

## A collage of 12 images illustrating various aspects of agriculture. The images include: a green tractor in a field; a close-up of red tomatoes on a vine; a field of golden wheat; a red tractor; a field of green corn; a close-up of yellow corn cobs; a greenhouse with rows of plants; a field of golden wheat; a close-up of a hand holding a handful of yellow beans; a close-up of a wheat stalk; a group of people working in a field; and a close-up of red radishes growing in soil.

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# Automation in Agriculture



**Information & Communication  
Technology (ICT) for Agri.  
Market Linkages**

# Agriculture

-The Changing Ecosystem and growing pressure on Indian Agriculture



# IMPACTS OF CLIMATE CHANGE

By **2030**, nine out of 10 of the major crops will experience reduced or stagnant growth rates, while average prices will increase dramatically as a result, at least in part, due to climate change.



MAIZE

12%

GROWTH RATE  
DECREASE

90%

PRICE  
INCREASE



RICE

23%

GROWTH RATE  
DECREASE

89%

PRICE  
INCREASE



WHEAT

13%

GROWTH RATE  
DECREASE

75%

PRICE  
INCREASE



OTHER CROPS

8%

GROWTH RATE  
DECREASE

83%

PRICE  
INCREASE

# The New Population Bomb

This time it is depopulation that will seal the fate of nations

David Thomas



Though the global recovery is in its eighth year, there is not a single major region where economic growth has returned to its pre-crisis average. This expansion has been the weakest in post-war history, and economists have cited various reasons for it, including poor investment flows induced by the crisis of 2008.

While there is some merit to such explanations, they overlook the slow-motion but inexorable depopulation growth, which is dampening economic growth everywhere. Until recently population decline was unperceived in the developed world, but now it is starting to hit even harder in



## UN: India will be most populous country by 2022

Washington: India is expected to surpass China to become the world's most populous nation by 2022, the United Nations said on Thursday. China and India remain the two largest countries in the world, each with more than 1 billion people, representing 19% and 18% of the world's population, respectively.

USA, the report said.

A significant aging of the population in the next several decades is projected for most regions of the world, starting with Europe where 34% of the population is projected to be over 60 years old by 2050. In Latin America and the Caribbean and in Asia the population will be more skewed from having 51% of

But by 2022, the population of India is expected to surpass that of China," said the report 'World Population Prospects: The 2015 Revision', released by the UN. Currently, among the 10 largest countries in the world, one is in Africa (Nigeria), five are in Asia (Bangladesh, China, India, Indonesia, and Pakistan), two are in Latin America (Brazil and Mexico), one is in Northern America (USA), and one is in Europe (Russia). Pakistan's population is growing the most rapidly. Consequently, the population of Nigeria is projected to surpass that of the UN by about 2050.

By 2050, its population are

11% of people aged over 65 years today is more than that in 2000. Africa has the youngest age distribution of a major area, but it is also projected to age rapidly with population aged 65 years over rising from 5% today to 11% by 2050. The current world population of 7.2 billion is expected to reach 9.6 billion by 2050, 8.7 billion



The current world population of 7.2 billion is expected to reach 9.6 billion by 2050, 8.7 billion

### CONTINENTAL SHIFTS

In the 1950s - the period for which reliable population data is available - the largest countries in terms of population were also contributing the most to the growth of the global population. More than 70% of the population growth came from China, India, the US, Brazil and Russia. In 2015, the contribution to population growth is dominated by Asian countries as four of the five countries contributing to over 80% of growth are from the continent. By 2050, population growth is projected to be driven by big African nations

### COUNTRIES ACCOUNTING FOR HIGHEST ANNUAL POPULATION INCREASE IN THE WORLD

Rank	Country	Annual Population Increase (million)	% Of World
<b>1950-55</b>			
1	China	18.9	23.4
2	India	6.6	16.3
3	USA	7.8	5.6
4	Brazil	1.7	3.7
5	Russia	1.7	3.7
<b>2010-2015</b>			
1	India	16.8	19.1
2	China	7.6	8.3
3	Nigeria	6.6	5.0
4	Pakistan	3.6	4.5
5	Indonesia	3.2	3.6
<b>2045-2050</b>			
1	Nigeria	2.2	13.3
2	India	6.3	11.7
3	Europe*	6.0	7.4
4	Tanzania**	5.5	5.5
5	Pakistan	2.2	4.4

### STATISTICS

#### Top five countries (Actual Population in Millions)

Rank	Country	2010
1	China	1,344
2	India	1,176
3	USA	322
4	Russia	143
5	Japan	127
Rank	Country	2050
1	China	1,376
2	India	1,111
3	USA	422
4	Indonesia	258
5	Brazil	208
Rank	Country	2050
1	India	1,700
2	China	1,343
3	Nigeria	399
4	USA	389
5	Indonesia	321

\*Data Sources: UN, United Republic of Congo Source: UN Population Division Research And Thought

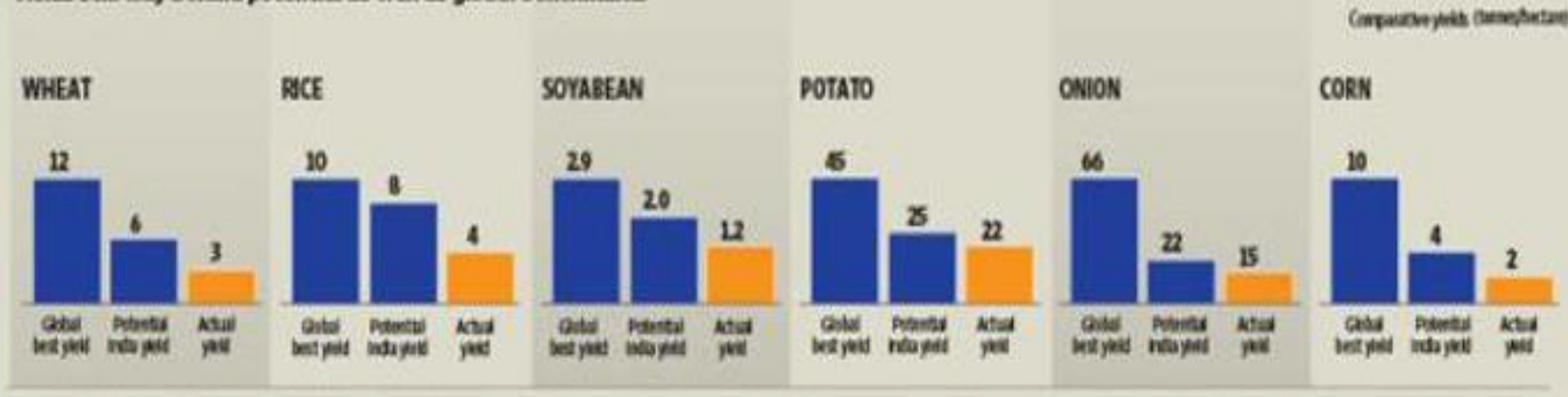


# FOOD CONSUMPTION TO MORE THAN DOUBLE BY 2030: REPORT

A 320% increase in India's per-capita gross domestic product (GDP) by 2030 is likely to drive a 4% increase per annum in overall food consumption from ₹11 trillion in 2010 to ₹22.5 trillion in 20 years, said a report released by the Confederation of Indian Industry (CII) and McKinsey and Co. on Friday. In line with this, per-capita consumption is expected post an annual 3% increase from ₹9,360 to ₹15,390. Given the rise in consumption, agricultural output could double from the current levels by 2030, the report said. At the same time, processing and exports could grow five times over 2011 levels. Also, rising affluence will see urban India's food consumption patterns change from being primarily driven by basic foods to more "high-value foods" such as fruits, vegetables and complex proteins. The report said the challenge for the industry and policymakers is to overcome supply-side barriers and ensure seamless end-to-end linkages to realize India's true demand potential.

## PROBLEMS

Yields still way behind potential as well as global benchmarks



Cont.



# Indian Agriculture

- An Overview



□ Only about 2.4 % of the world's geographical area and 4 % of its water resources to support about 17 % of the world's human population and 15 % of the livestock.

□ Contribution of agriculture to the GDP has fallen from about 30 percent in 1990-91 to less than 15 percent in 2011-12

□ Continues to engages over 50% of the work force

□ India will be most populous country by 2022: UN

□ Food consumption to more than double by 2030: CII-McKinsey & Co.



