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What ails Indian Agriculture
&
How to move forward?

Ashok Gulati
Director in Asia, IFPRI

ICRIER-NBER-NCAER
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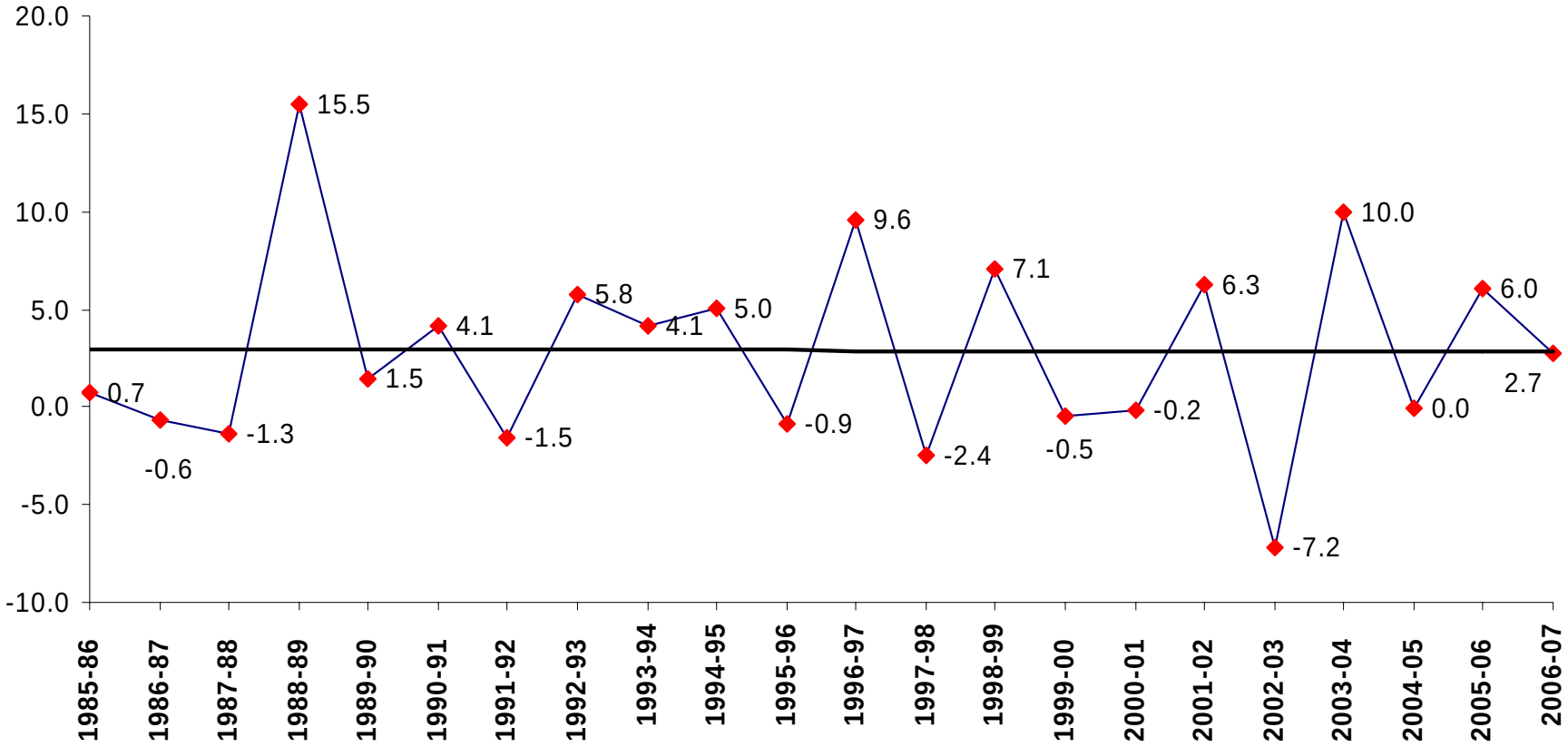
The concerns

I. Low growth in agl, low incomes, distress, widening rural-urban gap...

II. Food security: stagnating grain production, wheat and rice yields leveling off in green revolution area, specter of increasing imports…

III. What is the best way forward?

Agricultural GDP Growth Rates: 1985/86 to 2006/07
(Trend growth rate is 2.8% p.a.)



Source: Calculations based on Agricultural Statistics at a Glance (various years)

Why are the agri. growth rates low?

