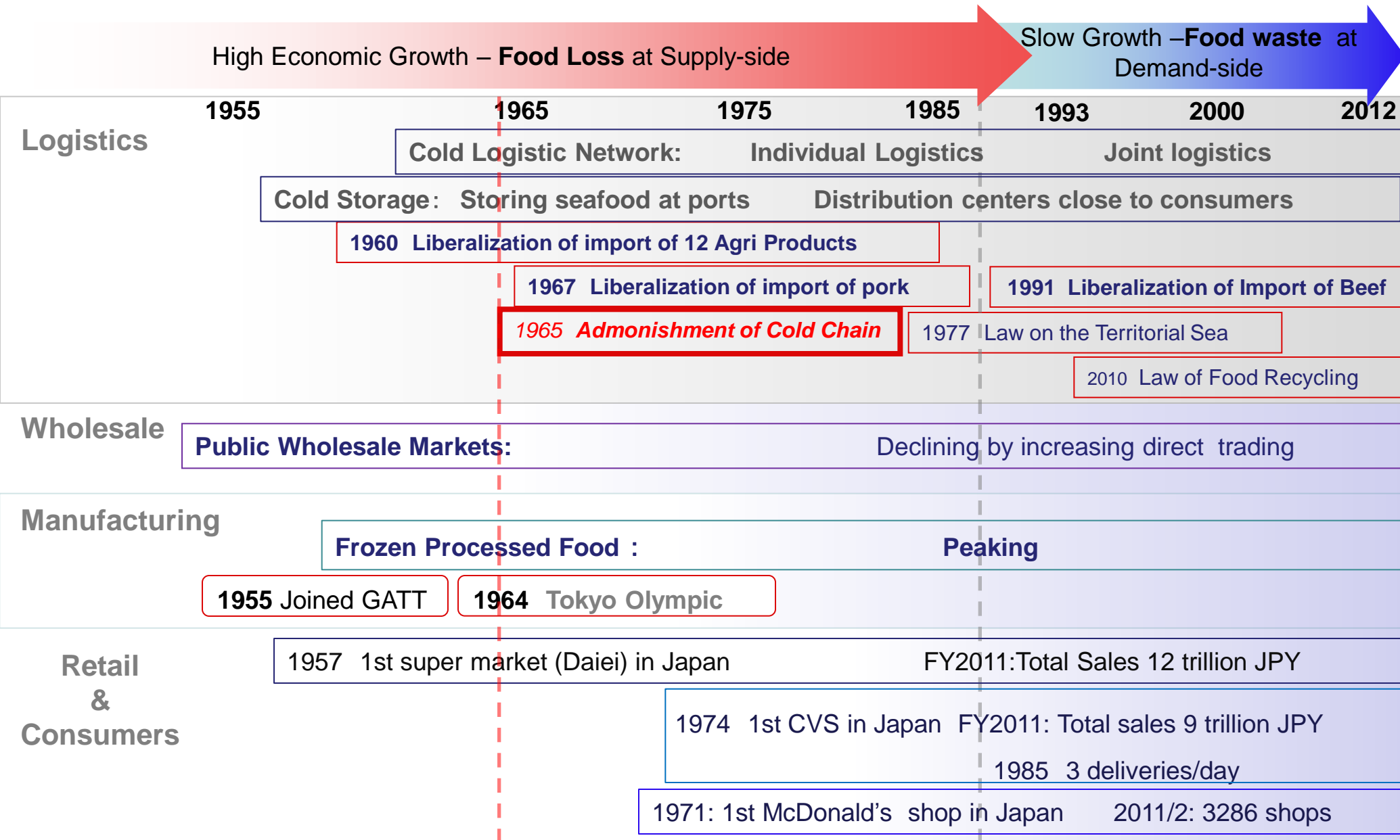
**Awareness of Communities**

- Poor storage facilities
- Lack of refrigeration
- Lack of primary processing facilities
- Poor transportation
- Inadequate market system and facilities
- Poor packaging

**Need for Cold Chain Infrastructure**

Source: FAO "Global Food Losses and Food Waste", 2011

# Development of Food Supply Chain in Japan



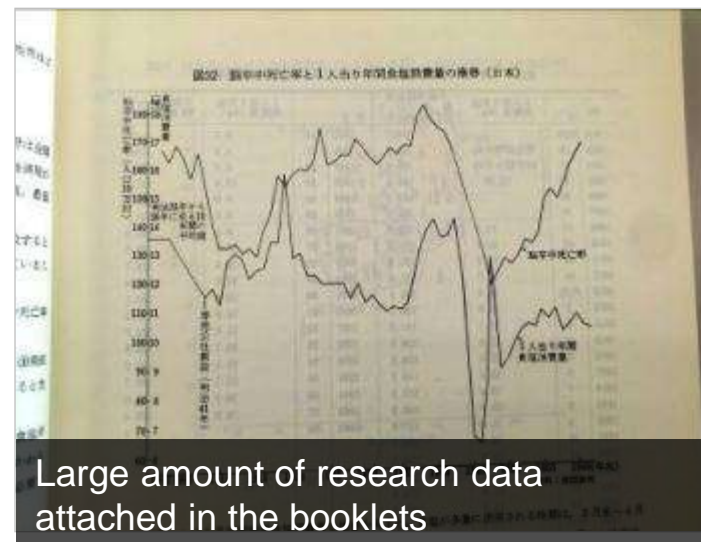
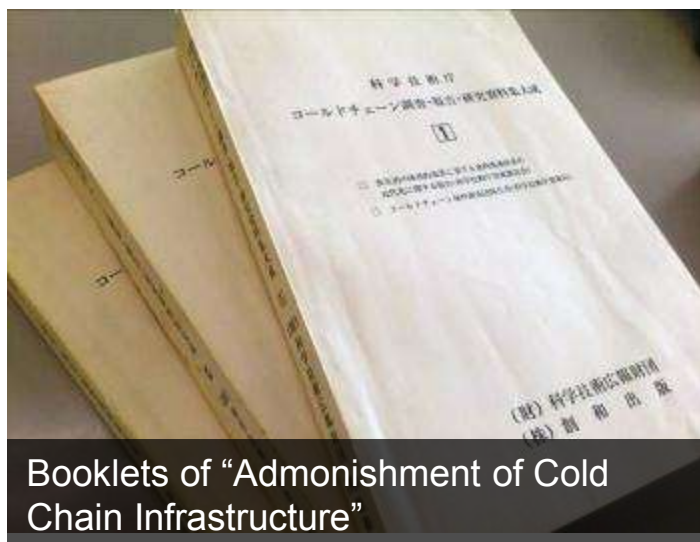