**Goat & Sheep**  
212.10 million

**Food Grains**  
#2 in the world  
(255.36 Mn T)

**Milk**  
Largest Producer  
~132.40 Mn T

**Tea**  
Largest Producer  
(0.96 Mn T)

**Cattle / buffaloes**  
Largest in the world  
304.42 million

**F & V**  
#2 in the world  
243.47 Mn T

**Sugarcane**  
# 2 in the world  
(338.96 Mn T)

**Fisheries**  
Marine: 3.275 Mn T  
Inland : 5.744 Mn T



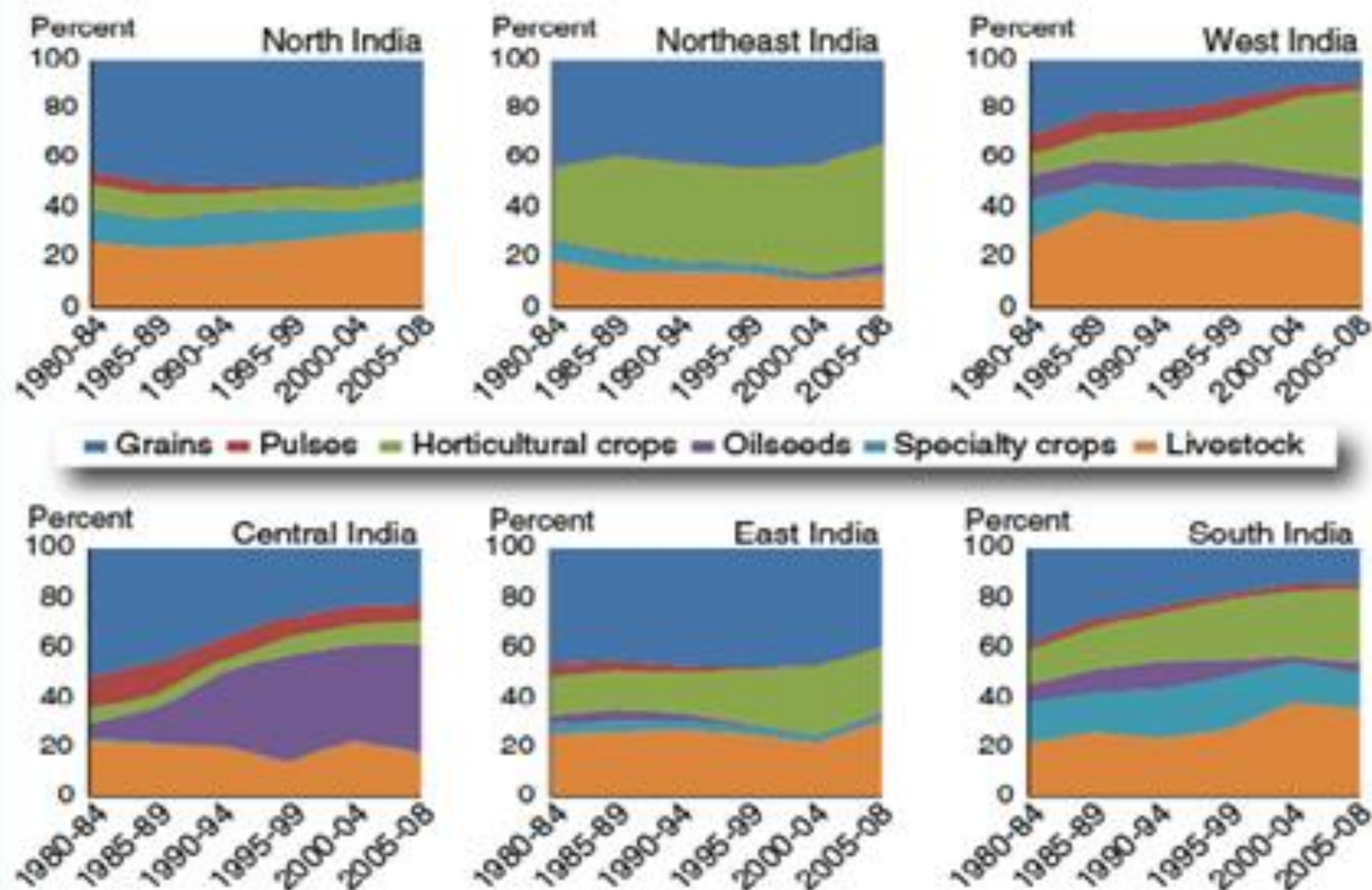


# The Indian Agricultural

India accounts for only about 2.4 % of the world's geographical area and 4 % of its water resources, but has to support about 17 % of the world's human population and 15 % of the livestock.

- India has 127 different agro climatic zones, immense biodiversity and natural resources
- India is one of the biggest food grain and oilseed producers in the world
- Small farms produce 41 percent of India's total grain (49% of rice, 40% of wheat, 29% of coarse cereals and 27% of pulses), and over half of total fruits and vegetables
- Largest producer of milk, tea
- Fruits & Vegetable and Sugar—Second in the world
- Export Earnings 14.7 Percent
- Contribution of agriculture to the overall Gross Domestic Product (GDP) of the country has fallen from about 30 percent in 1990-91 to less than 15 percent in 2011-12
- Over half of India's work force is still engaged in agriculture
- Around 7548 mandis spreaded over 630 districts

## India's regions have undergone a shift in agricultural production

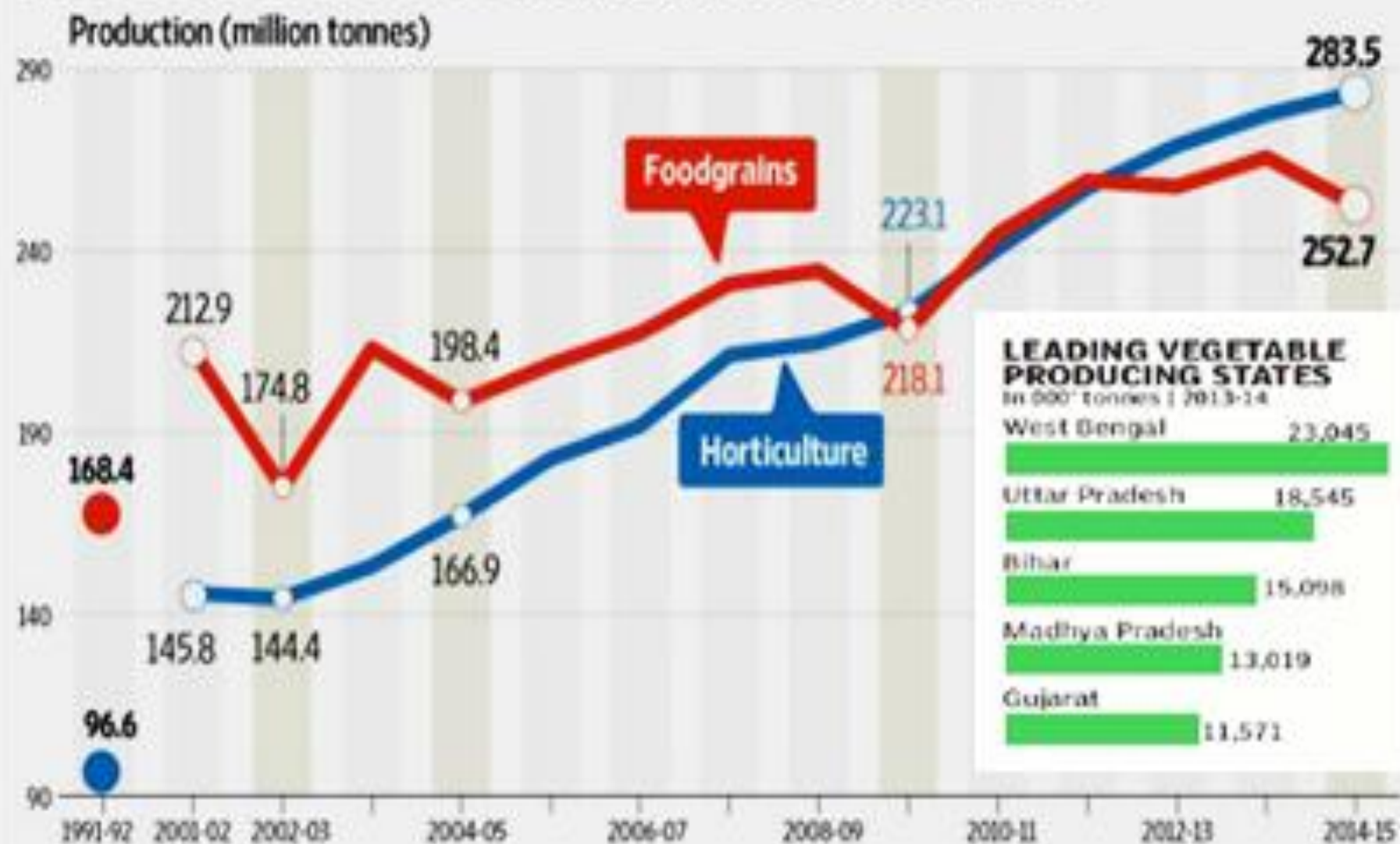


Note: All data are presented in 5-year averages.

Source: USDA, Economic Research Service estimates.



# PRODUCTION OF FOODGRAINS AND HORTICULTURE



Note: Years 2002, 2004, 2009, 2014 were deficit monsoon years affecting foodgrains' production

Source: Horticultural Statistics at a Glance, 2015

# Agri. Profile of W. B.

## WEST BENGAL (District Map)



- ❑ 2.7% of total area to supports over 8% of the nation's population
- ❑ Agriculture contributes nearly 24% to the State Domestic Product annually
- ❑ The state is first in India in the production of Rice, Vegetables, Fishery (inland) and Pineapple, second in the production of Potato and Tea and third in production of flowers

Agricultural Highlights	
Total Geographic Area (Hectares)	88,75, 200
Gross cropped Area (Hectares)	97,51,000
Net Sown Area (Hectares)	52,95,000
Cultivable Area (Hectares)	71,14,000
Irrigated Area (%)	62
Average Land Holding (Hectare)	0.82
Number of Agricultural Holdings (Units)	69,53,922
Agro Climatic Regions	6
Cropping Intensity (%)	184



১০ অক্টোবর ১৯২২ খ্রিস্টাব্দ ৭ ভাদ্রাব্দ ১৩১৪ শ

# চিংড়ি, ঝাড়ুর ব্যবসা লক্ষ কোটি

৪/৯: ৭/১২/১৫

## বিপুল উপার্জনের সম্ভাবনা রয়েছে রাজ্যের জৈব সামগ্রীর মধ্যেই

কৌশলিক সরকার

রাজ্যে ঝাড়ুর ব্যবসার পরিমাপ করা তার কোনও তথ্য প্রদান করা ছিল না রাজ্য সরকার কিংবা ব্যবসায়ীদের কাছে। **অজ্ঞানতার** সীমায় থাকা নিজে, বছরে ঝাড়ুর ব্যবসার পরিমাণ ১০ কোটি টাকা। বিভিন্ন মাছের শখ আছে অনেকেরই। বছরে তার ব্যবসার পরিমাণ করা এই সীমায় থেকেই জানা যায়, মাসে ১০০ কোটি টাকা। খেচুরা, কালভুনিয়া, তুলুইশাখি, হিমুনিয়াসের মতো সুপরিচিত মাছের ব্যবসার পরিমাণ ৮০০ কোটি টাকা। সর্পাচ্ছা, অম্বাচ্ছা, কালমেঘ, চিত্রতার মতো ভেঁষা উজির থেকেও বছরে ৪০ কোটি টাকার ব্যবসা হয়।

শসাই ছোক বা মাছ, ভেঁষা উজিরই ছোক বা মাছ, রাজ্যের জৈব সামগ্রীর ব্যবসার মোট পরিমাণ বছরে ১ লক্ষ ৯০ হাজার ৪২২ কোটি টাকা। বা সম্পর্কে প্রবন্ধিন স্পর্শ পাল্লাই ছিল না কোনও মহলের। সম্প্রতি সেই কাজটি শেষ করেছে **রাজ্যের জৈব বৈচিত্র্য শর্ভের**। পশ্চিমবঙ্গের সেখানে পড়েই এ বার সেই পদ্ধতিতে তার পরিমাপ নির্ধারণ করতে উদ্যোগী হয়েছে আরও সাতটি রাজ্য। যার মধ্যে রয়েছে অন্ধ্রপ্রদেশ, তেলঙ্গানা, কর্ণাটক, আসম, মিজম, গোয়া। কারণ, এ সম্পর্কে কোনও ধারণা নেই তাদেরও।

সেইভাবে তথ্য রাজ্য জৈব সামগ্রীর ব্যবসার পরিমাপ নির্ধারণ করা হয়েছে মূলত শির সংগ্রহকারি কাজ থেকে সাংগৃহীত তথ্যের ভিত্তিতে। আর এ রাজ্যে তথ্য সংগ্রহ করা হয়েছে জেলাস্তরের এবং রাজ্যের ১৪২টি ব্লকসে বিস্তারিত সীমাবদ্ধভাবে। দেখা যাচ্ছে, এ রাজ্যে কৃষি পণ্যের থেকেও

পশ্চিমবঙ্গে জৈব সামগ্রীর ব্যবসার পরিমাণ

ক্ষেত্র	ব্যবসার পরিমাণ	আনুমানিক হার
কৃষিক পণ্য	৫৯,৫০০ কোটি টাকা	৩০%
ইতিহাসিক পণ্য	৬৮,৪৪৭ কোটি টাকা	৩৬%
প্রাণী সামগ্রী	৩১,৮৬৬ কোটি টাকা	১৬%
মাছ	৩১,৩৮৩ কোটি টাকা	১৬%
ভেঁষা উজির	৫৫ কোটি টাকা	০.২৯%
পানীয় সামগ্রী	৩,২৩২ কোটি টাকা	১.৭%
সেরিকালচার (গেশম)	৪৬২ কোটি টাকা	০.২৪%
মোট বার্ষিক ব্যবসার পরিমাণ (সূত্র: পশ্চিমবঙ্গ জীব বৈচিত্র্য শর্ভের)	১,১৪,৪২২ কোটি টাকা	১০০%

