



# MARKET ESTIMATION & INVESTMENT POTENTIAL

Transforming Agro-Logistics in Bangladesh

- Stocktaking Exercise on Agro-Logistics
- The **\$10.5 Billion** Opportunity
- Bridging Production & Value

# AGRO-LOGISTICS MARKET ESTIMATION & INVESTMENT POTENTIAL IN BANGLADESH:

## Study Rationale & Scope

### CONTEXT: Stocktaking Exercise on Agro-Logistics in Bangladesh



Commissioned by Embassy of the Kingdom of the Netherlands, Dhaka.

Focus: Sustainable Business-led Development as a 'Transitional Partner'



### OBJECTIVES OF THE STUDY

#### 1. QUANTIFY MARKET SIZE & VALUE



Across key commodity groups:  
Vegetables, Fruits, Dairy,  
Poultry, Fish, Cereals.



#### 2. MAP FINANCIAL INSTRUMENTS & FUNDING



Identify existing channels  
available to the industry.



#### 3. IDENTIFY PRIORITY INVESTMENT AREAS



Including FDI & Public-Private  
Partnerships (PPPs) for  
modernization & waste reduction.



### OUTCOME: STRATEGIC ROADMAP FOR STAKEHOLDERS

Bridging the information gap on market values & financial pathways.  
Transforming Bangladesh's agro-logistics into a  
**RESILIENT, VALUE-RETENTIVE, and GLOBALLY COMPETITIVE SYSTEM.**



Embassy of the Kingdom of the Netherlands, Dhaka



Agri-Logistics Bangladesh



# DATA SOURCES



# Data Foundations: Mapping the Sources of the Bangladesh Agro-Logistics Report



A red tractor is positioned on the left side of a lush green field. In the background, three large, silver, cylindrical grain silos stand under a clear blue sky with wispy clouds. A piece of agricultural machinery, possibly a harrow or similar implement, is visible on the right side of the field. A yellow rounded rectangle is superimposed over the center of the image, containing the text 'KEY ASSUMPTIONS OF THE STUDY' in blue capital letters.

## KEY ASSUMPTIONS OF THE STUDY

# THE MATHEMATICAL ASSUMPTIONS FOR AGRO-LOGISTICS MARKET ESTIMATION



## Transport Cost Method:

Commodity-Wise Market Surplus ( $MS_i$ ) =  $\{V_i - (C_f + S_r + F_a + W_p + K)\}$

Tonnage Kilometer ( $TKM_i$ ) =  $(MS_i \times D_i)$

Commodity-wise Total Transport Cost ( $C_{Trans,i}$ ) =  $(TKM_i \times AFR_i)$



## Storage Cost Method:

Output Volume Entering Storage ( $V_{stored,i}$ ) =  $(MS_i \times S_{ti})$

Warehousing Revenue ( $C_{Store,i}$ ) =  $V_{(stored,i)} \times T_{duration} \times ASC_i$



## Value-Added Services Method:

Total Value-Added Service Revenue

( $CVAS$ ) =  $\sum$  (Revenue from sorting, grading, packaging, milling, etc.)



## Total Agro-Logistics Market Size

( $M_{Total}$ ) =  $\sum (C_{Trans,i} + C_{Store,i} + CVAS,i)$



## KEY FINDINGS OF THE STUDY



## THE AGRO-LOGISTICS MARKET SIZE OF BANGLADESH FY 2023-24

Commodity Category	Transportation Cost ( $C_{Trans}$ ) (BDT Bn)	Storage Cost ( $C_{Store}$ ) (BDT Bn)	Cost of Value-Added Services ( $C_{VAS}$ ) (BDT Bn)	Total Market Size (BDT Billion)	Total Market Size (USD Billion)
Cereals (Rice, Maize, Wheat)	14.96	1.47	47.75	64.18	0.52
Vegetables (General)	22.08	Negligible	44.26	66.34	0.54
Potato	9.91	127.46	33.44	170.81	1.4
Fruits (General)	6.02	Negligible (direct market access)	22	28.02	0.23
Mango	6.8	Negligible (direct market access)	18.23	25.03	0.2
Fisheries	39.46	Negligible (direct market access)	65.76	105.22	0.86
Livestock (Meat)	42	0.44	403.81	446.25	3.65
Dairy (Milk)	20.43	Negligible (direct market access)	120.02	140.45	1.15
Poultry (Eggs)	50.1	0.01	160.31	210.42	1.72
Total Aggregate	211.76	129.38	915.58	1,256.71	10.28



# THE AGRO-LOGISTICS MARKET SIZE OF BANGLADESH FY 2023-24

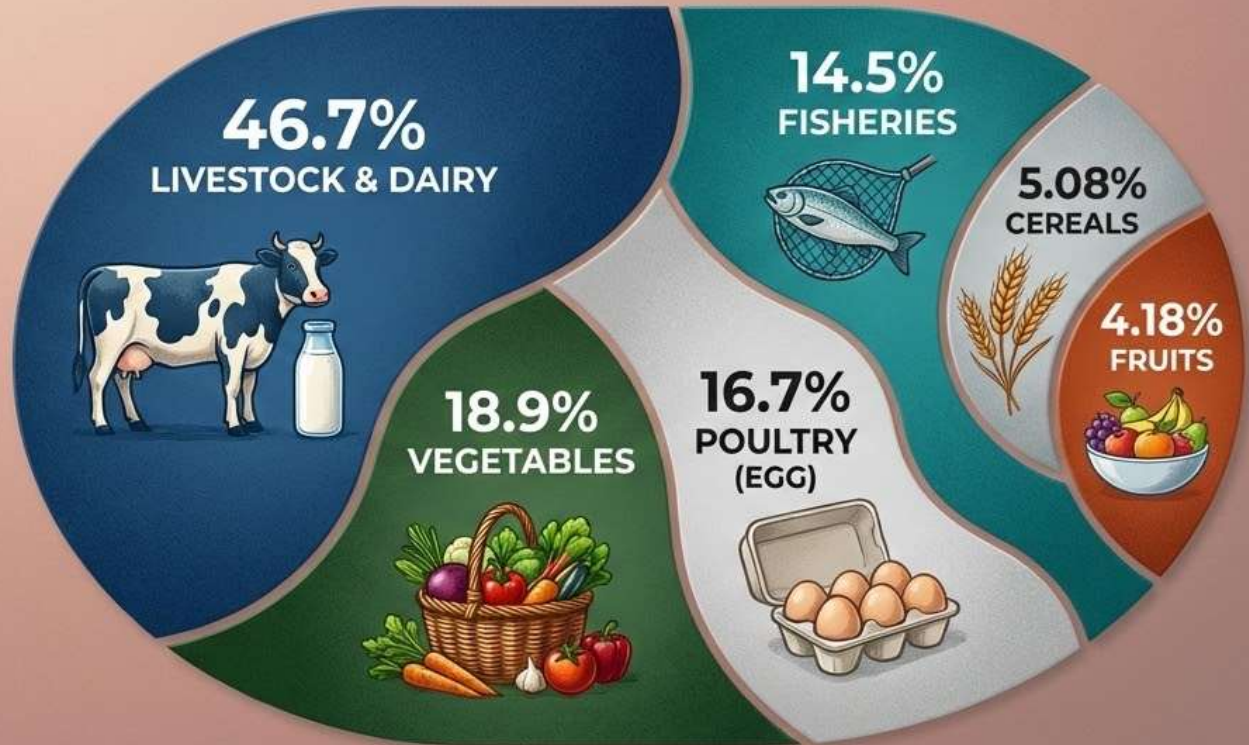
Total Market Valuation:  
**BDT 1,282 Bn**  
(~\$10.5 Billion)