# Japan Government's Initiative in 1965

## “Admonishment of Cold Chain Infrastructure”:

Recommendation to modernize the comprehensive food supply chain system to contribute to the systematic development of diet style

1. Construction of cold chain
2. National food grades/standard and inspection system
3. Information system on food distribution
4. Processing & transfer center system
5. R & D of food distribution



Source: Science and Technology Agency, Resources Research Council, 1965



# PPP scheme in building Cold Chain Infrastructure in Japan

## Government

Public Wholesale Market

Import liberalization of  
agricultural products

**Admonishment of Cold  
Chain (1965)**

Construction of highway  
system & cold storages

Liberalization of foreign  
capital investment

Legislation of stricter food  
safety standards



## Private Sectors

Balancing of supply and  
demand system

Development of cold  
temperature logistics

Development of frozen  
processed foods industry

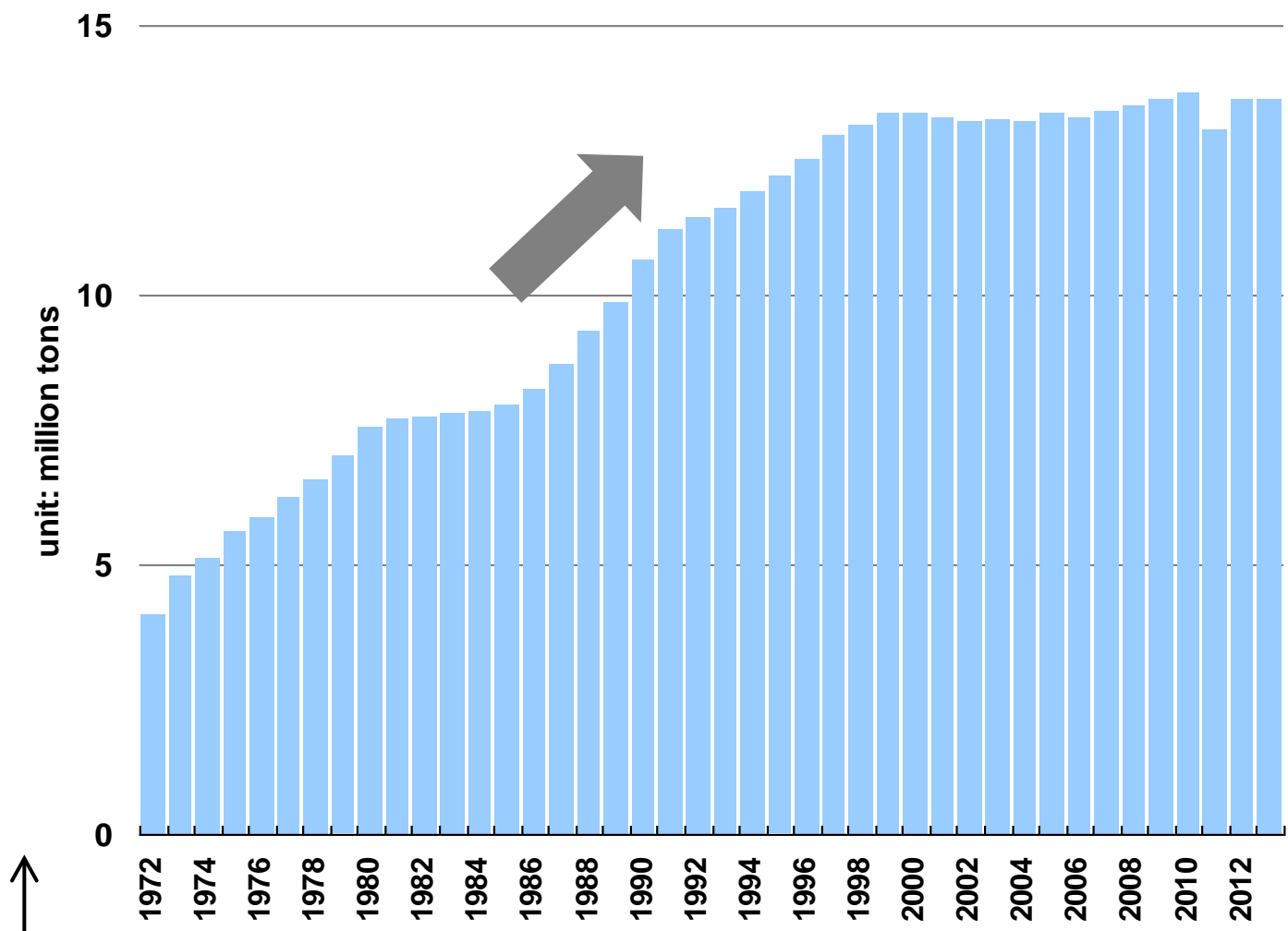
Foreign capital inflow

Chain operation of food  
service and food retail

Technical advances in food  
industry

# Development of Cold Chain Infrastructure in Japan

## Trends in Capacity of Cold Storage Warehouses



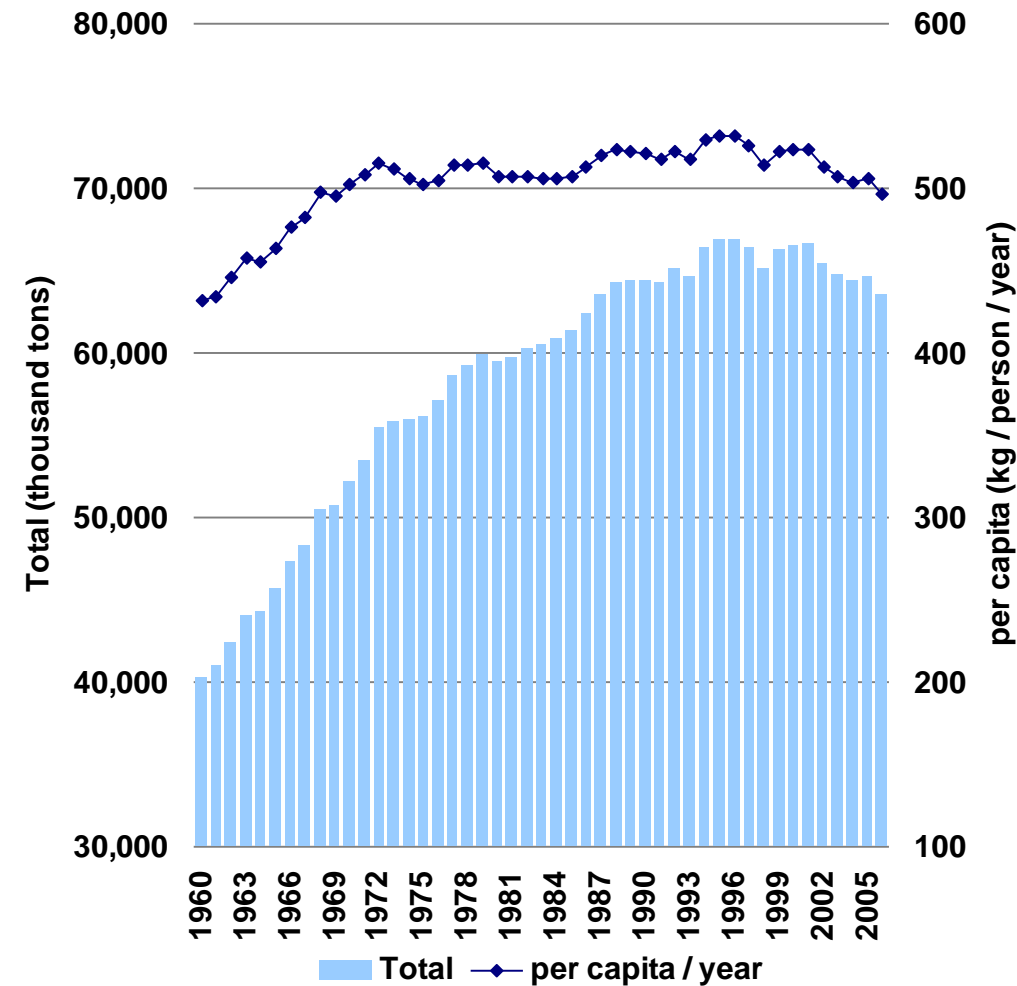
- ✓ More than doubled in 30 years (1972 – 2000)
- ✓ Change of location:  
From “near the port sites”  
to “closer to consumers”