২০১৪-১৫ আর্থিক বছরে পশ্চিমবঙ্গের মোট উৎপাদন: **৮,০০,৮৬৮** কোটি টাকা

- ১৩% কৃষি
- ১৬% মাছ
- ৩৪% পরিবেশ

বৈচিত্র্য শর্ভের সবার মতামত চিত্র এনালিসিসের মাধ্যমে কোন মাছের ব্যবসা, এই কাজটি করার আগে জেলা স্তরের অফিসারদেরও অনেকের ধারণা ছিল না এ সম্পর্কে। কোন কোন জৈব সামগ্রীর উপর নির্ভর করে মানুষ জীবিকা নির্বাহ করছেন, আর তার ব্যবসার পরিমাপই বা করা। তা জানতে পরিবেশ দপ্তর সাহায্য নিয়েছে, যদি সত্যিই

নামে একটি সংস্থা। এই সংস্থা হয়ে এ কাজে নেতৃত্ব দিয়েছেন প্রাক্তন আইএমএস অফিসার অরুণ কায়। শর্ভের রাজ্যের পশ্চিমবঙ্গ ও প্রায়ের প্রায়ের পশ্চিমবঙ্গ সুবাদে জেলাগুলি তার নবমর্শন।

► এর পর ধর্মের (এই রাজ্য) পারায়

## Indian Agri. Market: Agri. Profile of WB.

### ❑ State's rich biodiversity

*Over Rs. 8 LCr. :W. B. Biodiversity Board*

### ❑ Competitive advantages in terms of agri. product portfolio & its production

- *Agriculture contributes nearly 24% to the State Domestic Product annually*
- *The state is first in India in the production of Rice, Vegetables, Fishery (inland) and Pineapple, second in the production of Potato and Tea and third in production of flowers*
  - **Potato:** *The marketable surplus available for inter State & Export transaction estimated as Rs. 5.5 KCr./An.*
  - **Rice:** *The marketable surplus available intra-inter State transaction & export estimated as Rs. 25 KCr./An.*

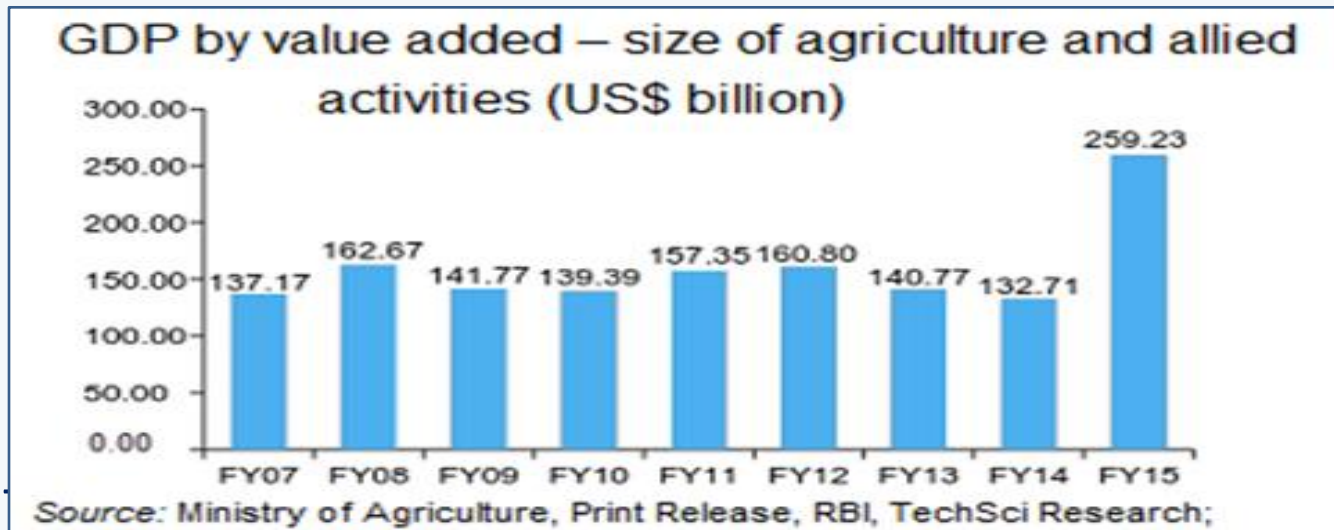
### ❑ Large potentiality for employment oriented value-added agri-food processing in the downstream



## Indian Agri. Market:

### Indian Agri. Market Size & Growth:

- ❑ GDP of agriculture and allied sectors in India has been growing at a compound annual growth rate (CAGR) of 3.3 per cent
- ❑ GDP of agriculture and allied sectors in India was recorded at USD 259.23 billion in FY15.



- ❑ and the size of opportunity for the organised (including online) retailers is around Rs 3.4 lakh crore, according to Kotak Institutional Equities. (Financial Express, March 23, 2016)

# Indian Agriculture

- Some of its Major Challenges

# Ten Major Challenges of Indian Agri. Sector:

1. Small and fragmented land-holdings

2. Seeds

3. Manures, Fertilizers and Biocides

4. Irrigation

5. Lack of mechanization/Technology

6. Soil erosion

7. Agricultural Marketing

- Distress Selling
- Inflation of Food Items
- Post Harvest Loss

8. Inadequate storage facilities

9. Inadequate transport/logistics

10. Low investment



॥ श्रीगणेशाय नमः ॥

# 6L tonnes imports to rein in pulse rates

Govt Explores Mozambique Land Lease, Futures Trading In Chana Banned, Export Duty On Sugar

## Govt gets cracking to soften dal blow

Imports From  
Myanmar  
To Fill Gap



'Prices skyrocketing  
under Modi govt'

Govt to import another 3k tonnes of pulses

## Cartels jacking up masoor prices, says IB

Intel Agency Submits Report Naming Firms Cornering Stocks

New Delhi: The Intelligence Bureau (IB) has submitted a report to the government about alleged cartelisation in the masoor dal market.

The report, submitted on Monday, says that a cartel of traders in the masoor dal market has been formed to manipulate prices. The report also mentions that the cartel has been operating since 2015 and has been successful in raising prices significantly.

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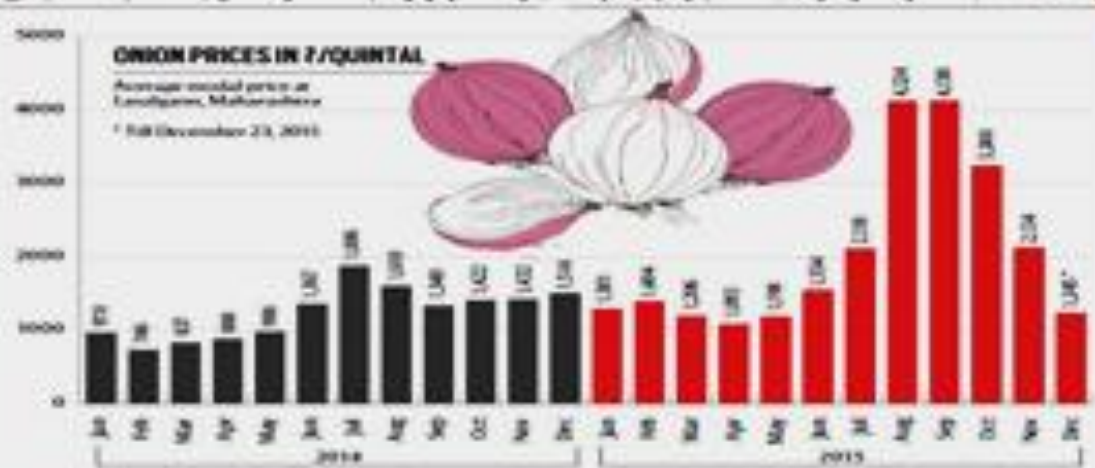
It has said common is allegedly being traded, paying Rs 1,100 to Rs 1,200 per quintal more than the prevailing prices in the market.

Pulses racing  
as prices  
near ₹200/kg



Long-time traders and market experts allege that domestic hoarders seem to be the key players responsible for the rising dal prices.







# Bumper potato crop a worry for Bengal, Mamata writes to Arun Jaitley for help

Times of India, Mohua Chatterjee | TNN | Apr 24, 2015, 0

Mamata likely to offer relief as low wholesale price hits potato farmers  
NEW DELHI: At a time when the plight of farmers

hanna the biggest concern for the Centre.

ব্যবসায়ীদের লোভে পুজোর পরও মহার্ঘ আলু  
মেয়াদ শেষের মুখেও হিম্মতেরে মজুত বিপুল পরিমাণ আলু, সময় দিতে নারাজ সরকার

রাজ্যে চুক্তিতে পৌঁছান, দর নিয়ে এখনই কিছু ভাবতে না সরকার

আলুর দর ১৪ টাকা বাঁধলেন মমতা

কলকাতা: আলুর দর ১৪ টাকা বাঁধলেন মমতা. রাজ্যের আলু চাষীদের জন্য সরকারি দর নির্ধারণ করা হয়েছে. মমতা সরকারের এই সিদ্ধান্তের ফলে আলুর দর ১৪ টাকা থেকে ১৬ টাকা হতে পারে. মমতা সরকারের এই সিদ্ধান্তের ফলে আলুর দর ১৪ টাকা থেকে ১৬ টাকা হতে পারে.



কলকাতা: আলুর দর ১৪ টাকা বাঁধলেন মমতা. রাজ্যের আলু চাষীদের জন্য সরকারি দর নির্ধারণ করা হয়েছে. মমতা সরকারের এই সিদ্ধান্তের ফলে আলুর দর ১৪ টাকা থেকে ১৬ টাকা হতে পারে. মমতা সরকারের এই সিদ্ধান্তের ফলে আলুর দর ১৪ টাকা থেকে ১৬ টাকা হতে পারে.

আলুর দামে নিজের প্রশাসনেই শুল্ক মমতা

মমতা সরকারের এই সিদ্ধান্তের ফলে আলুর দর ১৪ টাকা থেকে ১৬ টাকা হতে পারে. মমতা সরকারের এই সিদ্ধান্তের ফলে আলুর দর ১৪ টাকা থেকে ১৬ টাকা হতে পারে.



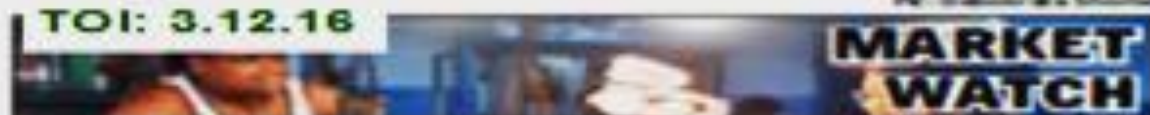
# Gap between wholesale and retail prices widens

By [hkhanna@timesgroup.com](mailto:hkhanna@timesgroup.com)

**Kolkata:** The wholesale fish market continues to remain sluggish, but yawning price gap with the retail market is pushing up the microeconomic indicators for food in the city.