- Low investments in R&D and rural infrastructure (roads, irrigation, markets, etc.), public and private
- Rising subsidies on fertilizer, power and water leading to huge inefficiency
- Value chains fragmented, leading to low incentives and high risks

Returns on investments and subsidies…

(Fan, Gulati, Thorat, 2007)

		1960s	1970s	1980s	1990s
Returns in Agricultural GDP (Rps per Rps Spending)					
Roads		8.79	3.80	3.03	3.17
Education		5.97	7.88	3.88	1.53
Irrigation Investment		2.65	2.10	3.61	1.41
Irrigation Subsidies		2.24	1.22	2.28	n.s.
Fertilizer Subsidies		2.41	3.03	0.88	0.53
Power Subsidies		1.18	0.95	1.66	0.58
Credit Subsidies		3.86	1.68	5.2	0.89
Agricultural R&D		3.12	5.90	6.95	6.93

Technology and markets together can turbo charge…

- Technology generation and adoption critical…
- But it can not solve the problem without assured markets (roads…)
- Example: Case of cotton

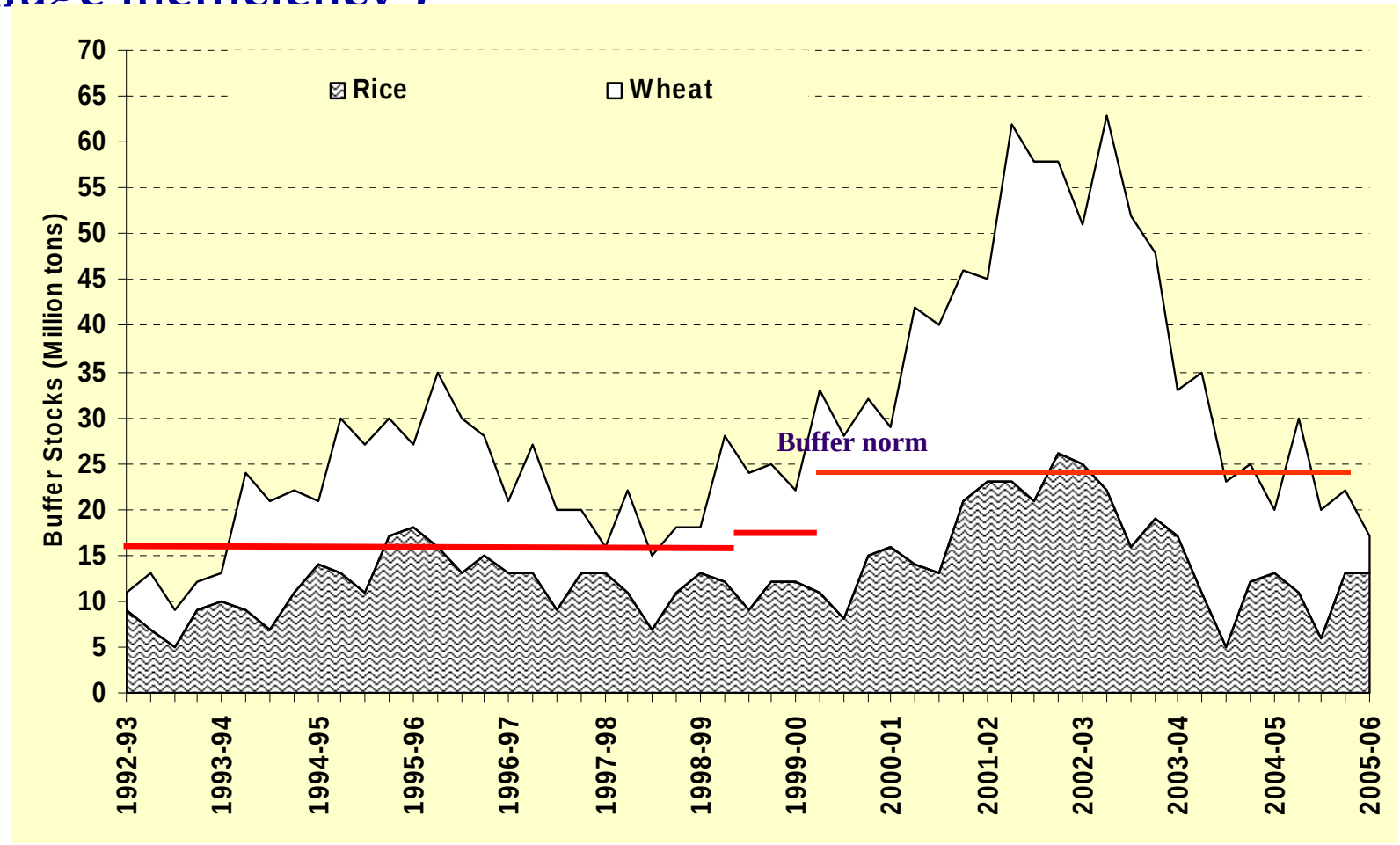
(production more than doubled from 14 m. bales to 30 m. bales during 2002-07, record exports 5.4 m. bales in 2006-07; all driven by Bt and good prices through exports….)

Can allocating more money to R&D solve the problem?

- Only marginally in the current form of R&D system
- The existing system of R&D (ICAR and SAUs) needs a massive dose of Institutional Reforms
- Incentives, autonomy, re-organization, PPP

  (case of large vacant vacancies of scientists; large under-utilization of funds with NAIP)

Food security: Implications of grain self-sufficiency centric policy (widely fluctuating grain stocks leading to huge inefficiency)



Key Elements of Government Strategy in XI Plan

- **National Food Security Mission (NFSM):** Allocation roughly Rs 5000 crores; additional production 20 m.tons by 2011-12 (10, 8 and 2 m. tons of rice, wheat & pulses respectively)

- **Irrigation:** Additional 11 million ha through Bharat Nirman programme. Much of it will come through surface irrigation.