**1965 “Admonishment of Cold Chain”**

Source: Japan Association of Refrigerated Warehouses

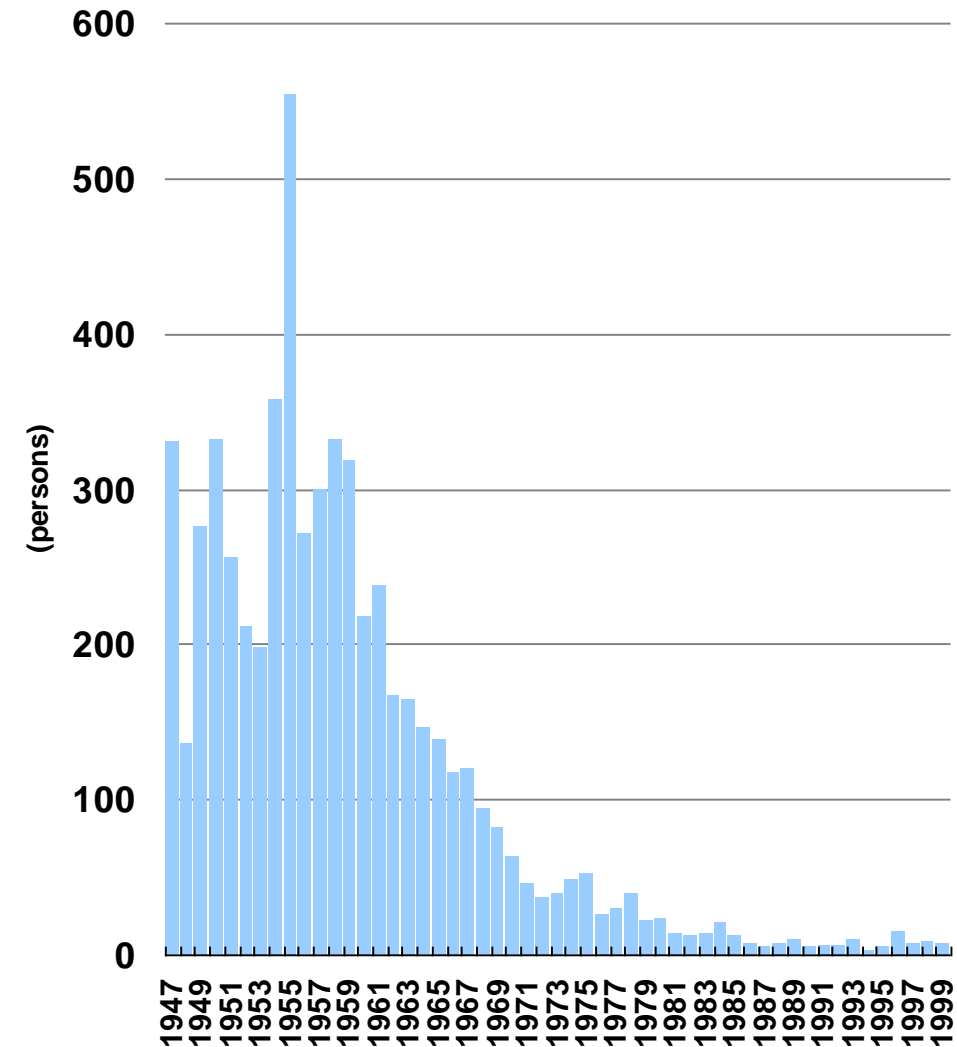
# Food Safety & Stable Supply

## Food Consumption - Japan



Source: "Food Balance Sheet", MAFF

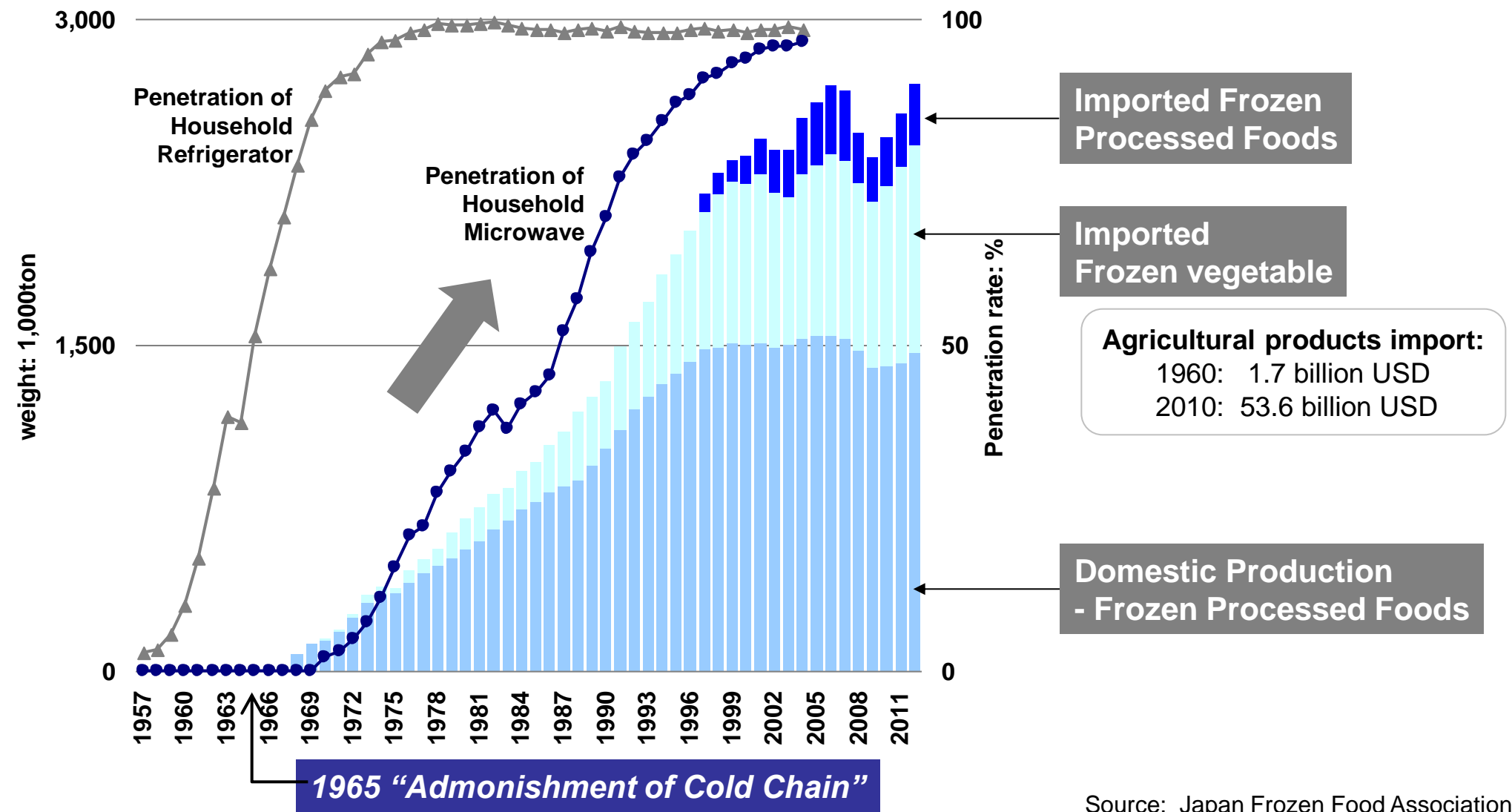
## Deaths of food poisoning



Source: Statistics