The wholesale traders feel that keeping the retail market high is actually bringing down cumulative consumption and affecting the wholesale market eventually. They feel even though prices remain low at wholesale markets, the consu-

TOI: 3.12.16



## Veggie wholesale rates crash, retail prices only dip in cities

TOI: 2.12.16

Dual Food Trade

## Veggie wholesale prices crash

But Little Impact On Retail Front

Kolkata: [hkhanna@timesgroup.com](mailto:hkhanna@timesgroup.com) & [rajat@timesgroup.com](mailto:rajat@timesgroup.com)

**Kolkata:** Surprisingly, the wholesale price of vegetables has started dipping from Monday. However, there is little impact of the retail price. Thanks to the middlemen and the last mile to the retail market, the price of vegetables remains quite high compared to their price the same time last year. With the vegetable prices continuing to rise, there is an ex-

PRICE PLAY TOI: 7.12.16



Thanks to the middlemen and the resultant high, the crash, a shortage of 5 lakh tonnes of potatoes is

seen grow in large quantity in Andhra Pradesh. The farmers Tuesday sold it at Rs 20 a quintal. The supply

GAINERS

Top Gainers	Top Losers
45	133
299	216
31	35

Swamped banks set own cash limits on payday

Queues in front of ATMs and banks get longer and exchanges between credit

## Govt looks to unclog veggie supply chain

By [hkhanna@timesgroup.com](mailto:hkhanna@timesgroup.com)

New Delhi: On the day when the government is the supply chain of the vegetables, the government is the supply chain of the vegetables. The government is the supply chain of the vegetables. The government is the supply chain of the vegetables.

### KEEPING PRICES IN CHECK

- Govt aims to put a cap on a mechanism to check supply within 6-12 months
- State government has been asked to set up a committee to check supply within 6-12 months
- State government has been asked to set up a committee to check supply within 6-12 months

values the supply chain, the government has been asked to set up a committee to check supply within 6-12 months. The government has been asked to set up a committee to check supply within 6-12 months.

The government has been asked to set up a committee to check supply within 6-12 months. The government has been asked to set up a committee to check supply within 6-12 months.



# DECODING THE PRICE PUZZLE

A study by **TOI** delves into the supply chain of vegetables in Kolkata. It shows that there are at least five to six intermediate stages between primary producer and consumer.



Primary producer gets only **20-25%** of the consumer price.

A total **15-25%** of the produce is lost in transit.



**1** The **Brinhat Krishak Bazar** built on 100 bighas of land is the hub with the spread in each block that will serve as collection centre where farmers can come with their produce. The purpose is to cut down on the intermediaries for mutual benefit to consumer and primary grower.



**2** The **Brinhat Krishak Bazar** will act as a centralised facility, processing and packaging produce.

It will work as a centralised facility, processing and packaging produce. It will work as a centralised facility, processing and packaging produce.

**HOW DOES THE BRINHAT KRISHAK BAZAR WORK?**

## FAST FACTS

Government wants to facilitate procurement of vegetables by marketing market.

Government will allow entrepreneurs to source produce directly from farmers, but will levy on them.

Low contract farming, it will instead provide a joint farming to ensure the collection interest of farmers.

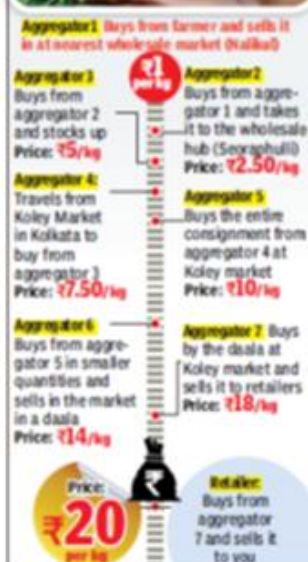
# Middlemen to blame for price rise

Zeenah Javed & Faqun Banerjee

## PEASANTS TO DINNER PLATES, HOW VEGETABLES TRAVEL

**TOI** visited a small but agriculturally fertile pocket in Hooghly, which grows veggies that end up in Kolkata kitchens. Baganbati, a tiny hamlet between Singur and Tarakeswar, is only 60 km from Kolkata but by the time the vegetables reach the city, the prices shoot up by several hundred percent. What starts out at Re 1 in the field sells for Rs 20 in Kolkata. Each vegetable passes through several layers of aggregators who act as catalysts in the price spike. **TOI** tracks how the price increases with every change of hand.

### BHINDI



### JHINGA



### POTATO



"When we go to the markets to sell our produce, the middlemen refuse to buy saying that there is no demand in Kolkata. They force us to sell at very low prices because we cannot afford to take back our crop," said Samanta, 62.

Tracking the movement of price between markets, it is evident that the price tends to double with each change of hands. The uniformity—200% at each stage—is intriguing as the costs involved at each stage are different.

A price rise is inevitable because of the distance and the number of intermediaries involved. But a 100% price surge suggests profiteering by a section of middlemen.

Gouranga Saha, one such aggregator, procures vegetables from farmers in Baganbati and takes it to his arat (godown) in the Nalikul wholesale market, where another set of aggregators waits for him. After procuring close to 1,000kg of ribbed gourd, bhindi, brinjal and beans Saha sets out for Na-

likul in two light commercial vehicles, paying Rs 500 each. "I have to factor in a lot of costs, including transportation, labour, pilferage, wastage and other overheads," he said.

Saha is only partially right. There are several costs involved but given the volume they only add to the price marginally. "It's standard practice to add Re 1 while fixing the selling price to factor in the overheads. But nowadays most aggregators are adding up to Rs 3. This is unscrupulous," said Binwa-

nath Agarwal, secretary of the Potato Wholesalers' Association. Jyoti potey, for example, is overpriced by Rs 10-12 due to the involvement of middlemen, say agricultural marketing experts.

"Aggregators procure potatoes from farmers at low prices. Farmers, most of whom either have to repay loans or do not have the wherewithal to sell their produce in the markets themselves, accept the price paid by these aggregators," said Agarwal.





## Food processing sector to create 2 lakh jobs in Bengal: Report

Kolkata, Feb 5 (PTI) The food processing sector in West Bengal is expected to grow nine-fold to Rs 35,745 crore by 2020 and create more than two lakh jobs, a CII-KPMG report said today.

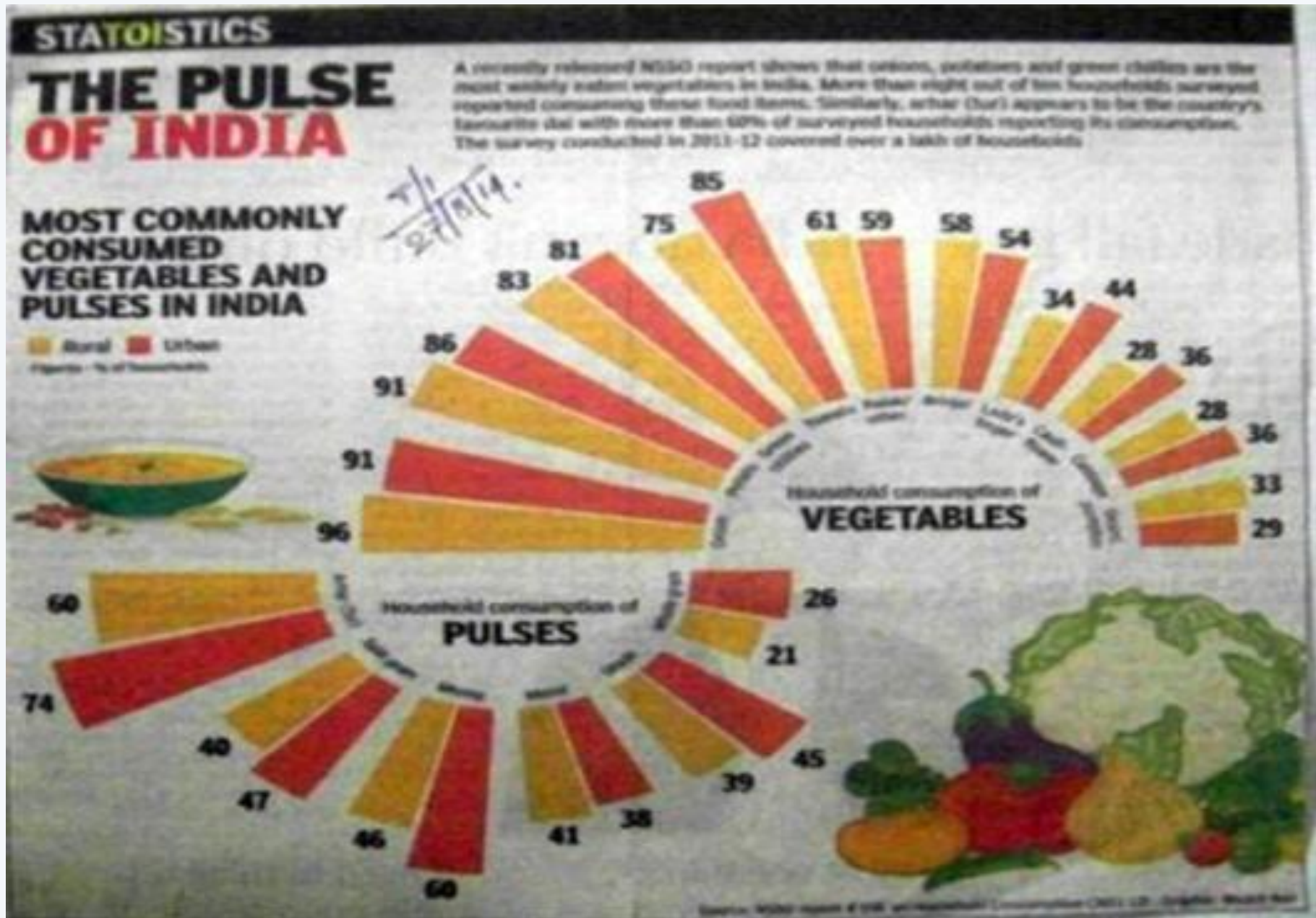
## Level of Processing (Fruits & Vegetables)