## Insight:

High-value perishables drive the logistics market, not cereals.

## Cost Driver:

Transportation is the highest expenditure across all sectors.





# Dairy & Livestock (Beef & Chicken)

## KEYFINDS





# The Dairy Flow: Bangladesh's Milk Value Chain

## 1 Production



### Smallholder Farms Lead Output

Most milk from 1-3 cows yielding just 1.0-1.5 liters daily.

## 2 First Mile



### The 4-Hour Freshness Race

Raw milk sours within 2-4 hours without chilling or digital fat testing.

## 3 Mid-Stream



### Traditional Arats vs. Modern Plants

Ice-based preservation.



### Modern Plants

## 4 Retail



### Sweetmeat Shops Dominate the Market

Traditional outlets handle 75% of retail.



while branded supermarkets use controlled cold chains.

## 5 End Consumer



Local Fresh Milk vs Imported Powder

### Quality vs. Price Sensitivity

Households choose between local fresh milk and imported powder based on budget and trust.



# Two Paths for Bangladesh Beef: Traditional vs. Modern

## TRADITIONAL CHANNEL

### STAGE 1: PRODUCTION



### Traditional Channels Control 93% of Supply

Informal smallholder farms and rural "Hats" (markets) set price via spot bargaining; high congestion.



### STAGE 2 & 3: LOGISTICS



### Live Transport Causes 3-5% Weight Loss

Non-refrigerated trucks and high-stress environments lead to significant loss and transport mortality.

3-5% LOSS

### RETAIL BRANCHING



### Informal "Hanging Meat" on Floors

Traditional butchers sell ambient meat on wet market floors.

### STAGE 1: PRODUCTION



### Modern Channel Utilizes Mechanized Chilling

Emerging high-standards channel (<7%) targets premium retail and global export.

### STAGE 2 & 3: LOGISTICS



### HACCP Abattoirs & Mechanized Chilling

<7% modern channel utilizes mechanized chilling, vacuum packing, and vacuum-packed transport.



### Vacuum Packed/Cold Chain Display

<7% channel utilizes vacuum packing and cold-chain branded stores.

## Bridge the Cold Chain Gap

Shifting from price-sensitive "warm" meat to cold-chain branded stores unlocks Halal export markets in the Middle East.



EXPORT MARKETS

# Bangladesh's Poultry Pulse: From Hatchery to Plate

## STEP 1: HATCHERY OUTPUT



**7.2 Billion  
ANNUAL CHICKS**

Grand Parent and Parent Stock farms fuel a massive breeding engine to meet national protein demand.

## STEP 2: COMMERCIAL FARMING



**Contract  
Models  
Dominate  
50–60%**

of production relies on contract farming, where dealers provide chicks and feed on credit.

## STEP 3: LOGISTICS & TRANSIT



**Mitigate  
High-Stress  
Ambient  
Logistics**

Reliance on open trucks and limited cold chains creates significant mortality risks during transit.

## STEP 4: RETAIL MARKET



**Traditional  
Markets  
Outpace  
Modern Retail**

97% of consumers prefer live birds and manual slaughter in wet markets over processed supermarket products.

## STEP 5: GROWING AMBITION FOR HALAL EXPORTS



**Growing  
Ambition for  
Halal Exports**

While domestic use is price-sensitive, there is significant interest in expanding Halal exports to the Middle East.



# The Journey of an Egg: Bangladesh's Poultry Value Chain

## STAGE 1: INPUTS & BREEDING



Imported GP  
& Layer PS  
Stock



Feed Mills  
(70% of  
input costs)

## STAGE 2: 18,000+ PRODUCTION FARMS



Daily Collection



No On-Farm  
Cold Storage

## STAGE 3: AGGREGATION & WHOLESALE HUBS



Open Pickup  
Transport



Manual  
Auctioning  
(e.g., Tejgaon,  
Kaptan Bazar)

## STAGE 4: TRADITIONAL VS. MODERN RETAIL

90%  
TRADITIONAL

10%  
MODERN



Sold Loose in  
Wet Markets



Graded/Packaged  
in Supermarkets





# Horticulture & Fisheries

## KEYFINDS



# Farm to Fork: The Journey of Bangladesh's **VEGETABLES**

Bangladesh's **VEGETABLES** chain relies on a complex network to move 700,000 kgs of vegetables daily.

## STAGE 1: Smallholder Production



**60%** 

60% of farmers cultivate one acre or less, relying on manual harvesting and traditional methods.

## STAGE 2: The "Hidden Middle"



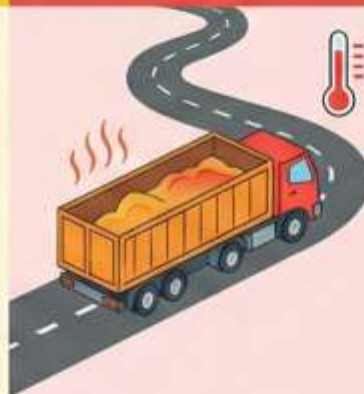
Local Farias and Beparis aggregate produce using rickshaw-vans, tractors, and head-loading for initial transport.

## STAGE 3: The Wholesale Hub (Arat)



Aratdars (commission agents) at major hubs like Karwan Bazar facilitate price setting through open auctions.

## STAGE 4: High-Risk Distribution



**95%** 

95% of produce moves via non-refrigerated road transport, a primary driver of the **30-40%** post-harvest loss.