Bureau, Ministry of Internal Affairs and Communications

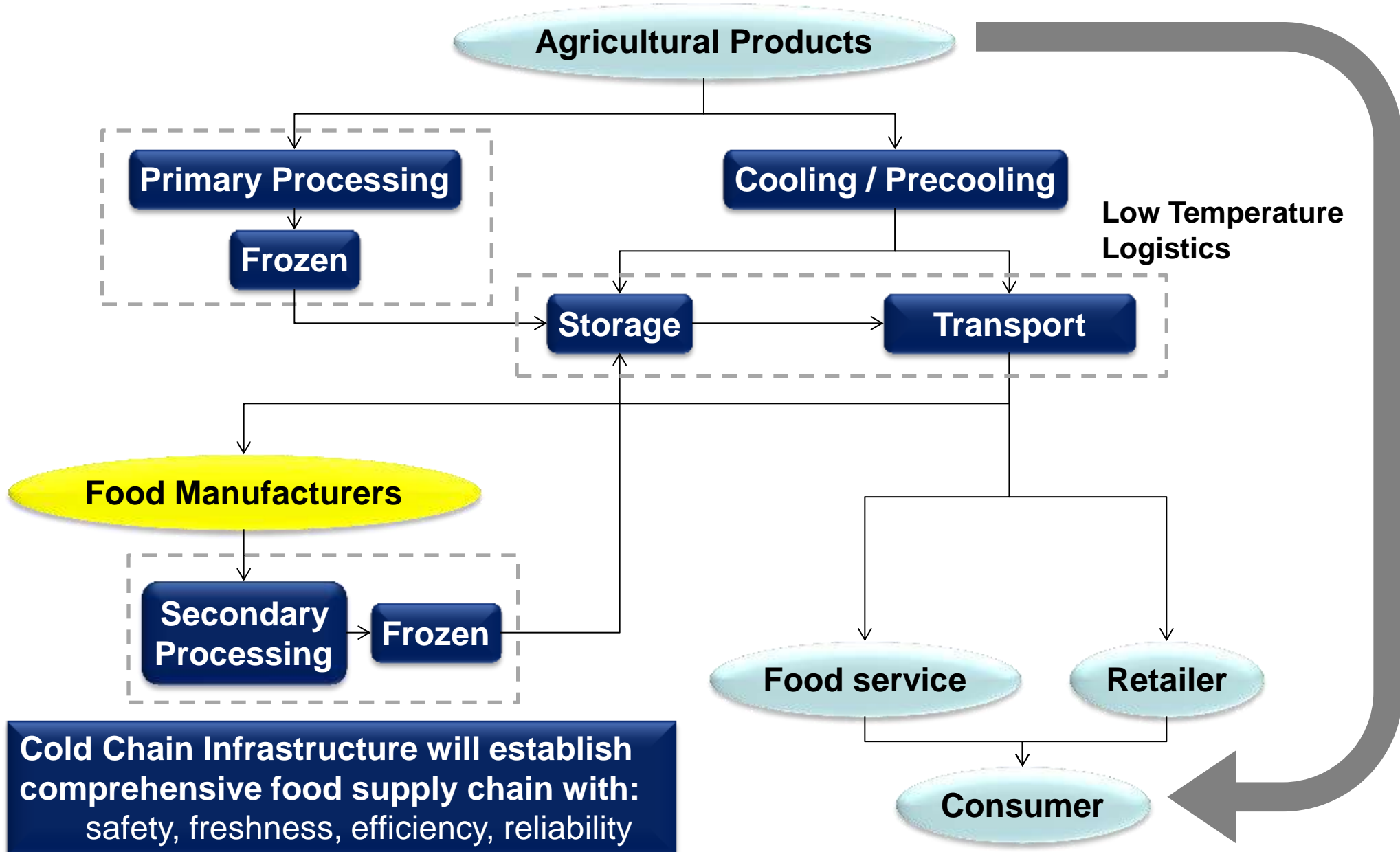
# Development of Frozen Processed Food in Japan

## Trends in domestic frozen food consumption and penetration of home appliances



Source: Japan Frozen Food Association

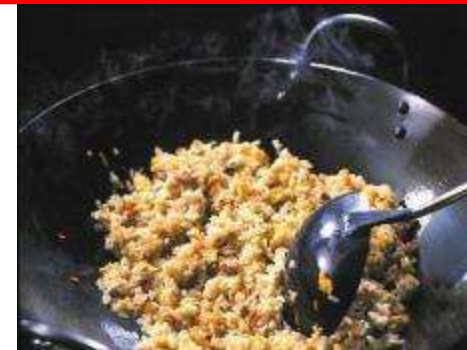