sector. (MORE) PTI AKB DKB ABM

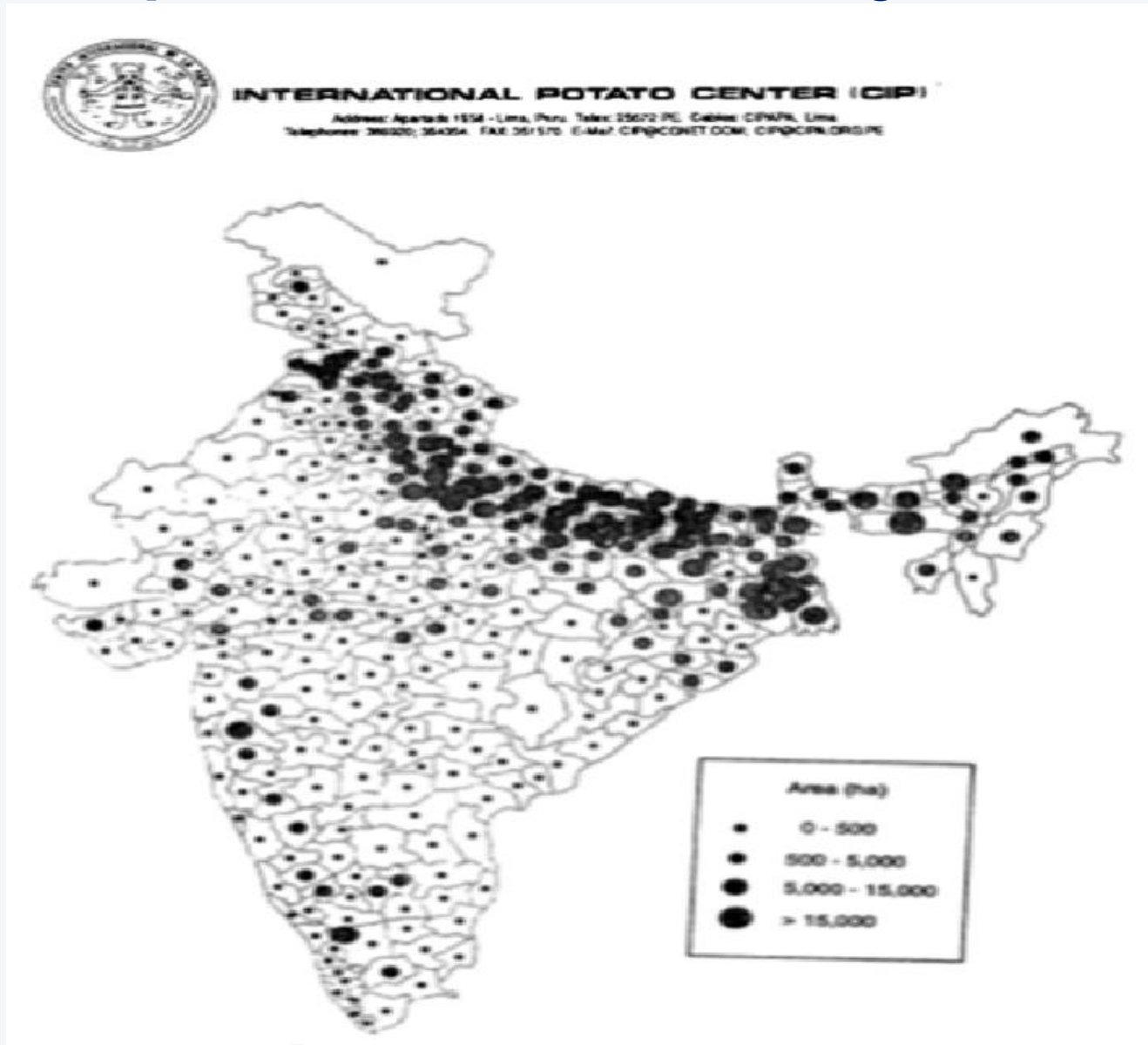
**POTATO**



# 91% Rural & 86% Urban Population of India Consume Potato:



# Potato Map of India: Inter state/Reg. Availability Gap



Source: International Potato Center (IPC), Peru

# Potato: The Crop Calendar

	S Sowing time				H Harvesting time								Growth period
Season	Kharif				Rabi				Zaid				Major Producing States
Crops	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	
Soybean	S	S		H	H								MP, MH, Raj
Cotton (Kapas)	S	S	S		H	H							Guj, MH, AP, MP, Kar
Turmeric	S	S	S				H	H	H	H			AP, TN, Or, WB, Kar, MH
Castorseed		S	S				H	H	H	H			Guj, AP, Raj
Guarseed [Cluster bean]		S	S		H	H							Rajasthan, Haryana, Punj.
Chilli (Kharif)			S				H	H					AP, Kar, Or, MH, WB, Raj
Chilli (summer)			H								S		AP, Kar, Or, MH, WB, Raj
Maize(Kharif) [Corn]	S	S	S	H									Kar, AP, MH, MP, UP
Potato (Kharif)	S	S		H	H								Karnataka, AP, TN
Potato (Rabi)				S	S	S		H	H	H			UP, WB, Punjab, Bihar, Orissa
Wheat					S	S	S			H	H	H	UP, MP, Punjab, Haryana
Maize (Rabi)[Corn]					S	S			H	H	H	H	Bihar, AP, TN, Kar
Rsseed					S	S				H	H		Raj, UP, Punj. Har, MP, WB, Guj
Chana[Gram/chickpea]					S	S				H	H		MP, UP, Raj
Barley					S	S				H	H		Rajasthan
Jeera [Cumin]					S	S				H	H		Gujarat, Rajasthan
Dhaniya [Coriander]					S	S	S			H	H	H	Rajasthan, MP, AP
Black Pepper			S	S			H	H	H	H			Kerala, Karnataka
Mentha	H	H							S	S		H	UP
Cardamom (Perennial Herb)				H	H	H	H	H					Kerala, Karnataka, TN
Potato (North Hills)		H	H	H	H				S	S	S		HP, Utrtrakhnd
Sugarcane (summer)						H	H	H	H	H	S	S	North India
Sugarcane (spring)						H	H	H	S	S			North India
Sugarcane (winter)			S	S		H	H	H	H	H			North India
Sugarcane (South India)		S			H	H	H	S	S	S			South India, Maharashtra



# Potato Production In India: An Overview

## Area, production and productivity of potato during last 3 years

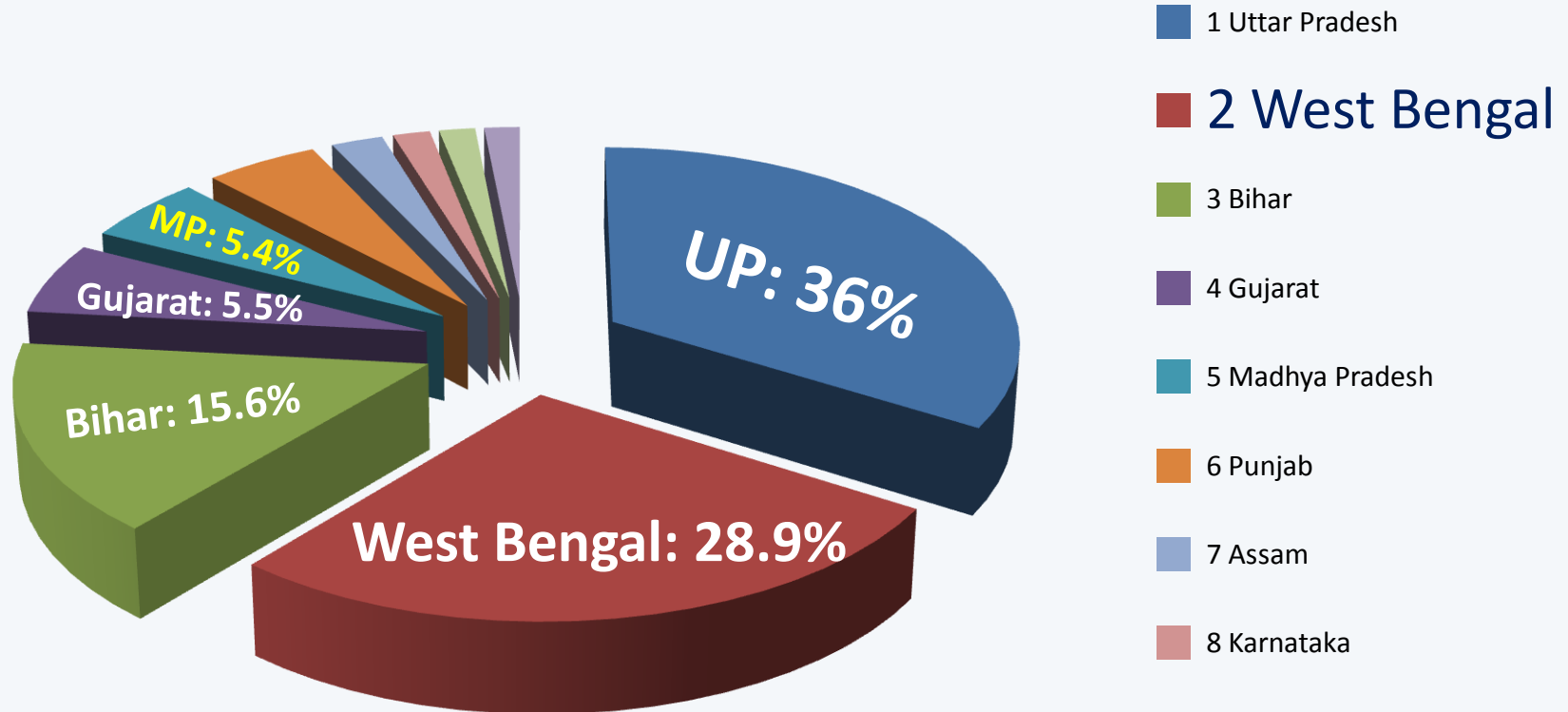
S. N.	YEAR	AREA	PRODUCTION	PRODUCTIVITY
		(LAKH HA)	(LAKH MT)	(TONES/HA)
3	2013-14	19.73	415.55	21.06
4	2014-15	20.76	480.09	23.13
5.	2015-16	20.63	455.69	22.09

Source: Horticulture Division, Ministry of Agriculture, Government of India, New Delhi

\* - 2<sup>nd</sup> Advance estimate of Govt of India

# Inter state/Regional Availability Gap:







## Potato Production In India: 2013-14



These top 5 Potato Producing States accounts for over 90% of Country's potato production

# MAJOR POTATO-PRODUCING STATES

Production in '000 tonnes

	'12-'13	'13-'14	% chg	
Uttar Pradesh	14,430.28	15,013.26	4.04	
West Bengal	11,591.30	12,000.00	3.53	
Bihar	6,640.55	6,536.00	-1.57	
Madhya Pradesh	2,299.00	2,322.00	1.00	
Gujarat	2,499.73	2,300.00	-7.99	
All-India	946.51	1128.5	19.23	

Source: Horticulture Division, Ministry of Agriculture

Compiled by BS Research Bureau



## Intra State (W.B.) Market Size:

### **Estimated Requirement of Crops in West Bengal** **During 12<sup>th</sup> Plan Period - Part-B**

In Lakh MT

Year	Population (Lakh)	Oil Seeds	Potato
2013-14	915.94	16.55	50.98
2014-15	923.89	16.69	51.43
2015-16	931.98	16.84	51.88
2016-17	940.35	16.99	52.34

## Cooling spaces\*

State	No. of cold storages	Size in million tonnes
Uttar Pradesh	2,176	13,633,039
West Bengal	502	5,901,925
Gujarat	560	2,030,873
Punjab	606	2,004,778
Andhra Pradesh (including Telangana)	404	1,577,828
<b>Total</b>	<b>6,891</b>	<b>31,823,700.60</b>