## STAGE 5: Diverse End-Markets



Traditional Wet Markets  
(Price-sensitive)



Modern Superstores  
(Quality-conscious)

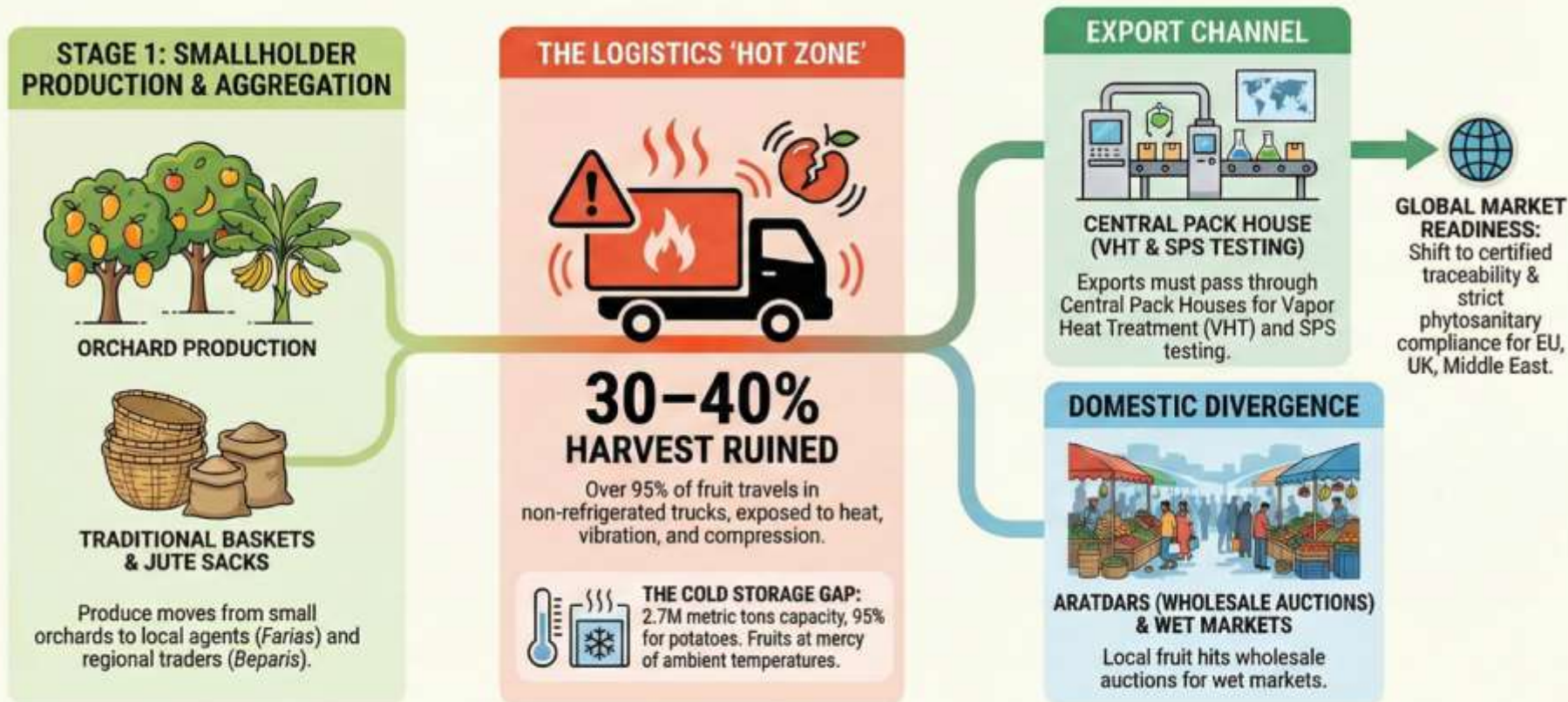


Traceable  
Export  
Channels



# From Orchard to Export: The Bangladesh Fruit Supply Chain

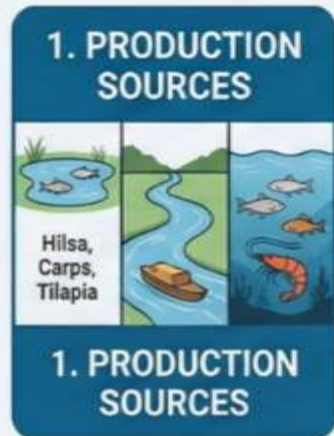
Visualize the journey of fruit from farm to table and identify the **critical bottlenecks** causing **40% post-harvest loss**.





# From Catch to Consumer: The Journey of Bangladesh's Fish

The Bangladesh fish value chain is a high-speed, 5-stage race against time and temperature.



## Diverse Origins: Inland, Riverine, and and Marine

Sources range from inland ponds and rivers (Hilsa, Carps, Tilapia) to the deep sea (Marine Shrimp).



## The 'Dadon' System: Informal Credit Ties

Farmers and fishermen are often bound to local traders (Farias) via advance informal credit.



## The Ice Race: Non-Refrigerated Transport

95% of fish moves via road using only loose ice, facing high heat stress risks.



## Aratdars: The Central Auction Hubs

Commission agents facilitate open auctions in congested hubs like Karwan Bazar and Jatrabari.



## Domestic Wet Markets vs. Global Export

90% of fish serves local consumers via wet markets, while a specialized 3% enters global HACCP-certified channels.

# THE GRAIN PATH: BANGLADESH'S CEREAL VALUE CHAIN

Bangladesh is a global leader in cereal production, yet **10% to 17.8% of the harvest** is lost due to infrastructure gaps between the farm and the consumer.

## 1: PRODUCTION (The Source)



### Smallholder Farms Drive National Supply

Rice is the staple crop, but Maize production has surged to ~5.7M MT for poultry and aquaculture feed demand.

## ! HIGH LOSS RISK

## 2: FIRST-MILE LOGISTICS (The Vulnerability)



### Drying is the Major Loss Hotspot

85-90% of grains are sun-dried on open roads, making them highly vulnerable to moisture damage and erratic rainfall.

The "First-Mile" (Harvesting to Drying) is the highest-risk zone for economic leakage.

## 3: AGGREGATION (The Network)



### A Multi-Tiered Informal Trading System

Farias (village traders) and Beparis (aggregators) move volume to Aratdars (commission agents) in wholesale hubs.

## 4: STORAGE (The Holding)



### Traditional Golas vs. Modern Silos

While government silos offer modern protection, most smallholders rely on traditional bamboo "golas" with minimal pest protection.

## 5: PROCESSING (The Transformation)



### Transitioning to Automatic Milling

Shifting from traditional husking mills to automatic systems reduces grain breakage and improves total recovery rates.

## 6: DISTRIBUTION (The Destination)



### Feeding 170 Million People Daily

Grain flows through three main paths: traditional wet markets, industrial feed plants, and government-run social safety nets (PFDs).





# AGRO-LOGISTICS MARKET & INFRASTRUCTURAL CHALLENGES



# Sector Vulnerabilities: Horticulture & Fisheries



**Vegetables & Fruits:**  
**30-44% Loss**

due to distress sales and lack of storage.