# Cold Chain & related industries



# Nichirei's Food Manufacturer business

## Provide solutions as Manufacturer of Frozen Processed Food

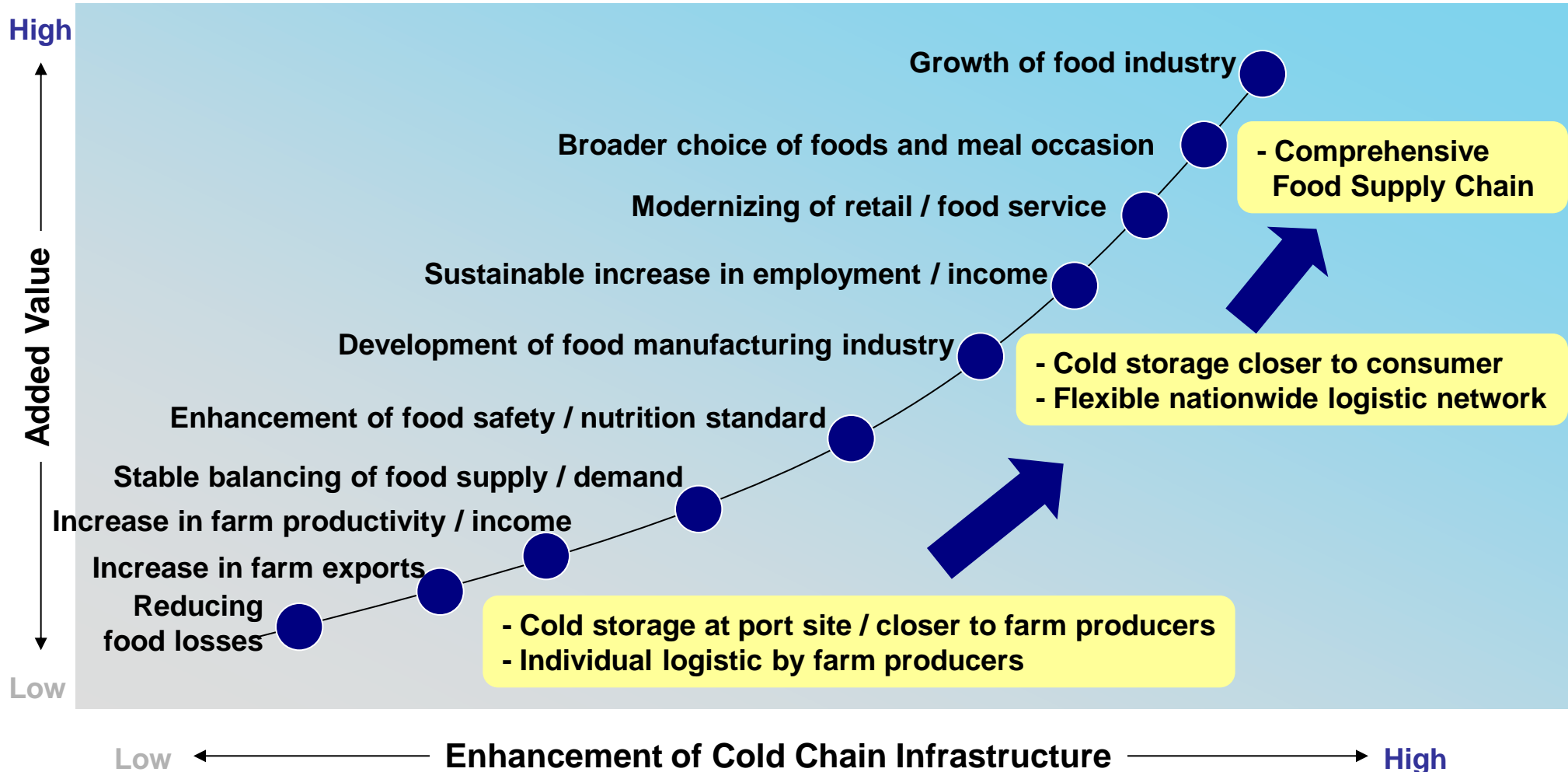
- Storage  
to eat at any time
- Reducing food waste  
to cook necessary amount
- Nutrition control  
to keep health balance
- Easy cooking  
to save time