Source: Ministry of Food Processing Industries, Task force on Cold-chain projects \* Data as of March 2014



# **Potato: The Business Potentiality of WB**

# West Bengal: Economics of Potato

## Potato: Availability Analysis

Year	All India Production (LT)	Potato: West Bengal		
		Production (LT)	Requirement for Seed & Others (10%) (LT)	Actual Availability (LT)
2013-14	415.55	115.8	11.58	104.22
2014-15	480.09	120	12	108
2015-16	455.69	136	13.6	122.4



# West Bengal: Economics of Potato

## From farm to market, potato price jumps 5 times in 60km

Wholesale Rates Dip To All-Time Low

### MEDDLESOME MIDDLEMEN

TOI: 28.2.17

Wholesale prices in state

City prices  
Park Circus ₹7

State's potato production on O.A. units in tonnes, potato

### Potato: West Bengal

#### Intra State Transactions Per Annum: The Movements & Trends

Year	Actual Availability (LT)	Consumption of the State (LT)	Farmer's End		Consumer's End	
			Av. Sell Price/Ton (In Rs.)	Total Value/An. (Rs. In Cr.)	Av. Retail Price/Ton (In RS)	Total Value/An. (Rs. In Cr.)
2013-14	104.22	50.98	3000	1529.4	12000	6117.6
2014-15	108	51.43	2000	1028.6	10000	5143
2015-16	122.4	51.88	3500	1815.8	14000	7263.2

...is expected in three major potato producing districts — Hooghly, Bardhaman and Bankura and some blocks of other districts. The potato production,

...structured to reserve 10% potato storage space for government-procured potatoes. This space will be at the disposal of the district magistrate till March 31.

...most Rs. 100 per packet. If the government buys out some part of the produce, it will be relieved of a huge stress." Bengal's agriculture mar-

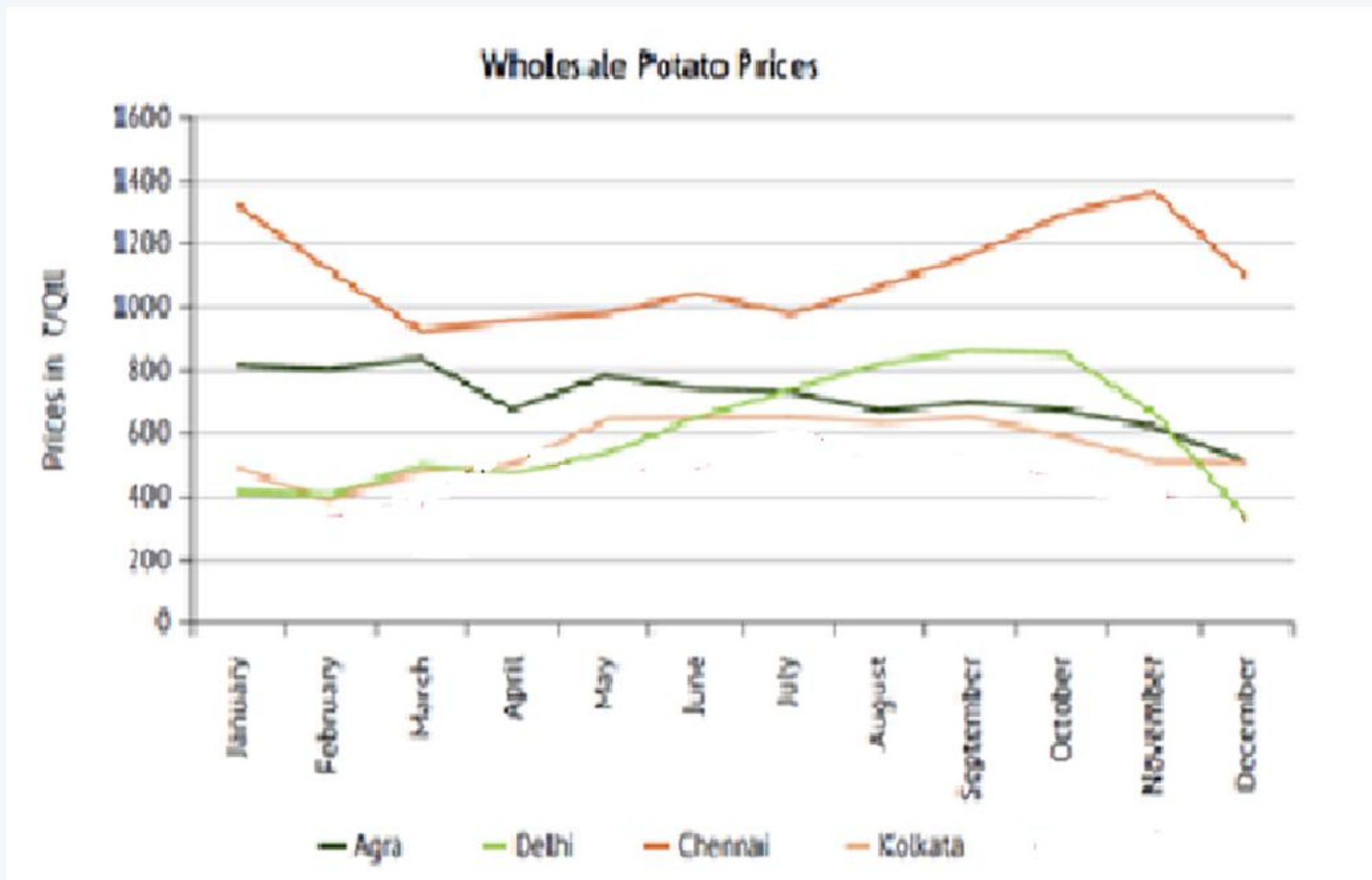
...just to a great extent. A lot of farmers will have a breather. But the Panchayat must prepare the list of potato farmers on a war footing."





# **Dynamic of Potato Economics in India:**

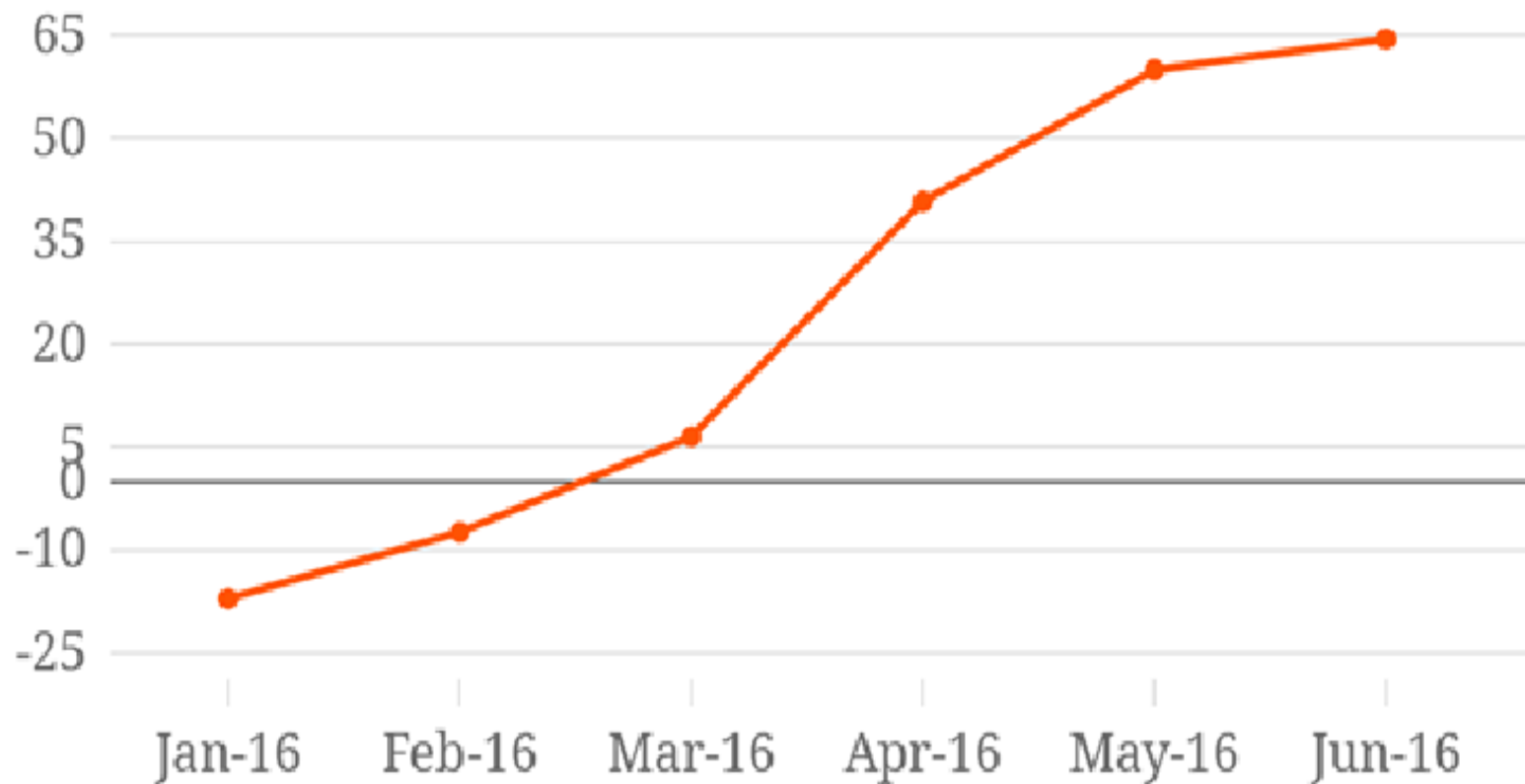
# Regional Prices Gap: The Trend



Baseline data from Onion & Potato India - SFAC

Source: Agriwatch Research, NHRDF

## Change in wholesale prices of potato (%)



Source: Ministry of Commerce & Industries, GOI

<https://scroll.in/article/811819/three-charts-show-how-expensive-potatoes-could-stop-rajan-from-giving-india-a-parting-gift>