**Fisheries:**  
**\$151 Million**

Annual Loss in marine sector alone.

# THE POULTRY PARADOX: Modernizing Bangladesh's Farm-to-Table Logistics

Massive production undermined by a fragmented, ambient-temperature logistics system.

## HIGH PRODUCTION



### 36% of National Animal Protein Intake

Sector produces 23.35 billion eggs & 1.5 million tonnes of meat annually (90% informal)

## THE BOTTLENECK: LOGISTICS & PROCESSING GAP



### <2% Cold Chain Gap

Less than 2% of agricultural transport fleet is refrigerated, exposing live birds and eggs to heat stress.



### Traditional Wet Markets vs. Modern Processing

95% of meat sold live in wet markets; only 2-3% of broilers pass through mechanized slaughterhouses.



### 13% Annual Loss in Egg Production

Physical breakage & heat deterioration lose ~3 billion eggs every year.

## RESULTING LOSSES & OPPORTUNITY



### \$5M Opportunity in Modern Grading & Packing

Investment in automated egg-grading & 6-8 mid-sized slaughterhouses is critical for urban demand.



# The Tyranny of Time: Dairy & Meat



- **Dairy:** Only **10%** enters formal cold chain; milk spoils rapidly.

- **Import Dependency:** **\$370M** spent annually on milk powder.



Weight Loss

-5% Live Weight Loss due to stress.

# The Potato Paradox: Solving Bangladesh's \$2.4B Cold Chain Crisis

## THE \$2.4 BILLION ANNUAL ECONOMIC DRAIN

Post-harvest losses range from 20% to 44% for fruits, vegetables, and fish due to fragmented, ambient-temperature handling.

### The Potato A Storage Monoculture

95%



Of Bangladesh's 2.7 million MT cold storage capacity, 90–95% is dedicated exclusively to potatoes, leaving almost zero space for mangoes, milk, or meat.

### The Missing Cool Chain on Wheels

<1%



Less than 1% of the national agricultural transport fleet is refrigerated, forcing a reliance on open trucks that expose produce to heat and vibration.



### Bridge the 'Missing Middle' Financing Gap



Informal  
'Dadon' Credit



Two-Step  
Loans (TSL)



Multi-commodity  
Cold Hubs

Transitioning from informal 'Dadon' credit to Two-Step Loans (TSL) is essential to help SMEs fund the high CAPEX of multi-commodity cold hubs.

## A \$440M MARKET OPPORTUNITY BY 2031

Rapid urbanization and LDC graduation are driving a massive surge in demand for temperature-controlled logistics and certified food safety.

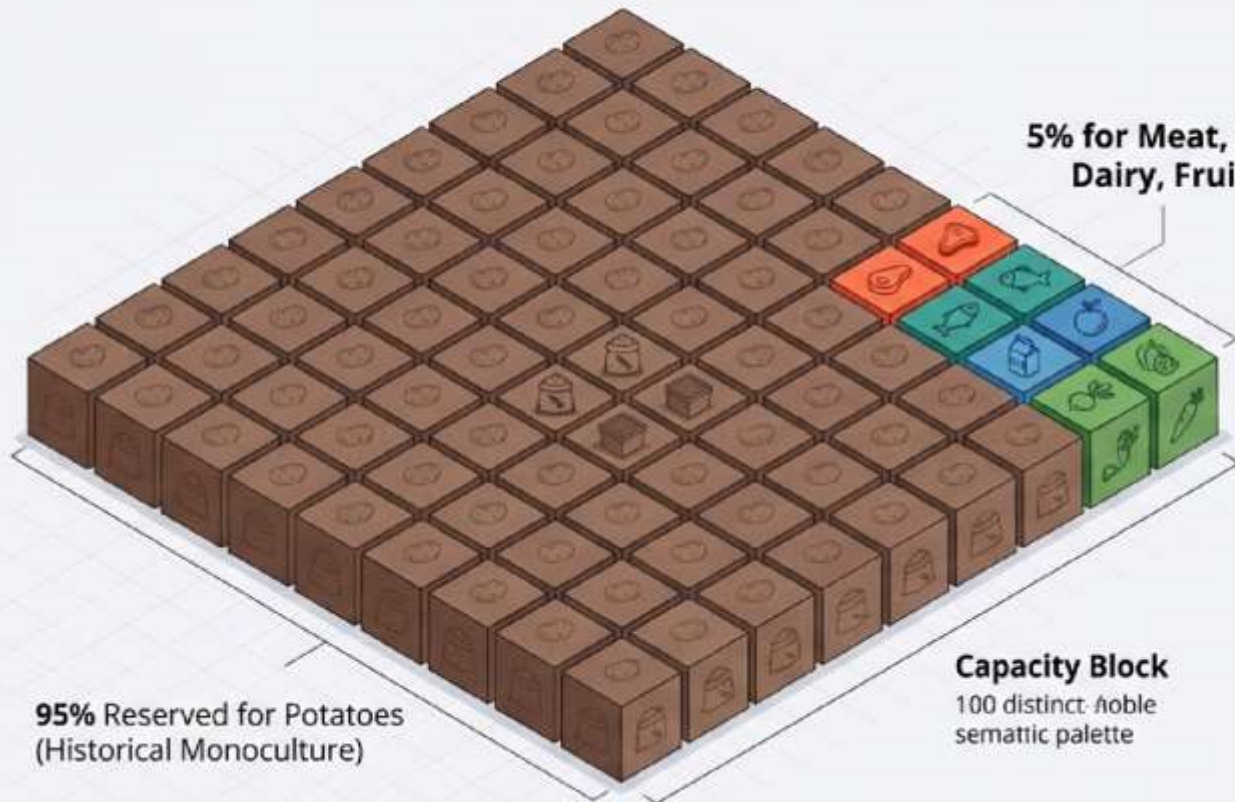


SECURE, CERTIFIED  
COLD CHAIN MARKET

ECONOMIC LEAKAGE & LOSS



# The Potato Paradox: A Monoculture of Storage



The Consequence:  
High-value perishables  
have no buffer storage,  
forcing "distress sales"  
"distress sales"  
immediately after  
harvest.



# The Cold Chain Distortion: The 'Hot Zone' on Wheels



**Heat Stress**



**Vibration Damage**



**Compression**



# The Price of Distortion: Sector-Level Impact



## Fisheries



### The Ice Trap:

Reliance on 'Loose Ice'. Marine fisheries lose **\$151 Million** annually.



## Dairy



### The 4-Hour Trap:

Raw milk spoils rapidly. **90% informal** trade without chilling.

90%



## Fruits



30% 40%



### The Pressure Cooker:

Ambient transport causes **30–40%** rot and compression damage.