- **Agriculture package**: Rs 25,000 crores ($6 billion plus); Details????

Will grain and irrigation-centric strategy deliver?

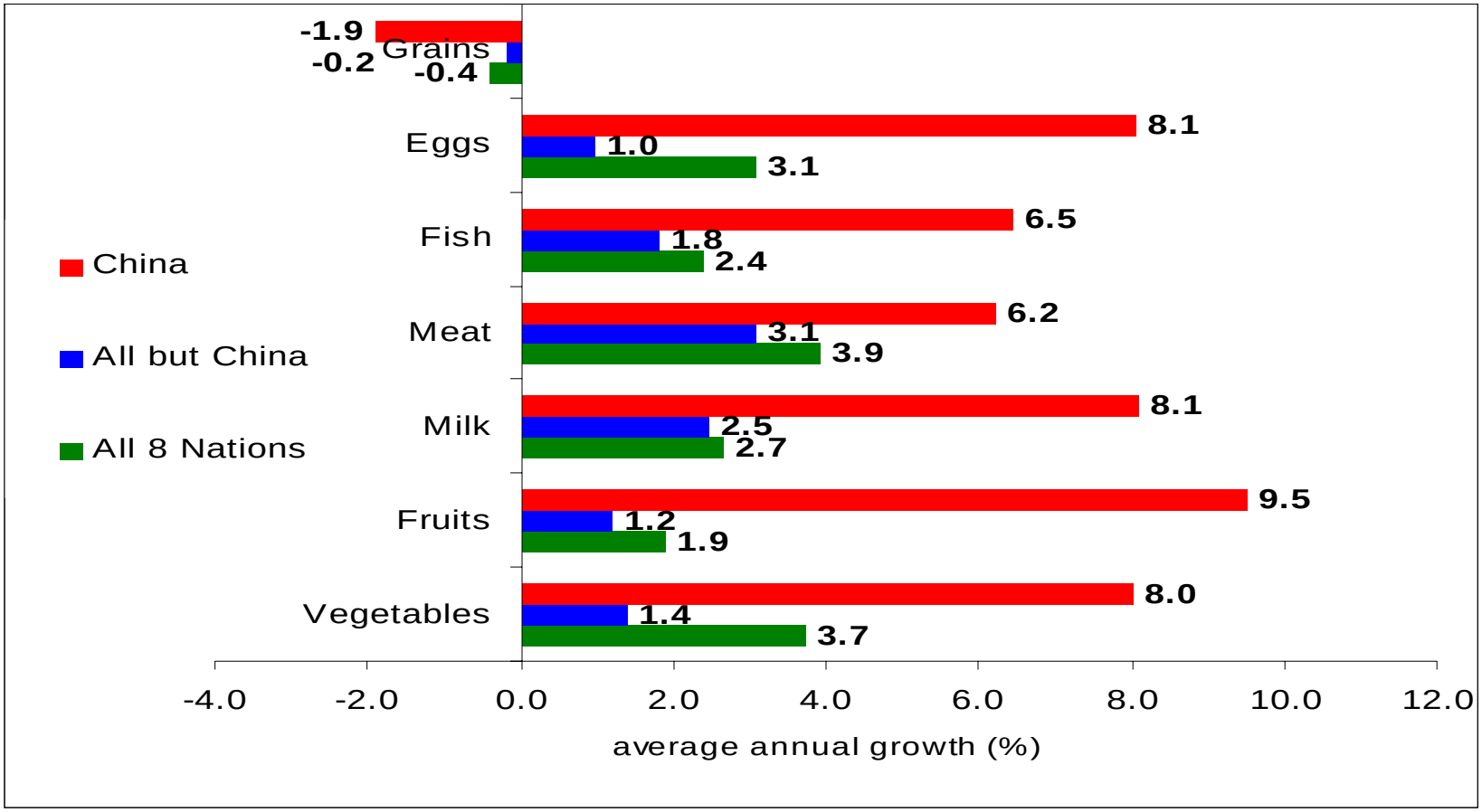
- NFSM in its current form is a very weak program document

- Needs a champion with clarity in strategy towards Eastern India (Bihar a sleeping giant… (may need about Rs 15,000 crores, get resources by reforming fertilizer subsidy, Mycorrhiza a potential technology to reduce urea subsidy bill..)

- But can a grain led strategy pull up the overall growth and incomes in agriculture? (Not consistent with the experience in south and south-east Asia, especially China.)

Changing Asian Platter: Diversification and "westernization" of diets

Average Annual Growth in per capita consumption (1991-2005) in Selected 8 Countries in South and South East Asia



Notes: Grains include cereals and pulses, Consumption measured as grams/capita/day, the 8 countries include Bangladesh, China, India, Indonesia, Pakistan, Philippines, Thailand and Viet Nam.