# Growing Export Potentiality of **Potato**

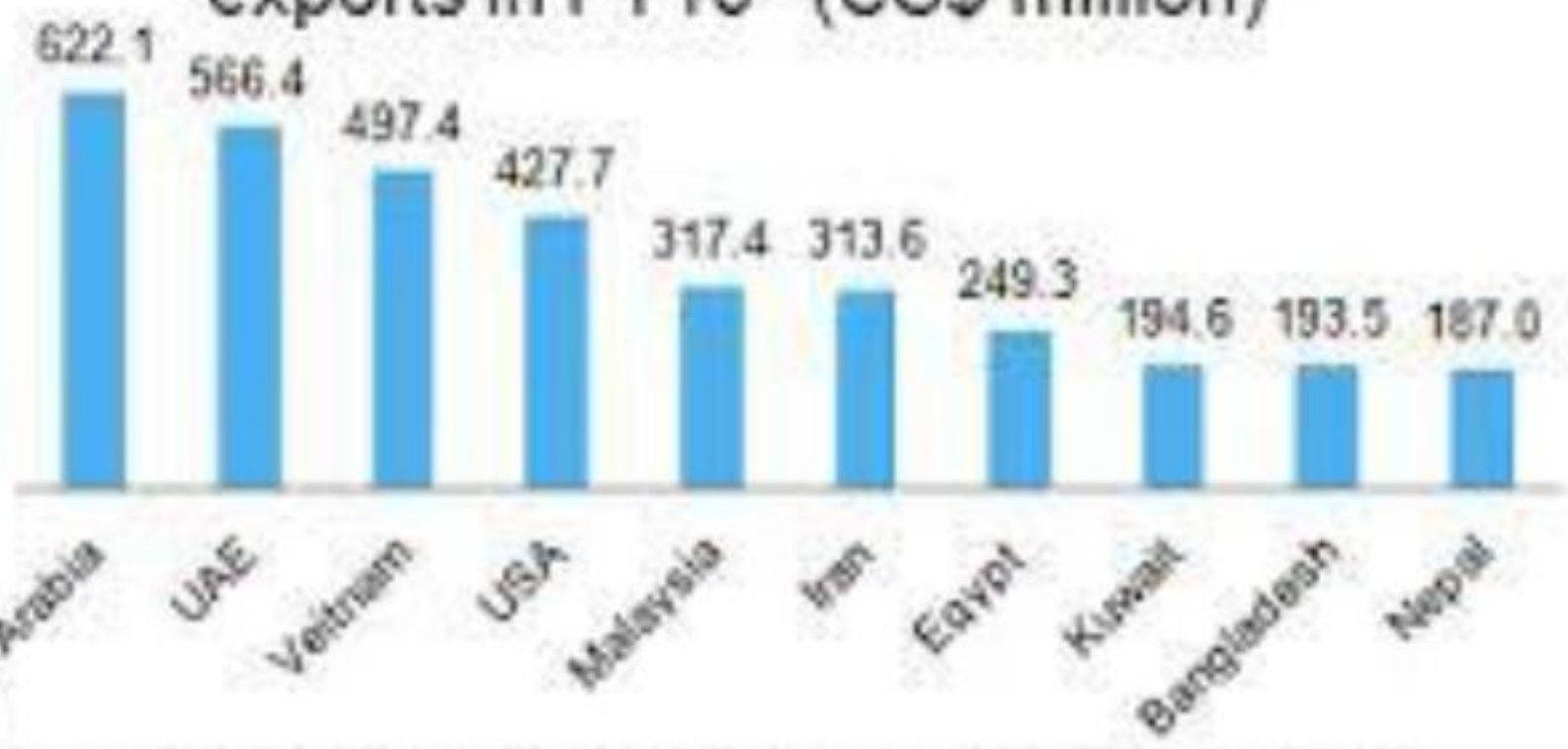
# Potato output and exports

	Output (million tonne)	Exports (lakh tonne)
2012 - 13	45.34	1.1
2013 - 14	41.55	1.6
2014 - 15	42.17	2.7

Source: NHDRF



## Major destinations of processed food and agricultural related product exports in FY16\* (US\$ million)



Source: Ministry of Food Processing Industries, APEDA, Ministry of Commerce & Industry, TechSci Research FY16\* - Data is for April-August 2015



# Indian Agriculture

- ICT Based Agri. Market Linkages



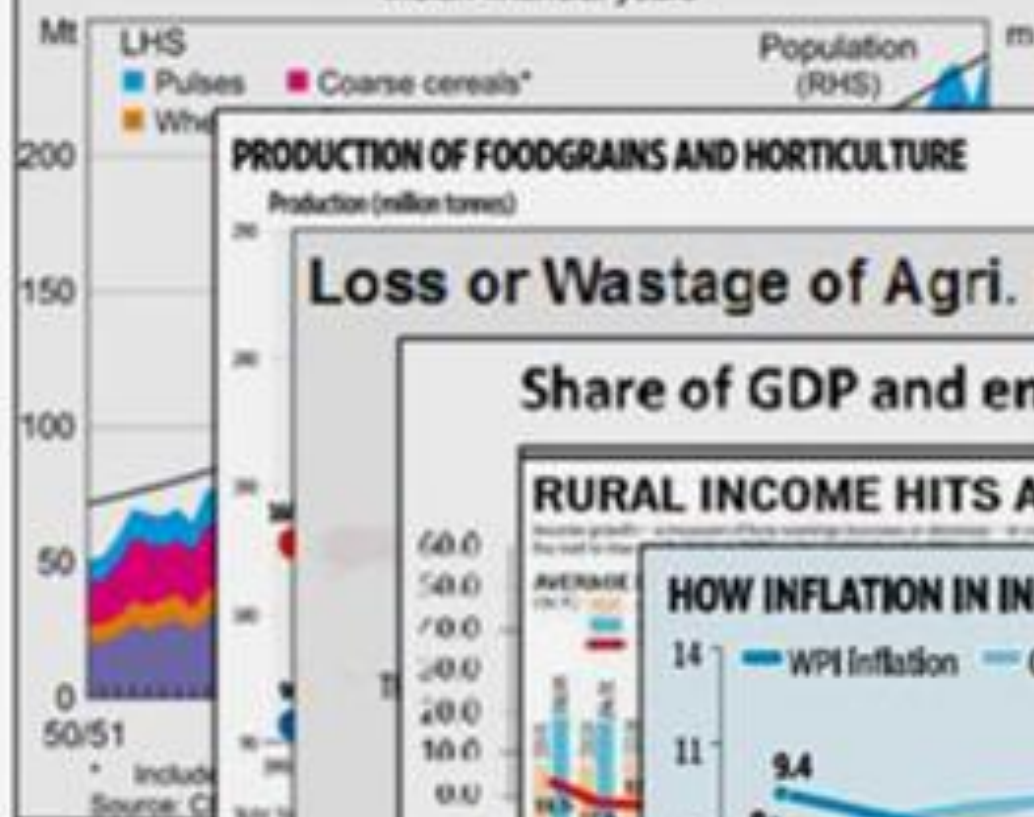
**AGRICULTURE**  
is up to 4 times more effective  
than other sectors in  
**reducing poverty.**



**@WB\_Agriculture**

## India – Crop Production and Population

Indian financial years



## PRODUCTION OF FOODGRAINS AND HORTICULTURE

Production (million tonnes)

2011

## Loss or Wastage of Agri. Products

## Share of GDP and employment

## RURAL INCOME HITS A LOW

Source: Ministry of Agriculture, Government of India, New Delhi

AVERAGE

(in %)

1970-80

1980-90

1990-00

2000-06

2006-12

2011

2012

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2014

2015

2016

2017

2018

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# Agriculture and Poverty reduction



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[www.agriiitstitute.org](http://www.agriiitstitute.org)

4X



## GROWTH IN AGRICULTURE

*is up to 4 times more effective at reducing poverty in Sub-Saharan Africa than growth in any other sector of the economy.*

11X



11X

*This growth can reach up to 11 times if ICTs were leveraged for smallholding agriculture*

*(Source: World Bank)*

# eKrishibazar

- A technology (ICT) driven **eAuction (Forward/Reverse)** based pan-India, **digital agri. marketplace**

Burdhamani: rhar 7400-7500 **116.70** -0.85% - Lenth(Masur) 7000-7050 **115.00** -0.81% - Ginger 4500-4550 **114.00** -0.91% - Brinjola 7400-7500 **116.70** -0.85% - Mustard 7000-7050 **115.00** -0.81% - Green Chilly 4500-4550 **114.00** -0.91% -



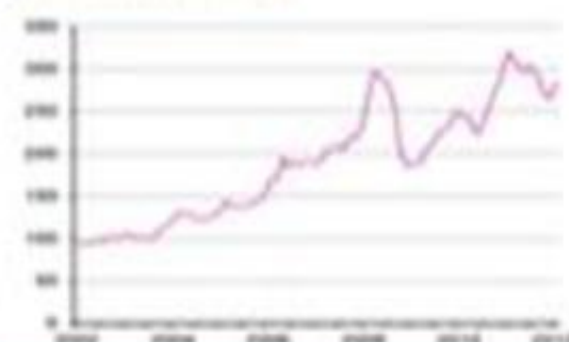
vegetables		
Potato	2969.75	(5.96%)
Carrot	4301.34	(5.76%)
Cabbage	2367.81	(3.25%)
Chili	2104.11	(3.34%)

Fruits		
Apple	3126.94	(3.33%)
Banana	4341.95	(3.09%)
Cucumber	2354.56	(3.19%)
Mango	2875.76	(3.31%)



## About Us

## Price Movement of Potato



## Login to Start

Username Password Phone number [Forgot Password!](#)



# eKrishibazar:

*'eKrishibazar' is a technology (Web-Mobile) driven **eAuction (Forward/Reverse)** based, West Bengal/ E. Reg. centric pan-India, **digital agri. marketplace***

*– while identifying the pain points, it (eKrishibazar) is to offer a level playing field and an optimum price discovery mechanism to explore market gaps and to facilitate single-point, real-time complete & competitive transactions/mobilization of wide-range of agri. outputs & inputs to/for the concerned stakeholders of both demand & supply sides of over USD 250 billion India agri. economy*

# eKrishibazar: The Outline of the Proposed Marketplace

**eKrishibazar:** Rationalizing/eliminating intermediary bottlenecks and minimizing the huge wastages (specially the post harvest losses), it is also about process re-engineering to organize and optimize the agri. value-chain in a single platform to provide **eAuction(Forward/Reverse)** based real-time cost/price rationalization to offer value-added, complete & competitive CRM & SCM solutions to the concerned verticals while integrating,