# Benefits from Cold Chain Infrastructure

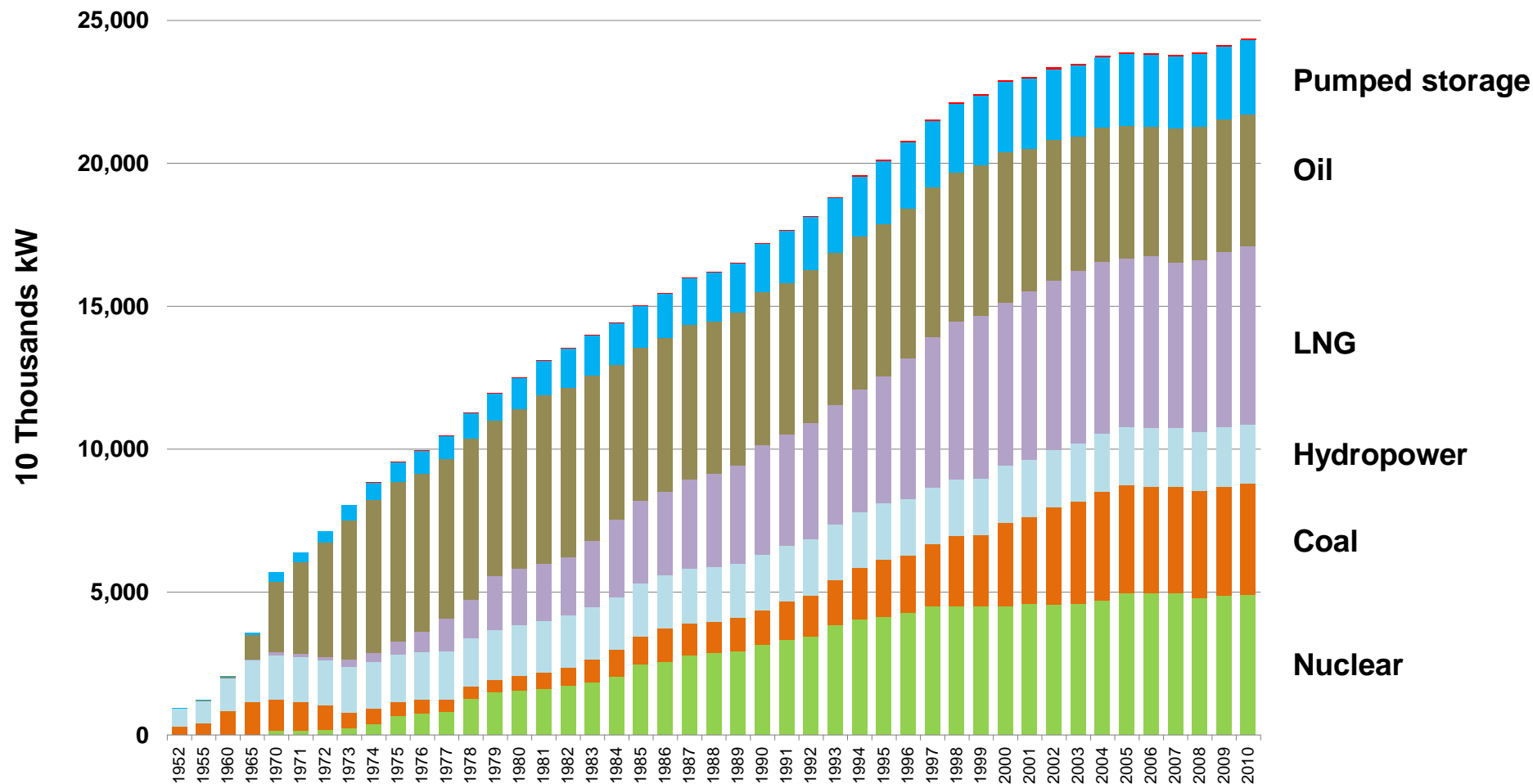
## Historical Development :