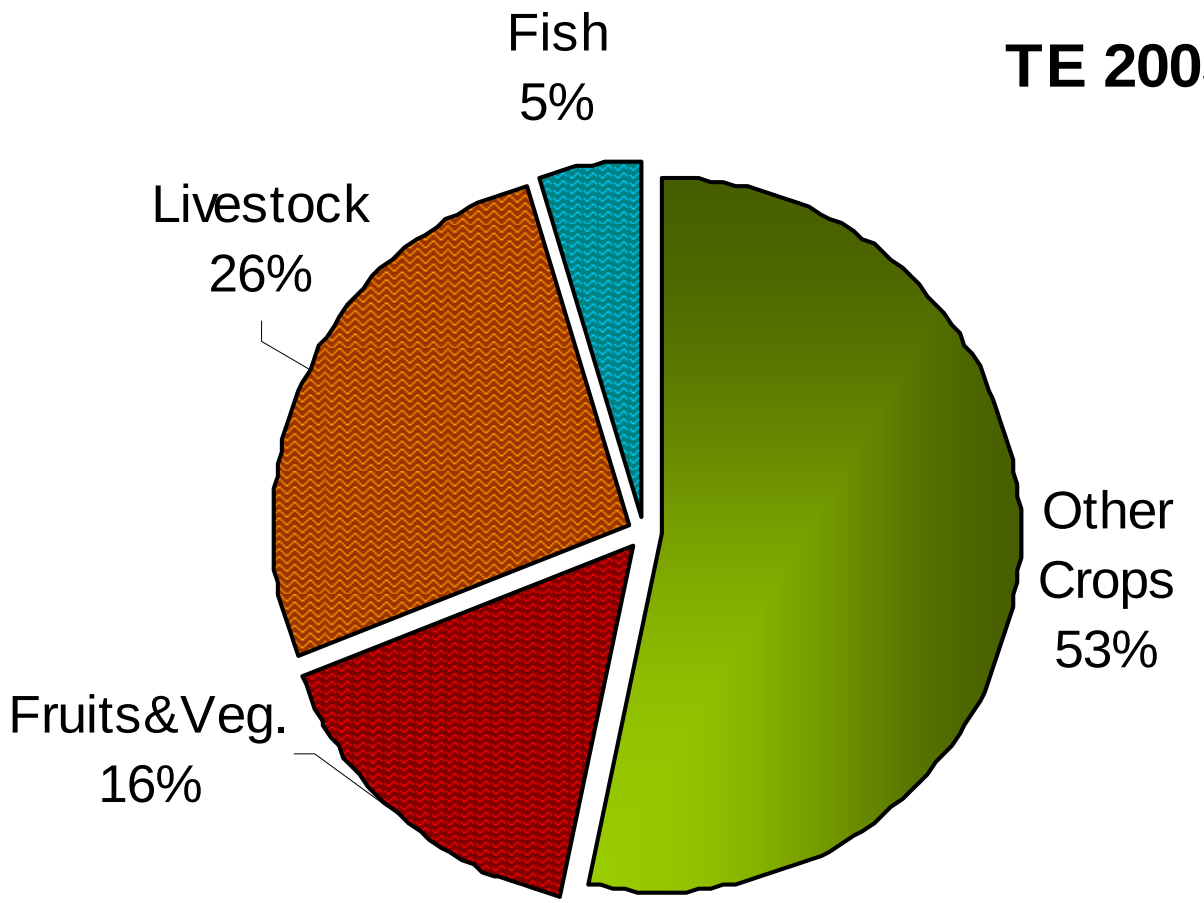
Source: FAOSTAT, © FAO Statistics Division 2007, 30 July 2007

China: Growth Performance within Agriculture (1978-2004)

Commodities	Production (in million tons)					Growth Rates (% per annum)		
	1978	**1984**	**1994**	**2004**		**1978-1984**	**1985-1993**	**1994-2004**
Cereals	273	365.9	396.5	413.2		4.27	2.31	0.41
Root Crops	164.2	148.2	156.4	181.1		-1.46	2.41	1.48
Pulses	6.5	6.4	5.0	5.3		-0.33	-3.32	0.66
Fruits	7.8	11.6	37.3	83.2		5.74	11.61	8.37
Vegetables	56.5	87.2	188.4	423.4		6.38	7.79	8.43
Meat	11.1	18.6	44.7	74.3		7.65	8.61	5.21
Milk	2.8	4.4	8.7	27.0		6.54	6.96	12.02
Fish	13.9	23.0	53.4	0.0		7.43	8.32	5.90
Marine	3.2	3.2	7.6	0.0		0.04	9.82	5.45

Source; FAOSTAT Database

India: Increasing share of high value in Agriculture Value of Output



Source: NAS 2007, CSO.

Structural shift towards HVA …..