# INVESTMENT LANDSCAPE, BLOCKADE & EMERGING TRENDS



# The Virtuous Cycle of Investment

## Input: FDI & Technology

Injection of Foreign Capital & Modern Cold Chain Solutions.  
Technology Transfer for Efficiency.

## Impact: Higher Farmer Income & GDP

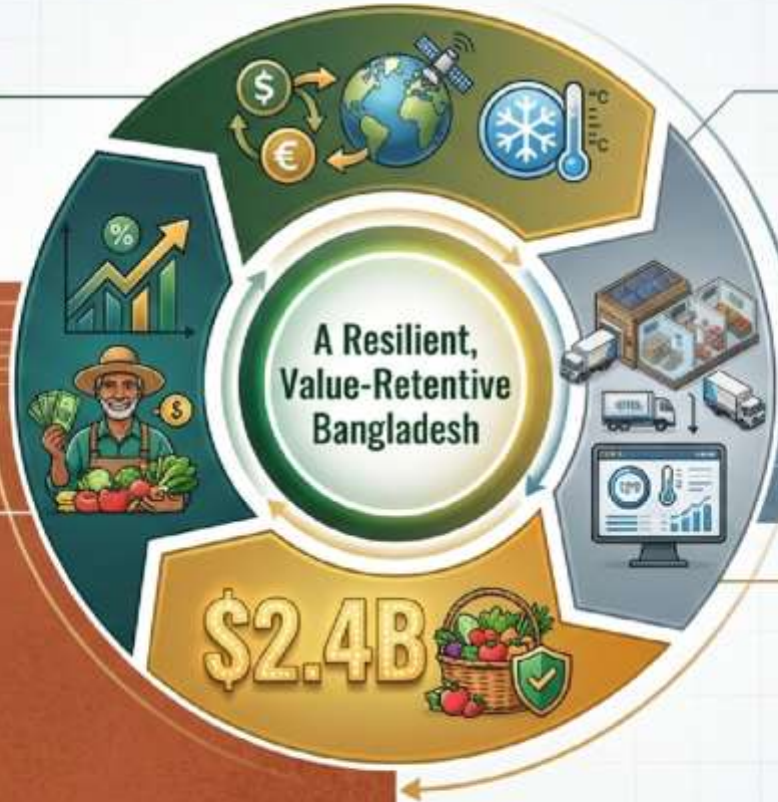
Exponential Farmer Prosperity.  
Boost in Export Growth and Global Competitiveness.

## Process: Modern Cold Chain Infrastructure

Specialized Facilities, Reefer Fleets, and Digital Tracking.  
Breaking Monoculture with Multi-Modal Hubs.

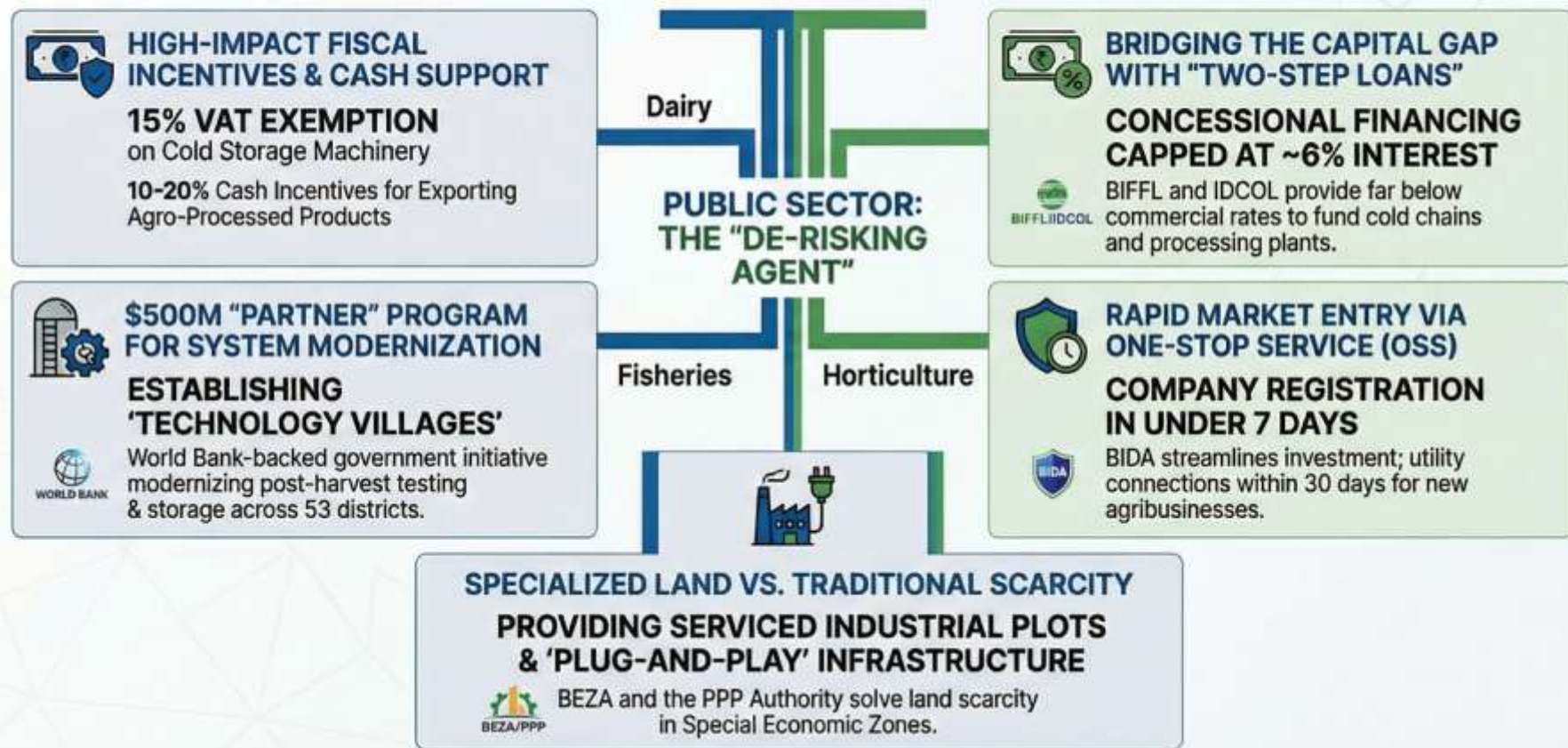
## Output: \$2.4 Billion Value Reclaimed

Reduced Post-Harvest Wastage.  
Preserved National Wealth.



