

INVENTORY MANAGEMENT STRATEGIES TO REDUCE FOOD LOSS & WASTE

**EFFORTS OF FOOD CORPORATION OF INDIA IN REDUCING FOOD
LOSSES AND WASTE IN WORLD'S LARGEST FOOD SYSTEM**

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OUTLINE

- Quick recap on importance of reducing FLW
- FCI's inventory management system
- Status of FLW in FCI's operations during last decade
- Quantum of food and GHGs saved during last decade
- Conclusion and Lessons Learnt

FLW: DOUBLE WHAMMY PROBLEM

- It exacerbates food insecurity, and
- Worsens climate change problem due to avoidable extra GHGs emissions
- Its control and reduction can make the world more sustainable and are directly related to two important SDGs:
 - SGD 2: Zero Hunger by 2030
 - SDG 12.: Ensure sustainable consumption and production pattern,
 - SDG 12.3 particularly calls for halving FLW
 - Corelated to many other SDGs and targets

FLW: DOUBLE WHAMMY PROBLEM

- Threat to food security: **food insecurity is increasing**
 - Globally about 828 million people face hunger everyday in 2021, (9.8%), 331 million under acute hunger
 - It is much higher than 570 (2013), 571 (2014) and 573 (2017)
 - 2.3 billion people have been food insecure with 924 million severely insecure to some extent in 2021
 - 31.9% of all women and 27.6% of men constituted food insecure people in the world
 - 3.1 billion people could not afford healthy diet in 2020
 - 45 million children wasted and 112 million stunted
- **So FLW reduction offers immense opportunity to make many more people food secure without much increase in production**

Source: FAO, 2022

FLW: DOUBLE WHAMMY PROBLEM

- Significant source of GHGs:
 - Green house gases emission due to food waste would occupy third position among countries
 - Average CO₂ equivalent per MT food lost in Central and South Asia are:
 - Cereals and pulses 2.2 Tonne/MT
 - Meat and animal products 2.3 Tonne/MT
 - Fruits and vegetables 1.1 Tonne/MT
 - Roots and oil bearing crops 0.2 Tonne/MT