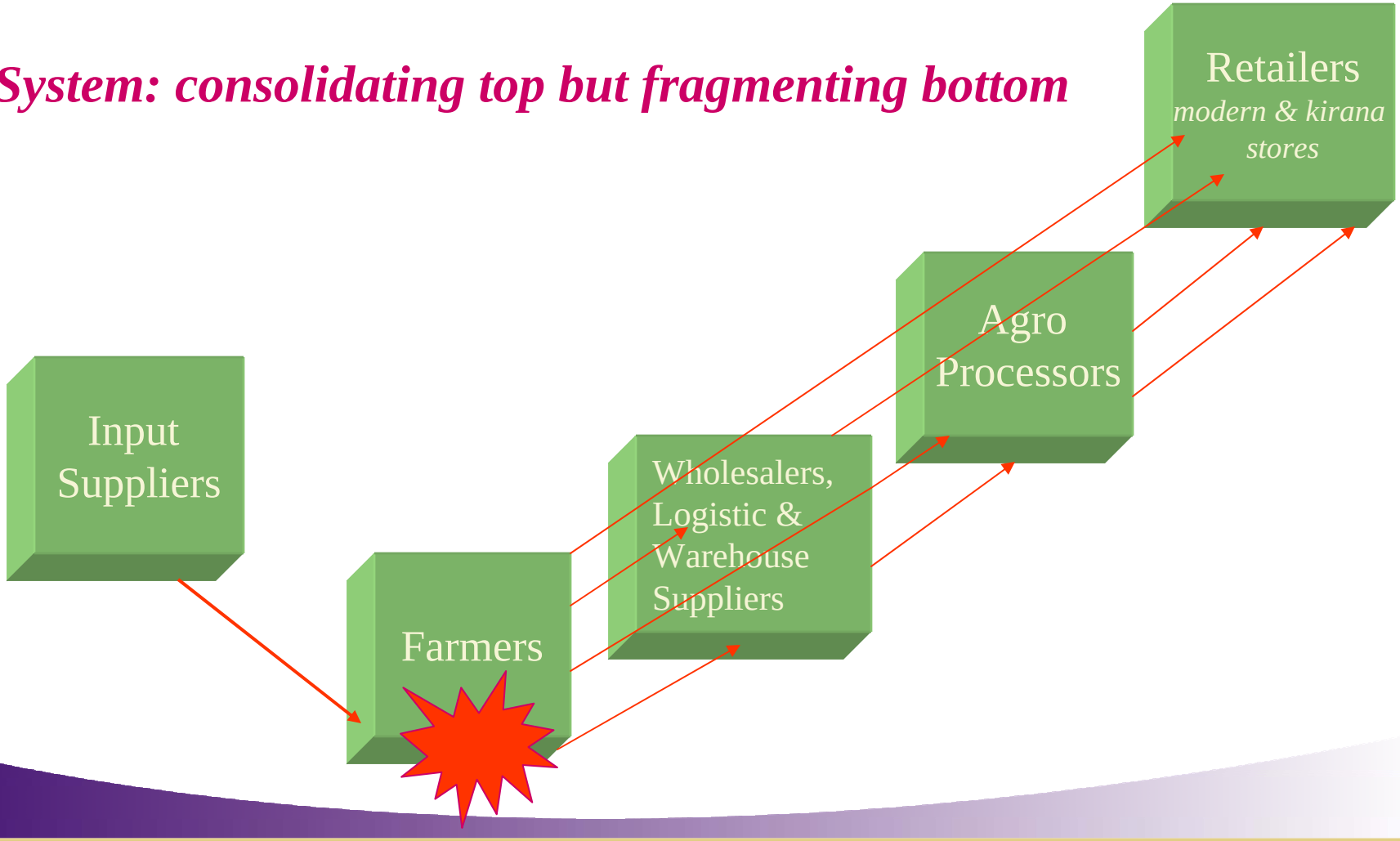
- **HVA being highly perishable in nature is inherently more risky (production and market risks are higher than in staples).**

- **Success in HVA will require a different vision of the policy maker, different types of investments, and even different institutions to make it go.**