**Agro-Logistics is not a service industry; it is a macro-critical growth engine.**

# GOVERNMENT AS THE CATALYST: POWERING BANGLADESH'S AGRO-LOGISTICS EVOLUTION





# INTERNATIONAL ACTORS IN BANGLADESH'S AGRO-LOGISTICS ECOSYSTEM: ROLE & INVESTMENT



## LOGISTICS & COLD CHAIN



**Nippon Express Holdings**  
Logistics Service Provider (3PL)  
Acquired 20% equity in Cold Chain Bangladesh Limited (CCBL) for end-to-end logistics & warehousing



**LixCap**  
Advisory & Investment  
Provides business advice for cold chain development; identified \$2.4B annual post-harvest losses to justify TCL investment



**Celtic Cooling**  
Technology Provider  
Designs & installs energy-efficient refrigeration & climate control systems for cold storage



**Yusen Logistics**  
Logistics Service Provider  
Major market leader operating in the Bangladesh cold chain market



## AQUACULTURE & FISHERIES



**WorldFish (CGIAR)**  
Research & Innovation  
Implements ECOFISH-BD; focuses on value chain innovation, genetics (hatcheries) & reducing post-harvest losses



**Charoen Pokphand (CP) Foods**  
Input Supplier & Integrator  
Major player in aqua-feed & poultry feed; contract farming, supplies hatcheries/feeds



**Skretting (Nutreco)**  
Feed Manufacturer  
Produces high-quality fish & shrimp feed; potential partner for feed efficiency improvements



**De Heus**  
Feed Manufacturer  
Produces complete range feeds & concentrates; supports animal protein value chains



**Solidaridad Network**  
NGO/Development Partner  
Implements SaFaL II project (coastal region) for market linkages, food safety, logistics in shrimp & dairy



## DAIRY & LIVESTOCK



**World Bank**  
Development Financier  
Approved \$500M credit for Livestock and Dairy Development Project (LDDP) to improve productivity, market access, climate resilience



**Heifer International**  
NGO/Capacity Building  
Works with women farmers (Northern BD) to improve value chains in dairy, beef, & goat sectors



**Nestlé**  
Processor/Buyer  
Active in dairy market; sourcing & processing milk products



**American Dairy Limited**  
Genetic Improvement/AI  
Involved in Artificial Insemination (AI) programs to improve cattle breeds



**Danida**  
Donor  
Financed Rural Microenterprise Transformation Project (RMTP) with PKSF for safe meat & dairy product markets



## HORTICULTURE (FRUITS & VEG)



**Syngenta**  
Input Supplier (Seeds/Chemicals)  
Supplies crop protection & hybrid seeds; uses retail network to reach farmers



**Bayer Crop Science**  
Input Supplier  
Active in crop protection & hybrid seed distribution



**East West Seed**  
Seed Company  
Produces & distributes tropical vegetable seeds; knowledge transfer to farmers



**USAID (DAI)**  
Development Partner  
Implemented Agricultural Value Chains (AVC) project to strengthen fruit/vegetable value chains (Southern Delta)



**Naktuinbouw**  
Regulatory/Inspection Support  
Dutch inspection service for horticulture; potential partner for phytosanitary systems & variety protection



## CROSS-CUTTING / POLICY & FINANCE



**JICA**  
Development Partner  
Implements Food Value Chain Improvement Project; provides Two-Step Loans (TSL) via BIFFL for agribusiness & food processing finance



**IFC (World Bank Group)**  
Private Sector Investor  
Financing private agribusinesses (e.g., PRAN); working on weather index-based agriculture insurance



**Swisscontact**  
Technical Assistance  
Implemented Katalyst project for market systems development in agro-processing & vegetable sectors



**Embassy of the Kingdom of the Netherlands (EKN)**  
Donor/Strategic Partner  
Designated Bangladesh as a transitional partner; commissions sector studies for Dutch-Bangla trade & investment



**FAO**  
Technical Assistance  
Leads 3ADI+ program for dairy/beef value chain development; supports food safety & nutrition security policies

# Private Sector Leaders & Emerging Trends



FDI Entry



Tech Aggregation  
(e.g., iFarmer)

**The Shift: From Informal Middlemen  
to Digital Supply Networks.**

Modernizing the Agro-Logistics Value Chain



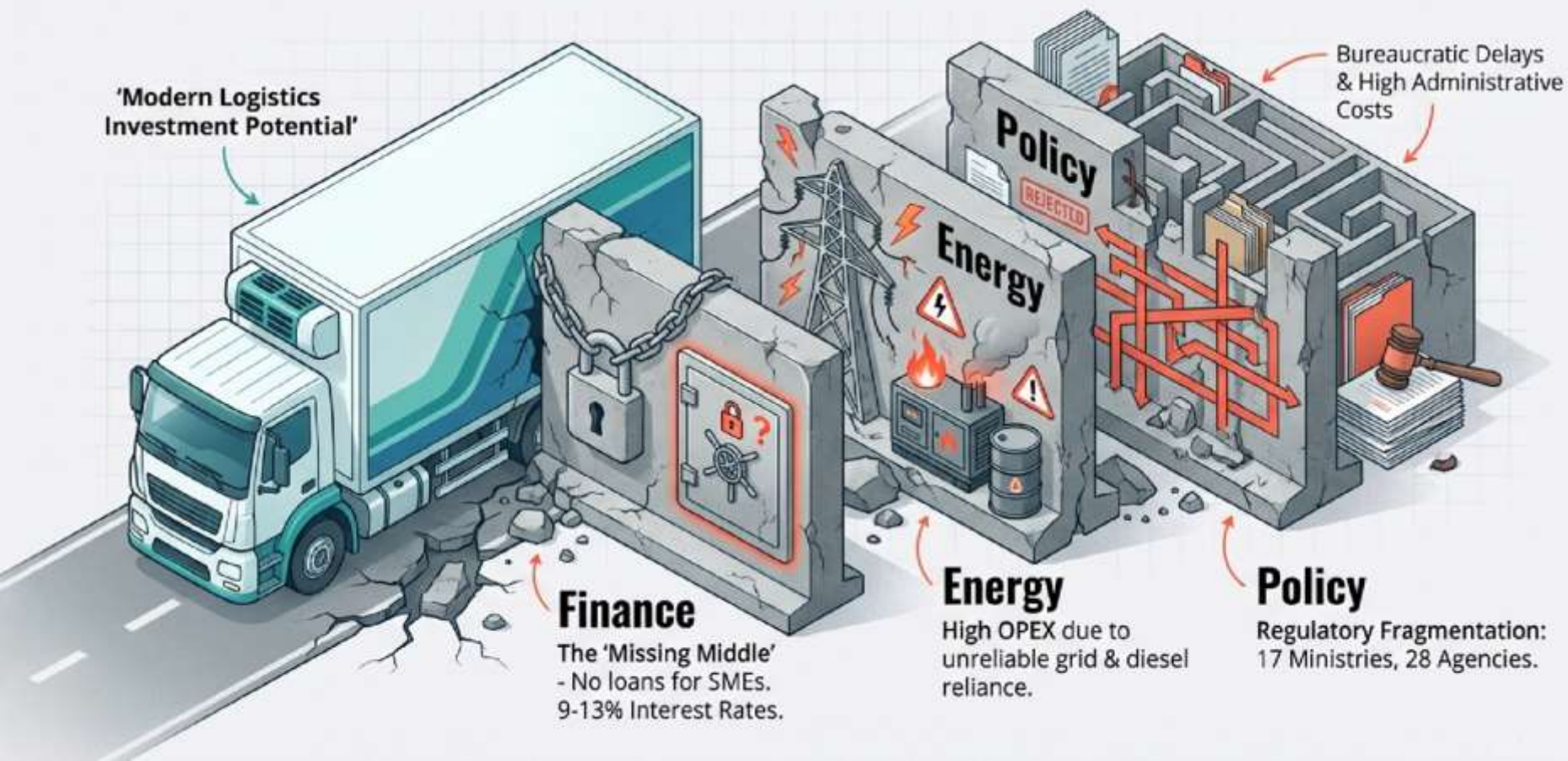
Vertical Integration (PRAN/Golden Harvest)