Source: UNEP, 2021

INVENTORY MANAGEMENT IN FCI

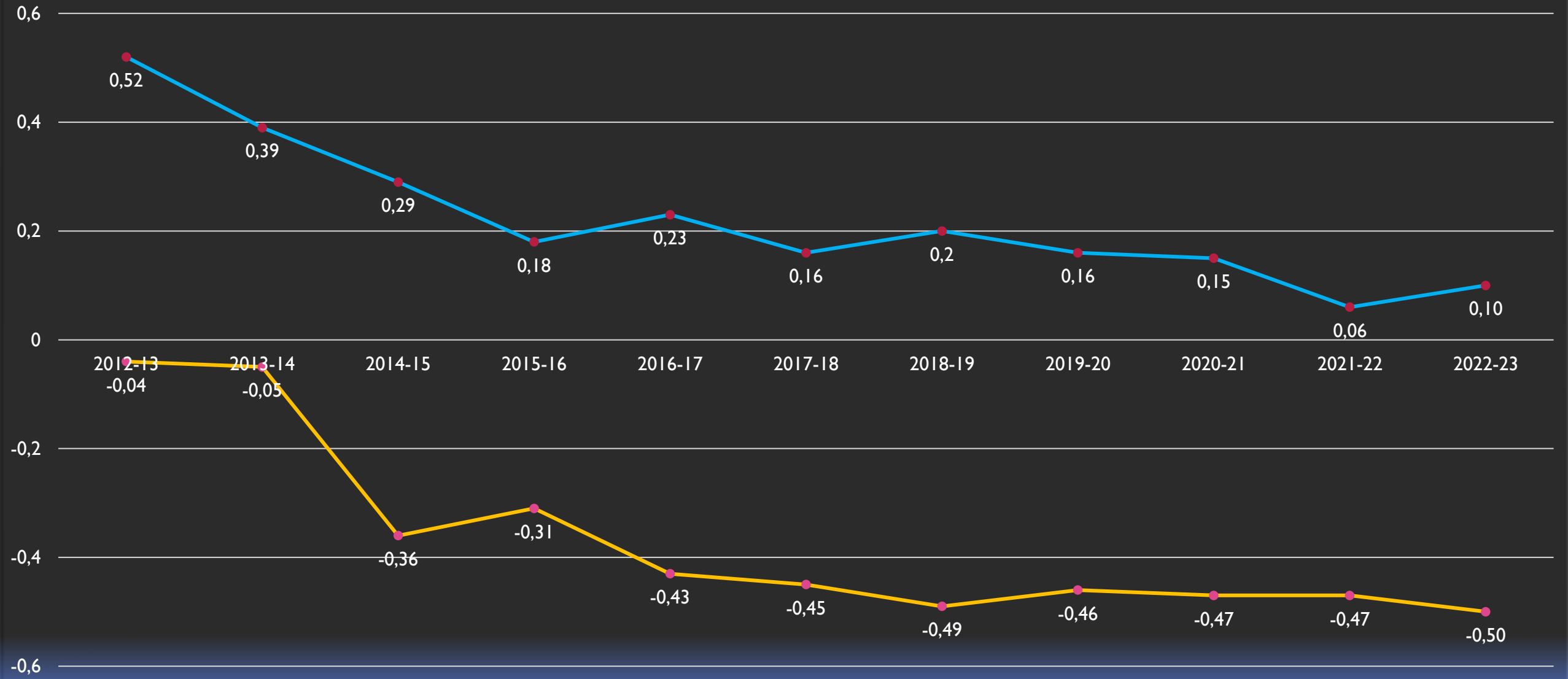
- Globally it is the Largest Food Supply Chain
 - Has handled about 31% of total wheat produced and 38% of total Rice produced in the country during the last decade
 - Average procurement of wheat per year 31 million MT
 - Average procurement of rice per year 40 million MT
 - More than a million farmers benefited by direct credit of proceeds into their account
 - Stores food grains in about 70 million MT scientific storage across the country
 - Transports about 50 million MT from surplus to deficit regions through all means of transport
 - Distributes 65 million MT among 813 million citizens across the country