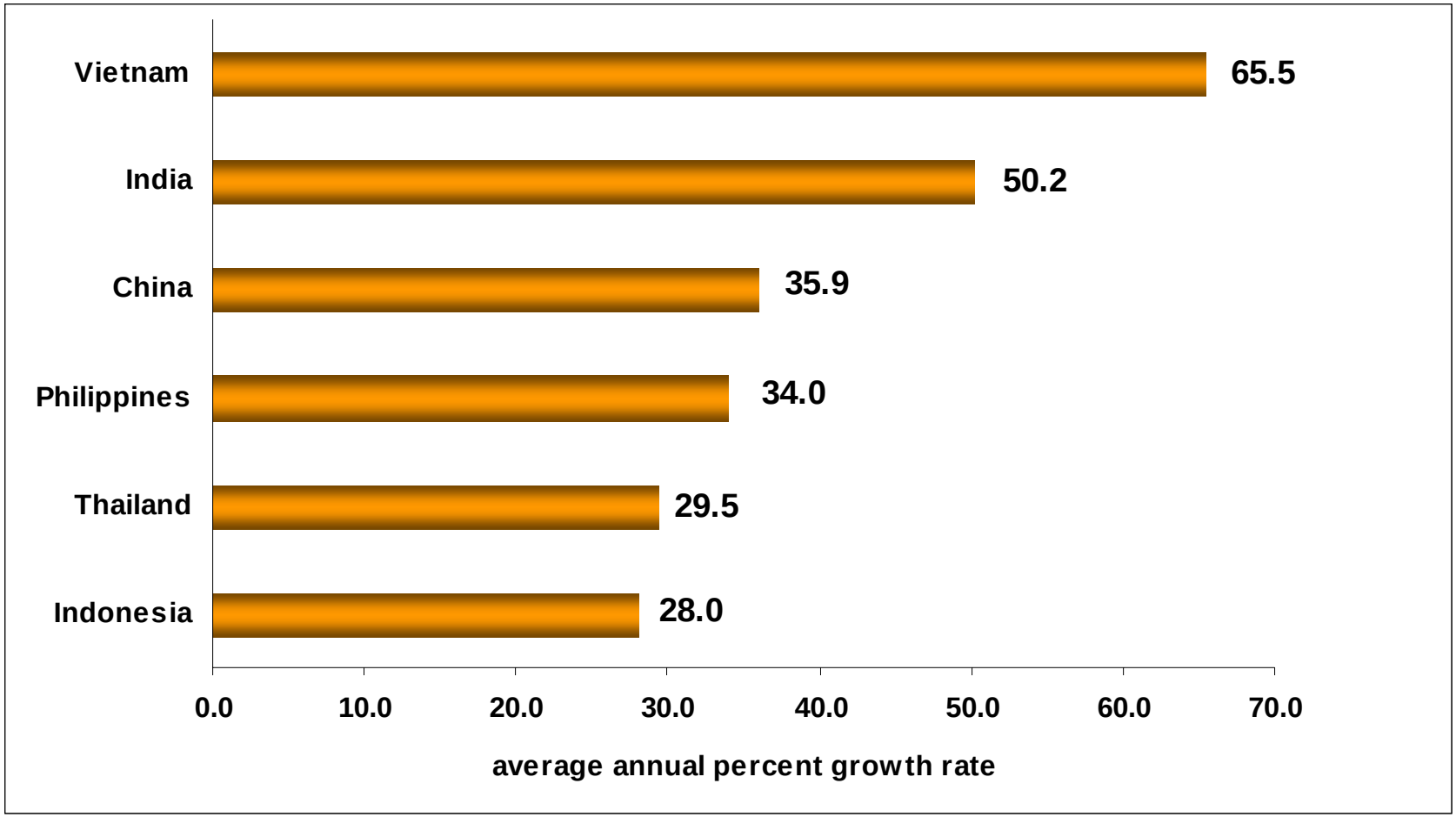
- **The next revolution in agriculture is going to be demand led with a dominant role of the private sector.**

For HVA, switch gears from farming to agri-system..

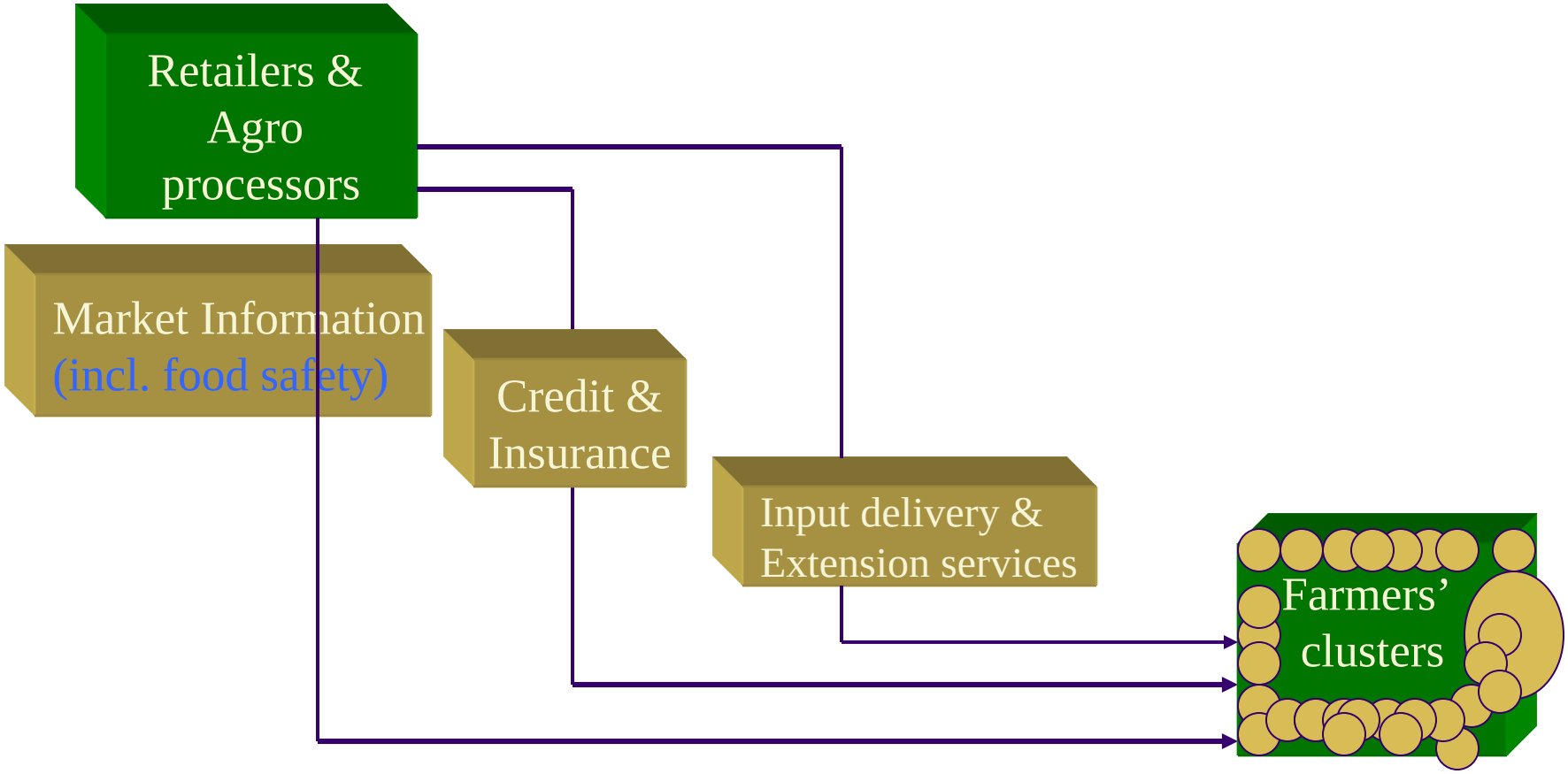
Agri-System: consolidating top but fragmenting bottom