### Creating added value of food industry / Enhancement of cold chain infrastructure





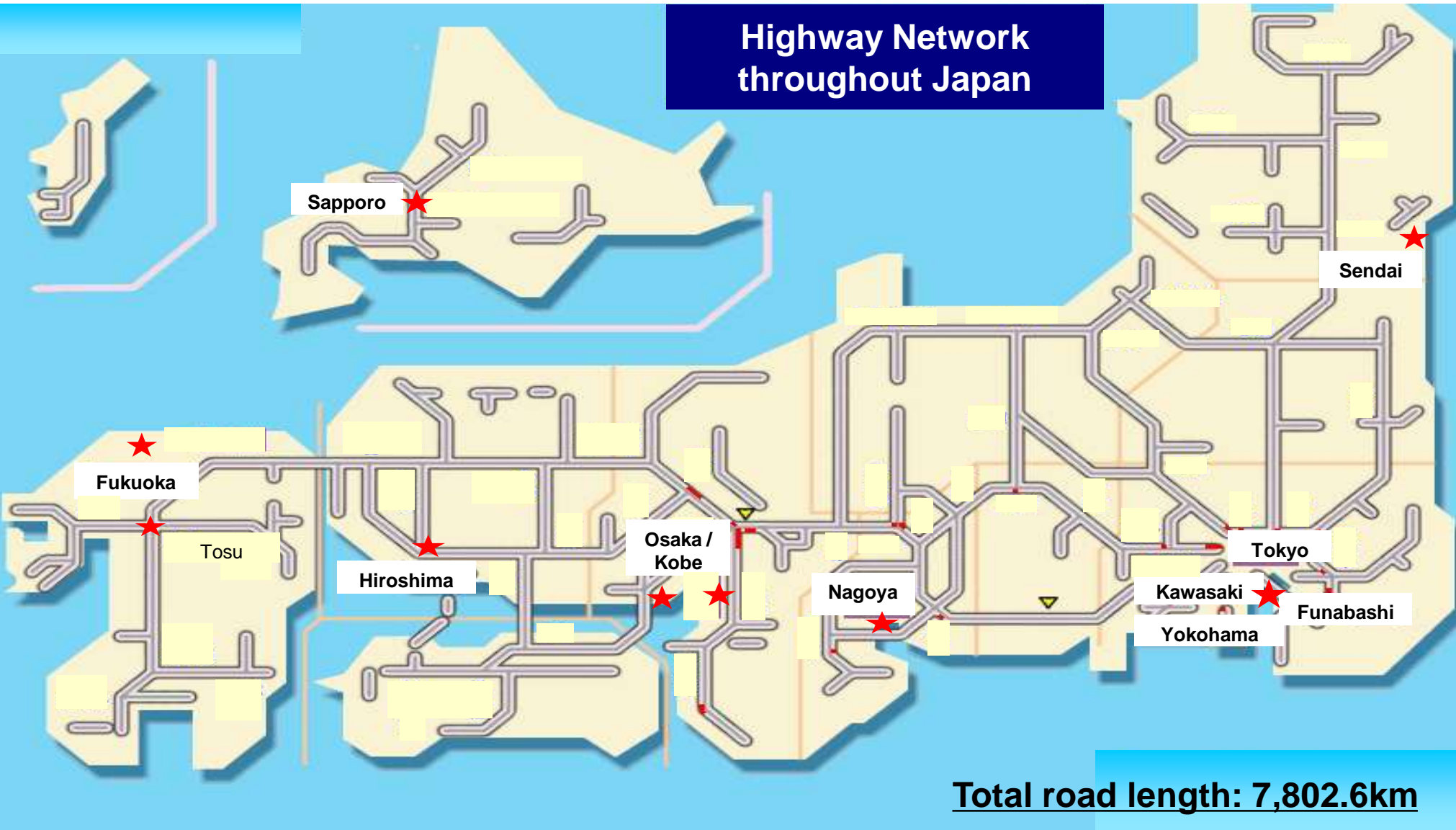
## Trends in electric generation capacity - Japan



Source: METI "Energy White Paper"