Export Compliance



# The Investment Blockade: Why the Gap Persists





# FINANCIAL INSTRUMENTS & POLICY RECOMMENDATIONS



# Financial Instruments & Policy Actions



## Policy Priorities

✓ **Warehouse Receipt Systems (Storage as Collateral)**

Warehouse Receipt Systems for agricultural, (storage as collateral)

✓ **National Logistics Policy Implementation**

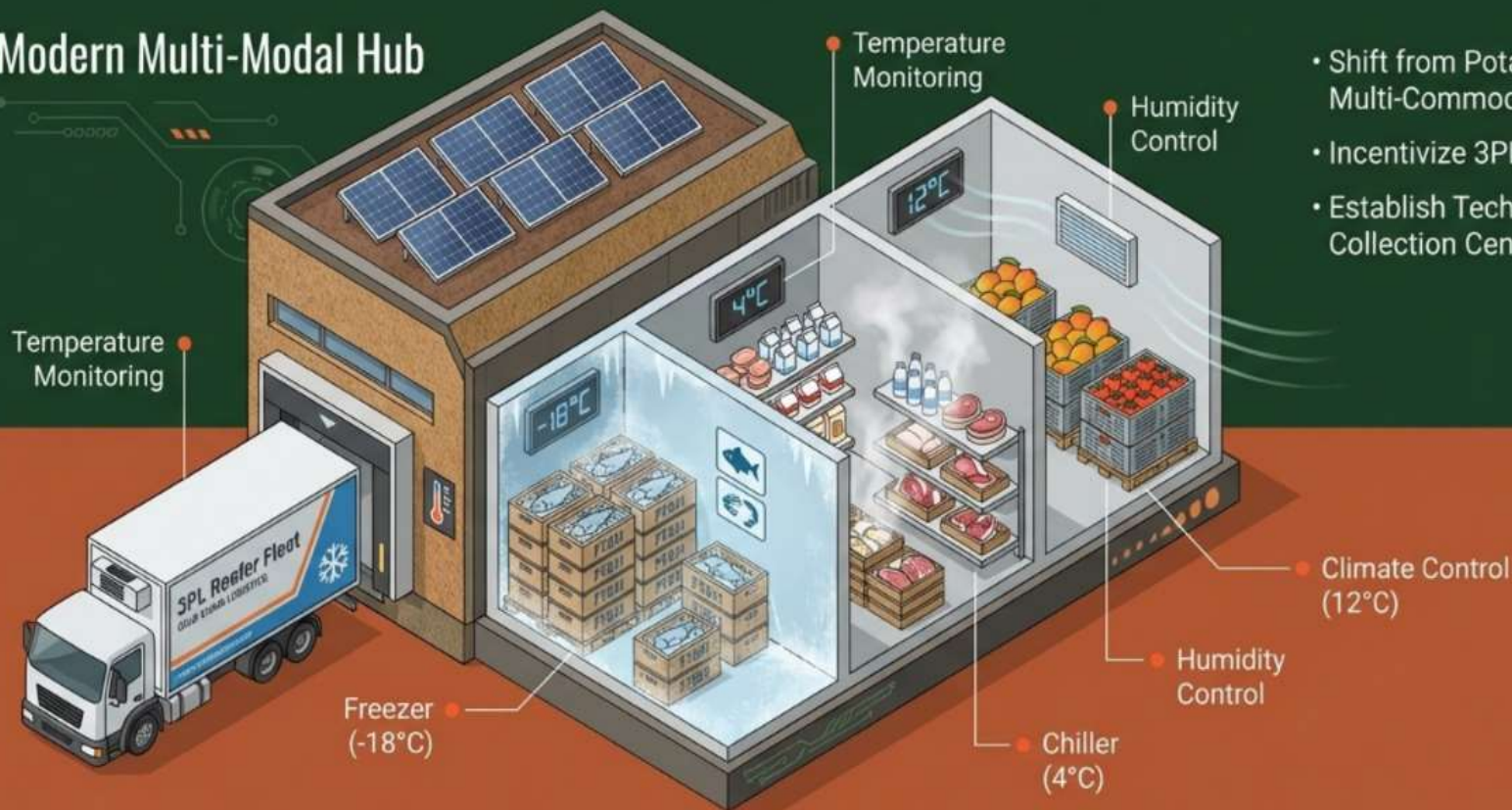
National Logistics Policy and Implementable assessment