Supermarket Revolution: Average Annual Growth Rate in Grocery Sales of Top 10 Retailers in Selected 6 Countries in South and South East Asia (2000-06)



How to make it work? Backward linkages with Cluster approach at the farmer level …



Varied experiments…from ITC to Bharti… The Race is on….. and big ones yet to enter

*ITC e-choupal: **from 2000-2007,***

- ITC set up 6,400 internet kiosks (e-choupals), reaches 4 million farmers in 38,000 villages across 9 states
- It also serves as a purchase centre for 13 agricultural commodities
- In 2006-07, ITC purchased about 2 million tons of wheat, soybeans, coffee, shrimps & pulses, worth $ 400 million through these e-choupal networks.

ITC Choupal Fresh Model:

- Providing **Extension** services (technical know-how, market information)
- Freedom to sell anywhere at prevailing market price, ITC offering a buying platform

production and market risks are borne by the farmer.

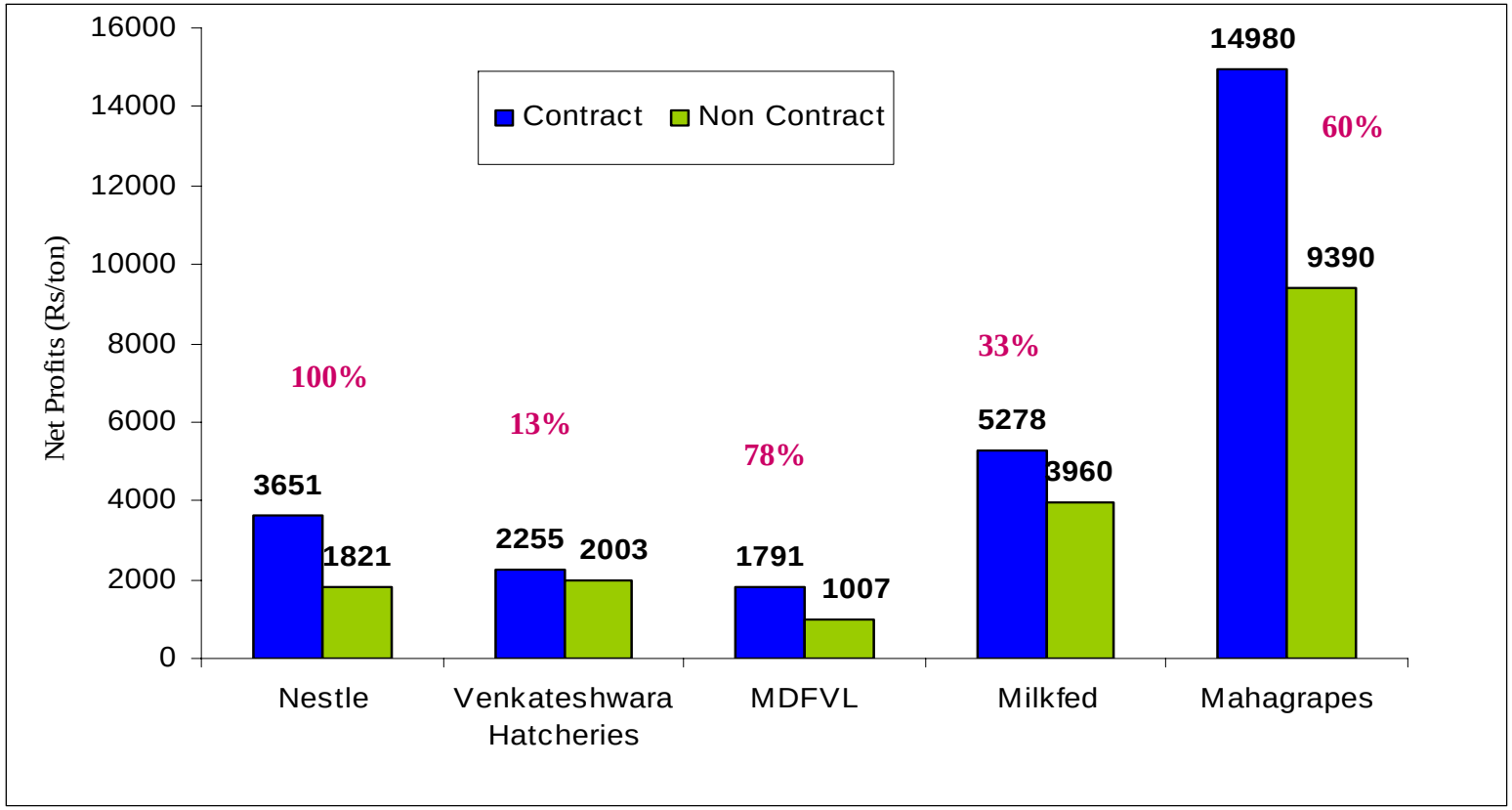
- **On retail front, instead of super markets, thinking of creating a chain of "push carts"**