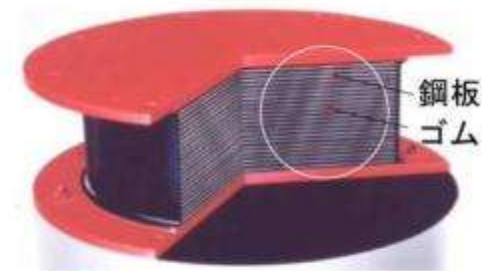
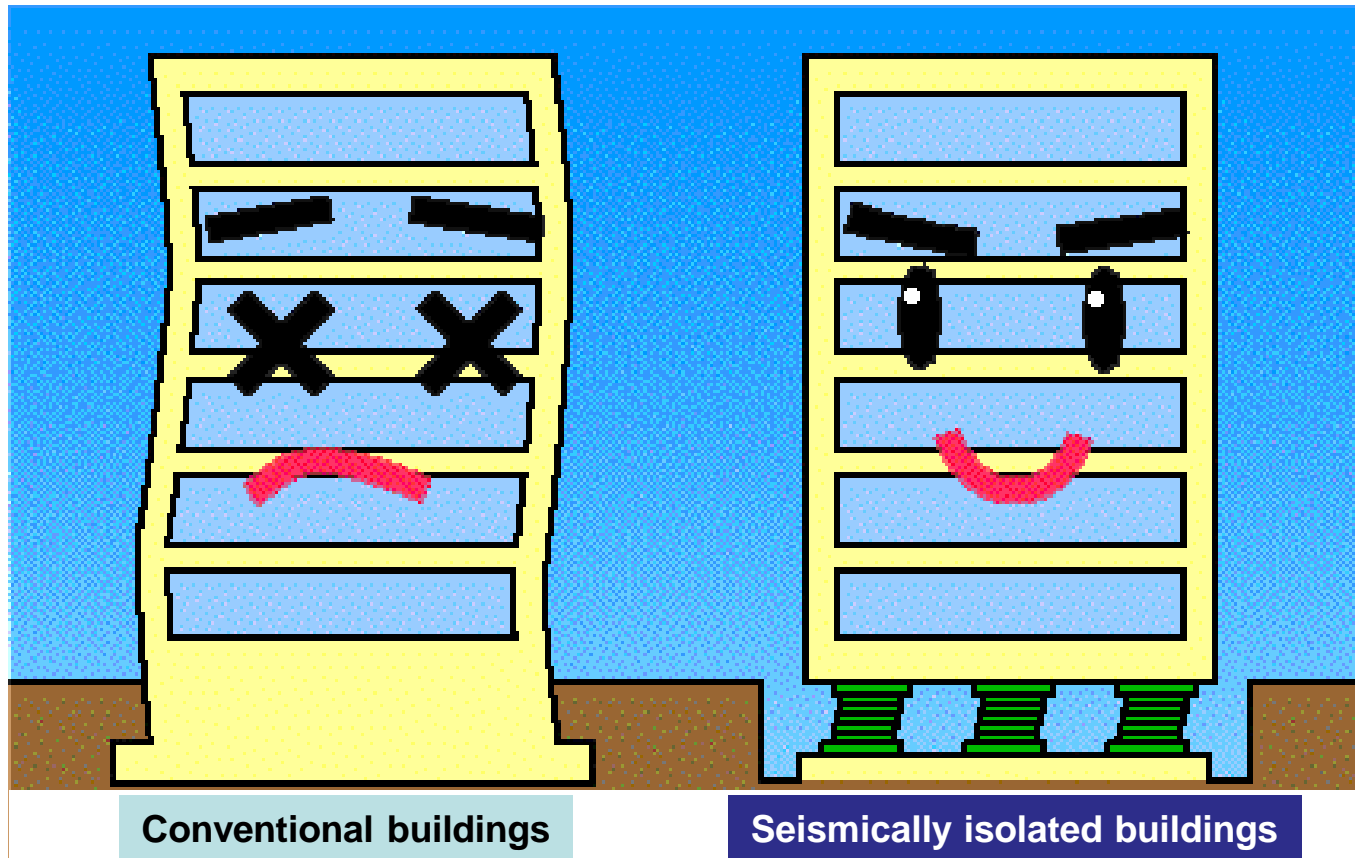
# Development of Social Infrastructure

## Highway Network throughout Japan



# Seismically Isolated Cold Storages

Building facilities with a structure designed to absorb quake



Vibration damper



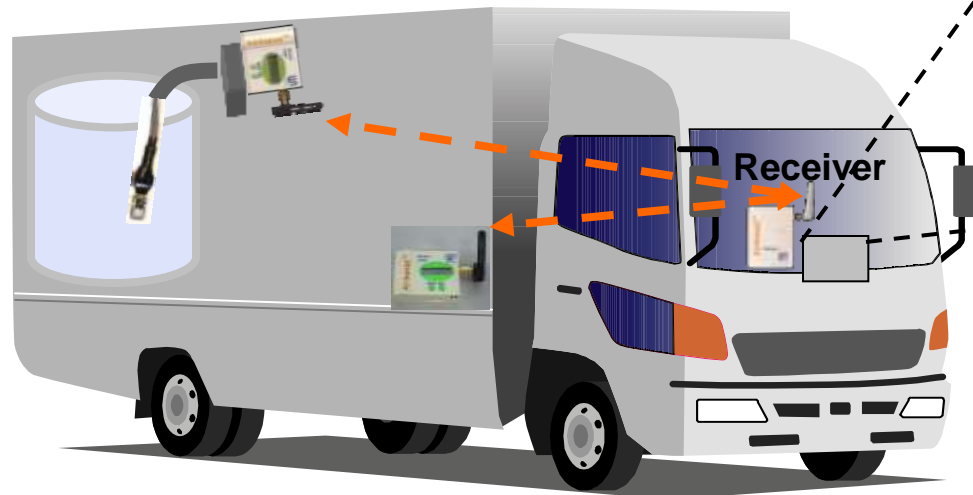
Source: The Japan Society of Seismic Isolation

# Quality Management Measure during Delivery

## Forestalling of quality deterioration of goods

- All-time monitoring of vibration, temperature and humidity during delivery

All-time monitoring/recording of vibration, temperature and humidity



In-vehicle dynamic monitoring terminal

**Application : frozen foods, medicines, cosmetics, precision instruments**

Source: Hitachi, Ltd.,

# Principle: Public Private Partnership

- Minimizing post-harvest losses is “Critical” for emerging economies
- Sharing developed economies’ technology innovated in the past to save food losses in emerging economies
- Proposed Solution: Public Private Partnership

## Public Sector

### Infrastructure

- Roads
- Markets
- Energy (e.g. electricity)

**Public Awareness**  
(e.g. Education)

## Private Sector

### Facilities

- Cold Temperature Logistic
- Frozen Processed Plant
- Freezer at Retail Stores

**Management of Operation**

# Combination with APEC Declaration in NIIGATA / KAZAN

## Cold Chain Infrastructure – Achieving the goals of two Declarations

### Shared Goals of APEC

#### NIIGATA Declaration

1. Sustainable development of the agricultural sector
2. Facilitation of investment, trade and markets

#### KAZAN Declaration

1. Increasing agricultural production and productivity
2. Facilitating trade and developing food markets
3. Enhancing food safety and quality
4. Improving access to food for socially vulnerable groups of population
5. Sustainable ecosystem management, and anti-illegal fishing

### Cold Chain Infrastructure

- ✓ Increasing farm productivity
- ✓ Increasing income for farmers
- ✓ Increase of food export
- ✓ Developing food industry
- ✓ Improving hygiene and nutrition
- ✓ Reducing food losses
- ✓ Sustainable food supply chain

**Thank You Very Much  
for Your Attention!**