✓ **Agency Harmonization**

Agency Harmonization and tech-enabled farmer

# Infrastructure Strategy: Breaking the Monoculture

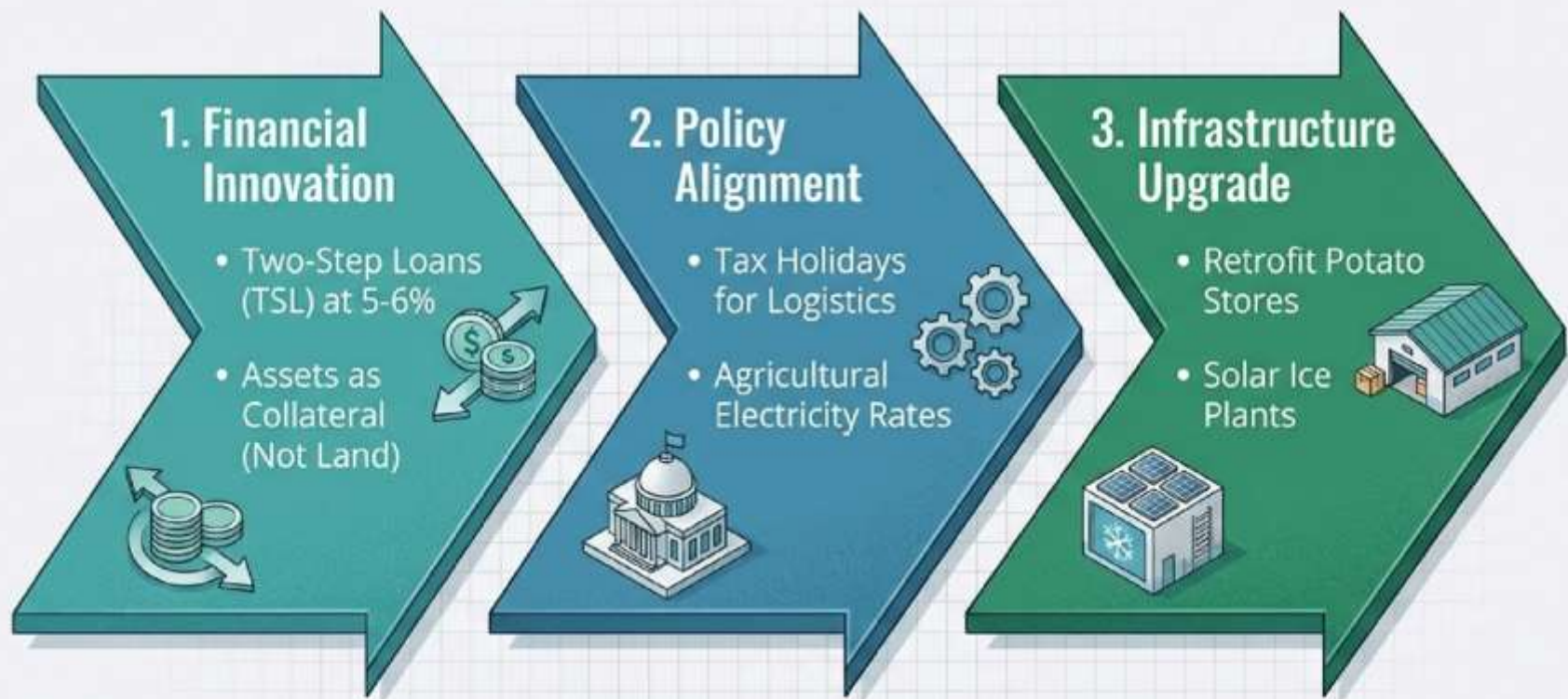
## Modern Multi-Modal Hub



- Shift from Potato-Only to Multi-Commodity Hubs
- Incentivize 3PL Reefer Fleets
- Establish Tech-Enabled Village Collection Centers

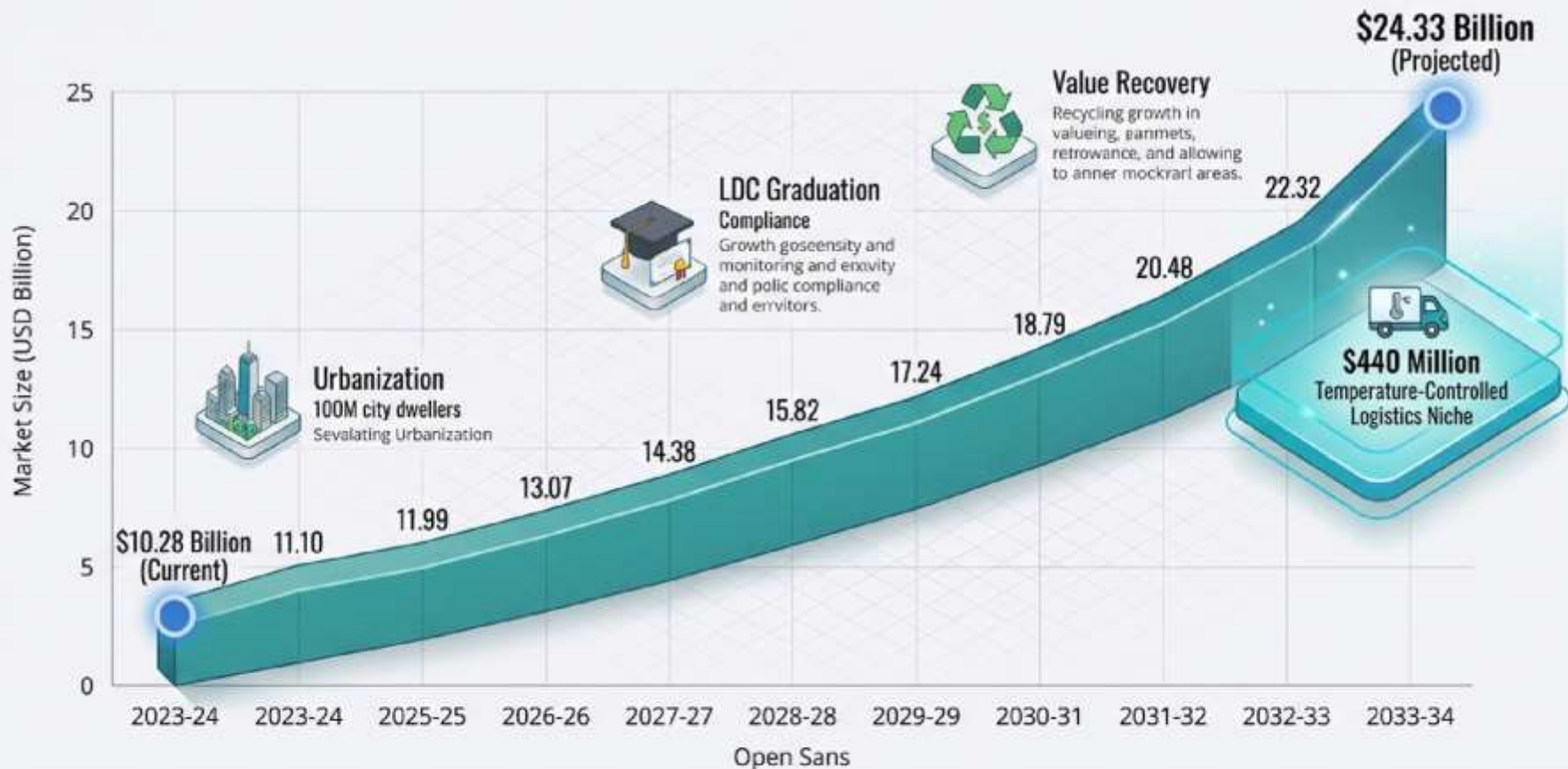


# Strategic Roadmap: Bridging the Gap



**Goal: Transforming the \$2.4B loss into national value.**

# The Opportunity: From Stagnation to a \$24 Billion Market







# THANK YOU

## Questions & Answers



Agro-Logistics Market Estimation & Investment Potential