Choupal
FRESH
Choupal
FRESH
Choupal
FRESH

Bharti (fieldfresh) Model: exports of HVA

- **fieldfresh, Agri Centre of Excellence situated in Ladhowal, Punjab**
- **Acquired 300 acres of farm land- a fulcrum point of R&D, information & knowledge dissemination and crops & trials**
- **Leased in 4,200 acres from 78 farms to produce beans, snow peas, carrots, okra, baby corn, etc (**India's field of greens, John Eliot, Fortune, CNNMoney.com, Aug2006**)**
    - **The farm includes 42 acres of state-of-art protected cultivation (green & glass houses, poly-houses and net houses)**

Net profits of contract and non-contract Milk, Broiler and Vegetable producers



Source: Birthal, P.S. et.al. 2007, Gupta et.al. 2007 & Bakshi et.al.2007 (based on IFPRI study)

Note: Survey was conducted in 2002-03 to obtain information relevant to 2001-02

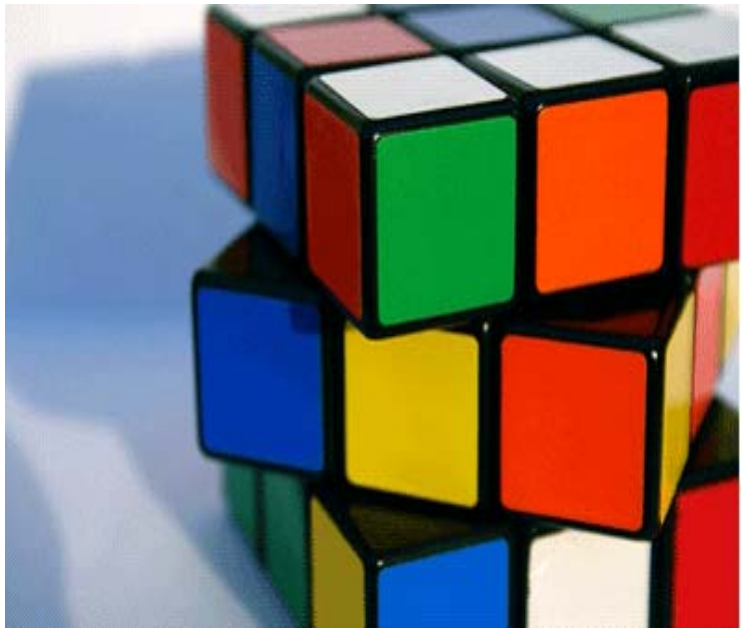
Why hasn't it taken off successfully as yet?

- Lack of formal, written & transparent contracts in terms of
  - *Tenure of contract*
  - *Sharing of profits and risks*
- Laws hindering investments in processing, retailing, direct procurement & movement of high value commodities (APMC, ECA)
- Tenancy laws restricting lease markets
- Nascent futures markets…limited risk mitigation

How do we judge: which way to go??

Solving the "Rubik cube" puzzle

- **Innovative Institutions and Organizations Linking smallholders to Modern Value Chains**
- **Mapping and Designing Institutions for *CISS***



C-Competitiveness
I-Inclusiveness
S-Sustainability
S-Scalability