SUPPLY CHAIN AND SOURCES OF LOSSES

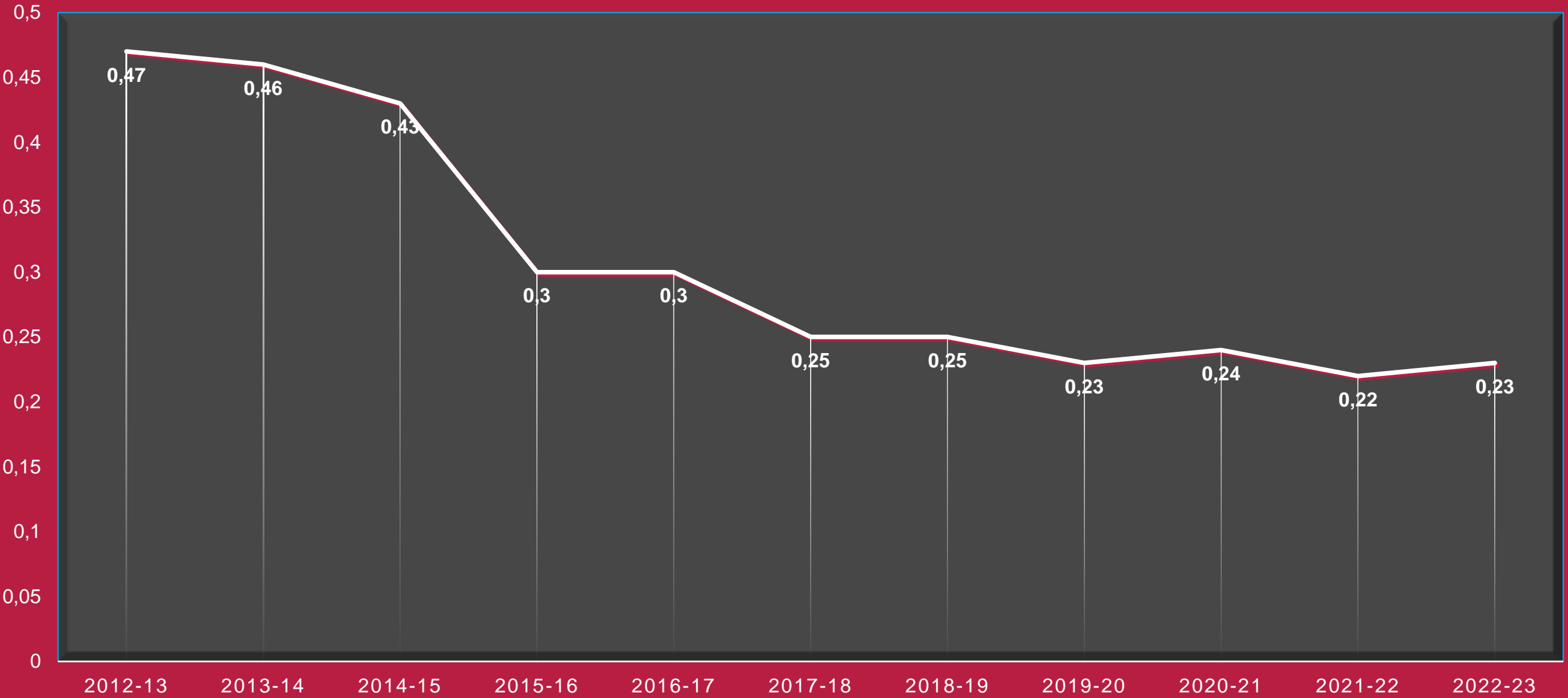
- A very elaborate, complex but stable supply chain
- Starts from purchase yard and goes up to retail shops (Fair Price Shops)
- Has standard operating procedures for storage, preservation and transportation evolved over 6 decades
- Major sources of Loss:
 - Storage and Preservation Operations
 - Transport Operations

Trend of Storage Losses of Wheat and Rice in FCI's operations

Storage Loss of Rice (%) Storage Gain of Wheat (%)



TREND OF TRANSIT LOSSES IN FCI'S OPERATIONS (%)



STRATEGIES ADOPTED TO REDUCE LOSSES

- Scientific storage and preservation
 - Covered storage
 - Preventive and prophylactic treatment of stored food grains against various pests
 - Exhaustive collection and cleaning of spillage
 - Quick segregation and salvation of any degraded stock due to unforeseen calamity
- Minimize operational losses by standardized SOPs such as bag handling, stacking and inspections
- Proper loading unloading, storage, accounting and reporting

FLW reduced and CO₂ Equivalent saved by FCI in last 10 years

	Storage Loss/ Storage Gain		TL	
	Wheat (gain)	Rice	Wheat	Rice
Qty handled (mMT)	560	594	255	2912
Gain/Loss (mMT)	2.01	1.27	0.58	1.08
% Loss/gain in 2012-13	0.04	0.52	0.3	0.68
Loss/gain @ 2012-13 (mMT)	0.22	3.09	0.76	1.98
Savings in mMT	1.79	1.81	0.18	0.90
Current value INR/MT	23205	33835	23205	33835
Current Value (Rs Cr.)	4155	6142	414	3034
Total		10297		3448
CO₂ Equivalent (mMT)	3.93	3.99	0.39	1.97

CONCLUSION AND LESSONS LEARNT

- We have reduced losses to less than half in last 10 years
- Savings @ losses during 2012-13 is about
 - 3.6 mMT in storage and 1.08 mMT in transit losses
 - Lesser emissions of GHGs by 7.93 mMT CO₂ equivalent in storage and 2.37 mMT in transit
 - Total financial savings is about INR 46.81 trillion
- Indian experience can be useful in reducing FLW in low income countries
- Food security can also be enhanced by adopting SOPs of Indian Food System
- The Food Policy Design in India has very cost effective supply chain with minimal FLW

THANKS