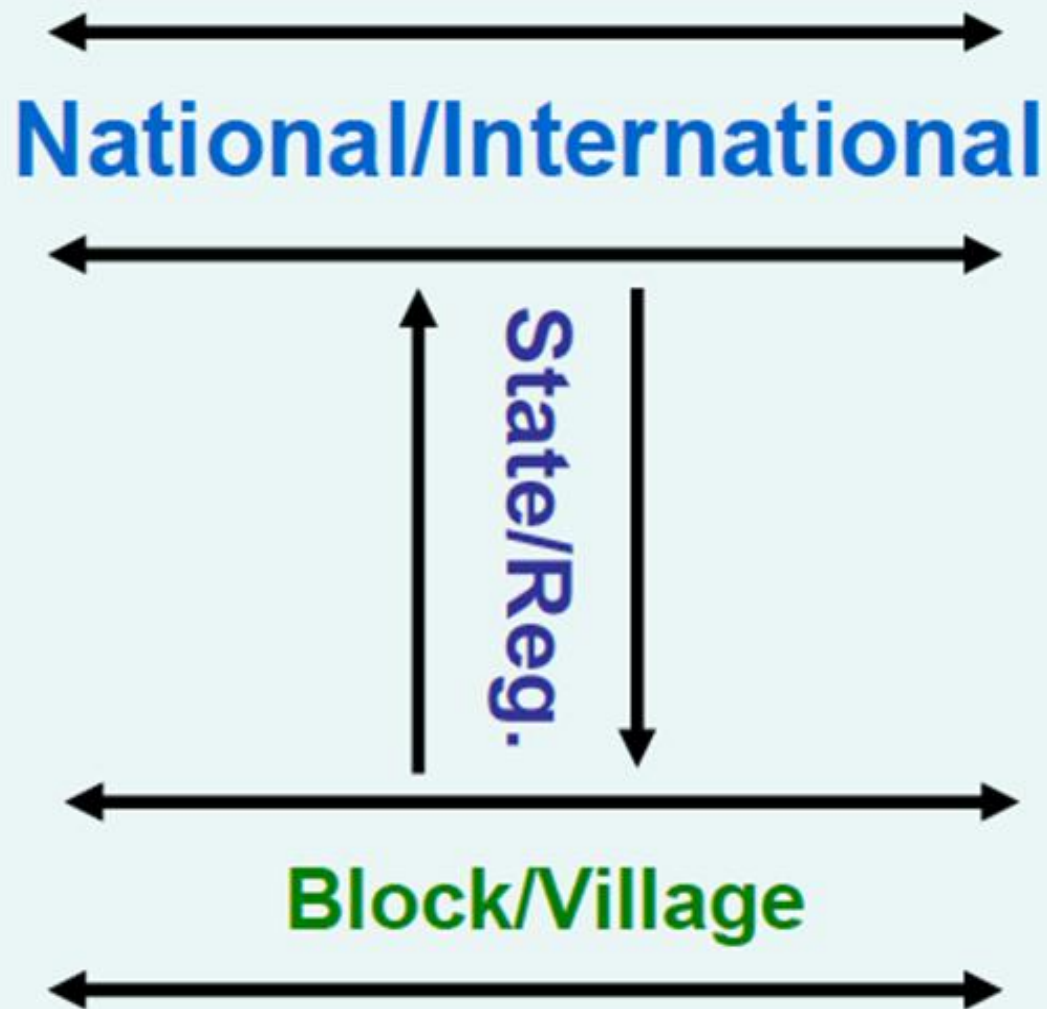
- ❑ **Supply Side:** *Farmers & Farm Producers ((Agriculture & allied Fields: Foodgrains, Horticulture, Floriculture,..... Fisheries, Poultry, Dairy Animal Husbandry, ...))*
- ❑ **Demand Side:** *Urban/Semi urban markets/ (single/multi brand) Retail chains, .....traders/ procurement agencies, .....exporters, agri.-food Processing Units*
- ❑ **Agri. input provides:** *Seed, Fertilizer, Pesticides .....  
Machineries, Technology/BT....*
- ❑ **Major Service Providers**
  - *Cold Storage/Warehouses/Cold-chains*
  - *Logistic Provides*
  - *Concerned Govt. Dept./Agencies*
  - *Other stakeholders including Bank/Fin. Inst./Insurance*

## Product/Services Line & Ranges: In Phases

- ❑ *eAuction (Forward/Reverse)*
  - *eTransaction of agri. output & inputs*
  - *eTransport Services*
  - *eCold Storage Services*
  - *eWarehousing Services*
  - *Other Services*
- ❑ *Banks/Fin. Inst. (including micro financing agencies) & Insurance Services*
- ❑ *Agri. Commodity Management Services*
- ❑ *Others*

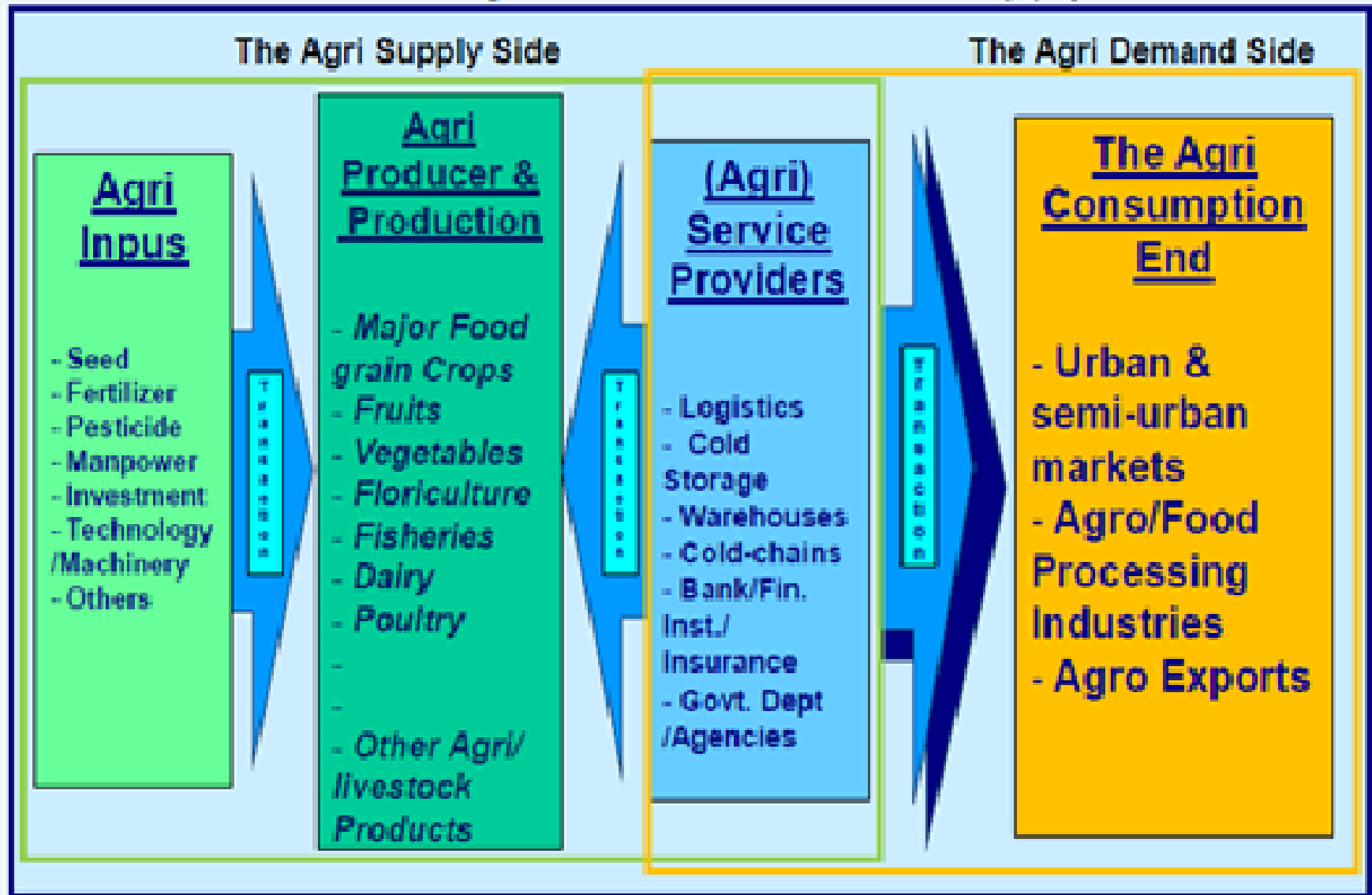


# The Integration of Digital Highways to Facilitate Efficient Transactions:

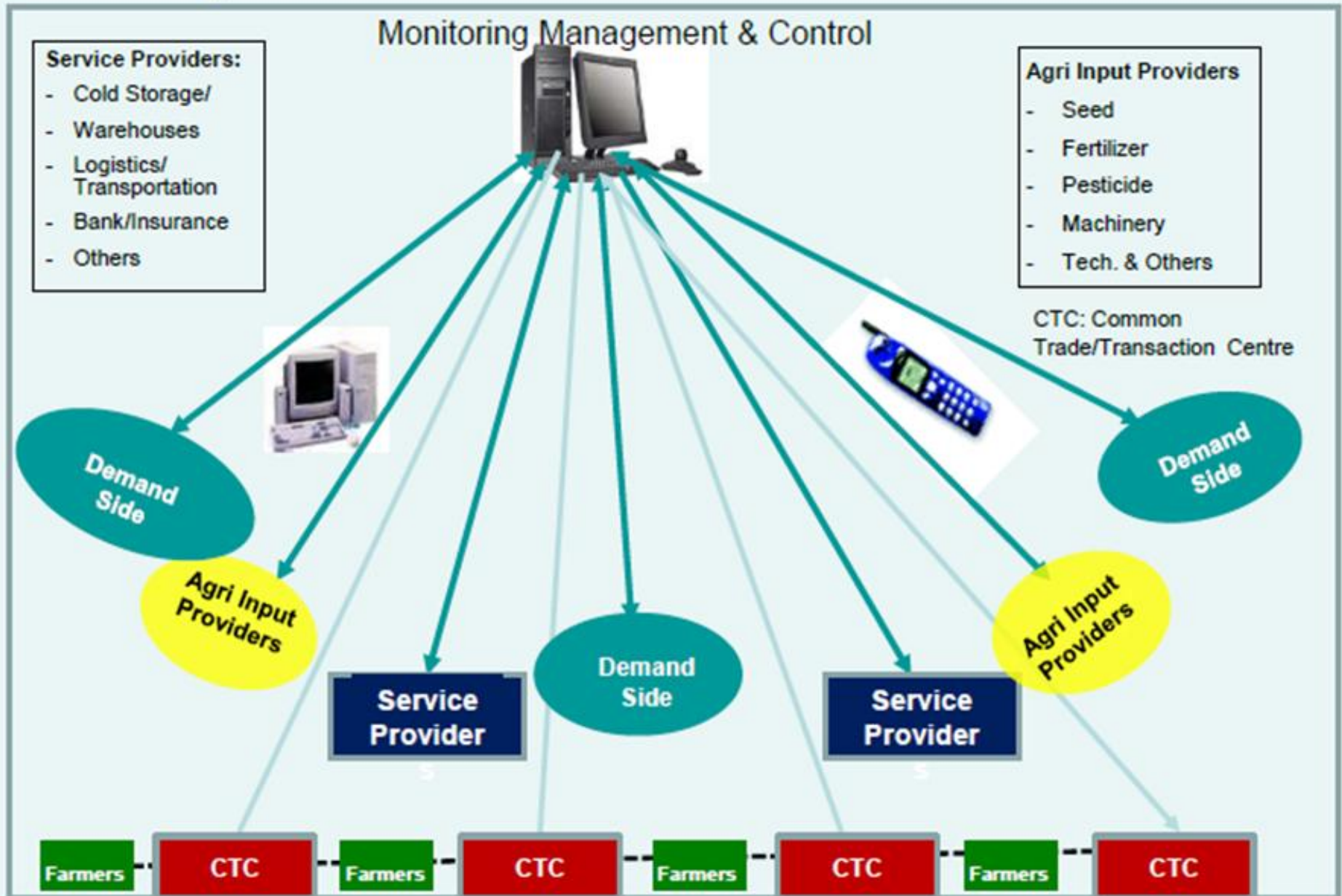


# The Project At A Glance:

An Effective Integration of Demand & Supply Sides.



# The Project Architecture:







# ***Thank You***

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