

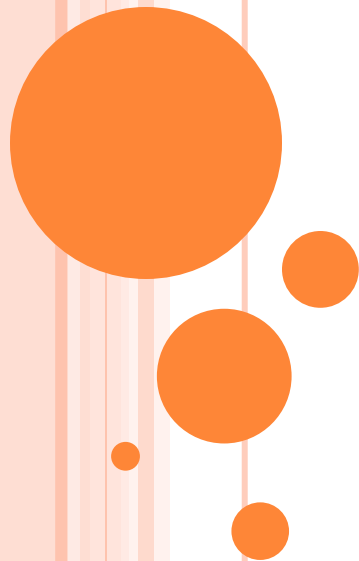
VISION AGRICULTURE 2050

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Webinar by
EGROW Foundation of India
July 16, 2021



A PROGRESSION OF STRUCTURAL & INSTITUTIONAL REFORMS IN AGRICULTURE

Pre 1990

Land reforms, irrigation investments, price support (CACP), grain procurement (FCI), input subsidy, banking/institutional credit, agri-markets (APMC 1966; ECA 1955)
-Green, Yellow, White Revolutions- food security, hunger, poverty

Post 1990

Agriculture largely neglected, low public & private investments, technology fatigue
-Lower protection, export incentives, price support on inputs, Model APMC 2003; but agri. less competitive, unsustainable use of resources, etc.

Early 2000 to date

Higher outlays for investments & subsidies, hike in MSP, Green revolution in eastern states, Flagship programmes, Income support, instit. credit, marketing reforms - More & diversified output, competitive, but no increase in farmers' income; unbalanced reg. growth

A. STRUCTURAL TRANSFORMATION & AGRICULTURE GROWTH



- Structural Transformation (ST): A relatively higher share of non-agriculture sector income compared to agriculture income in GDP
- Agricultural transformation a pre-requisite for ST – both GDP & employment share of agriculture fall in total GDP and employment
- Rural-Urban labour productivity differentials initially widen until Turning Point is reached; rural lab. productivity starts catching up
- Agriculture income falls behind other incomes; labour migrates; no increase in wage rate when abundant labour; wage rate starts to rise on reaching the turning point



CHANGES IN SECTORAL SHARES (PER CENT) IN GDP IN ASIAN COUNTRIES

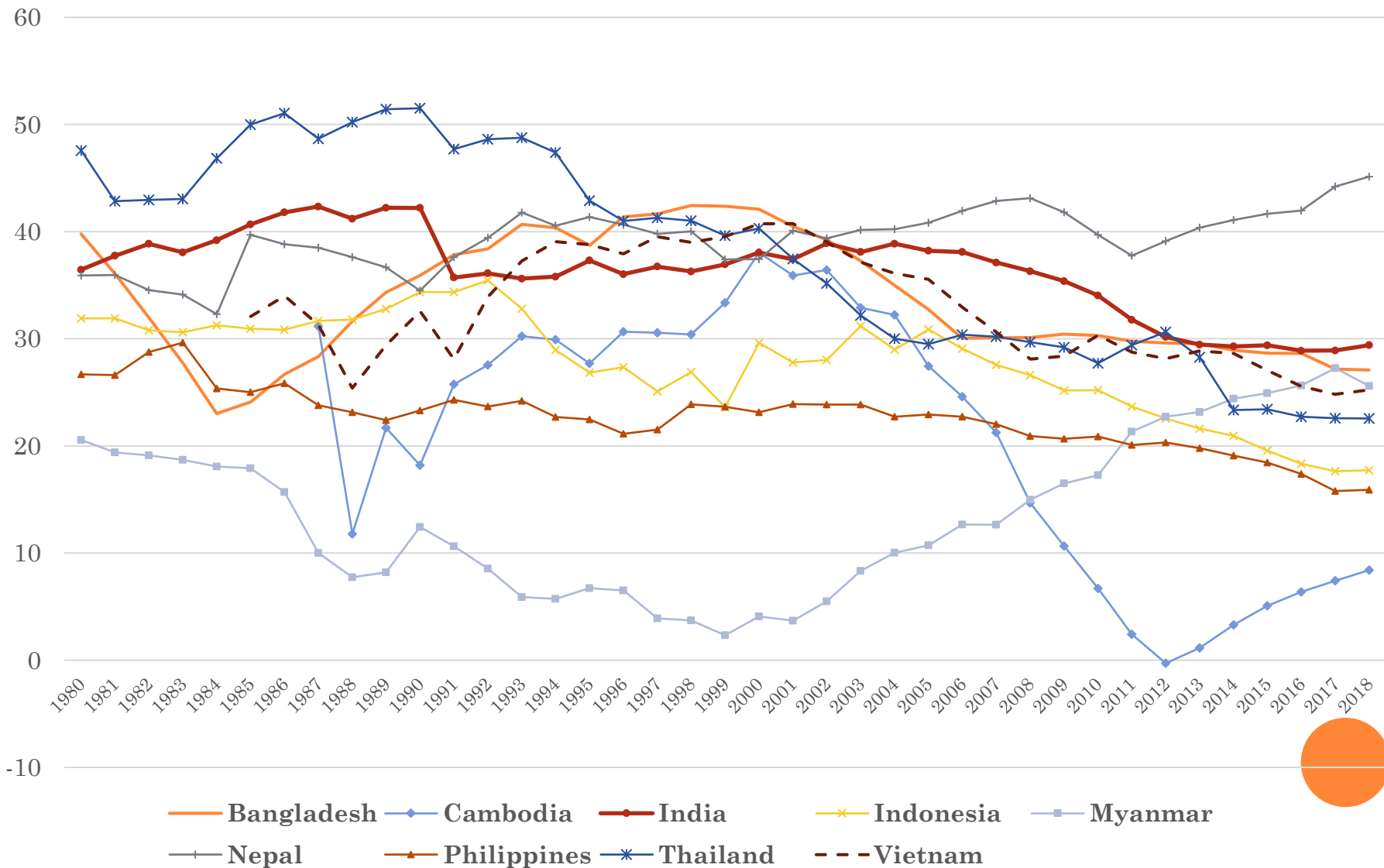
(SOURCE : WORLD DEV INDICATORS, WORLD BANK)

Country	Agriculture			Industry			Services		
	1960	1991	2018	1960	1991	2018	1960	1991	2018
China	30 (1980)	24	7	49	41.5	39.7	21	34.5	53.3
Indonesia	50	19.7	12.8	25	41.2	39.7	25	39.1	43.4
Thailand	40	12.6	8.1	19	38.7	34.8	41	48.7	57.1
Philippines	26	21	9.7	28	34.0	30.6	46	45	59.8
Malaysia	36	14.4	7.5	18	42.1	38.3	46	44.8	53
Rep. of Korea	37	6.8	1.7	20	37.1	34	43	47.1	55.7
Pakistan	46	22.8	22	16	22.9	17.9	38	43.2	52.8
India	55	27	14	16	26.4	26.1	29	37.8	48.8

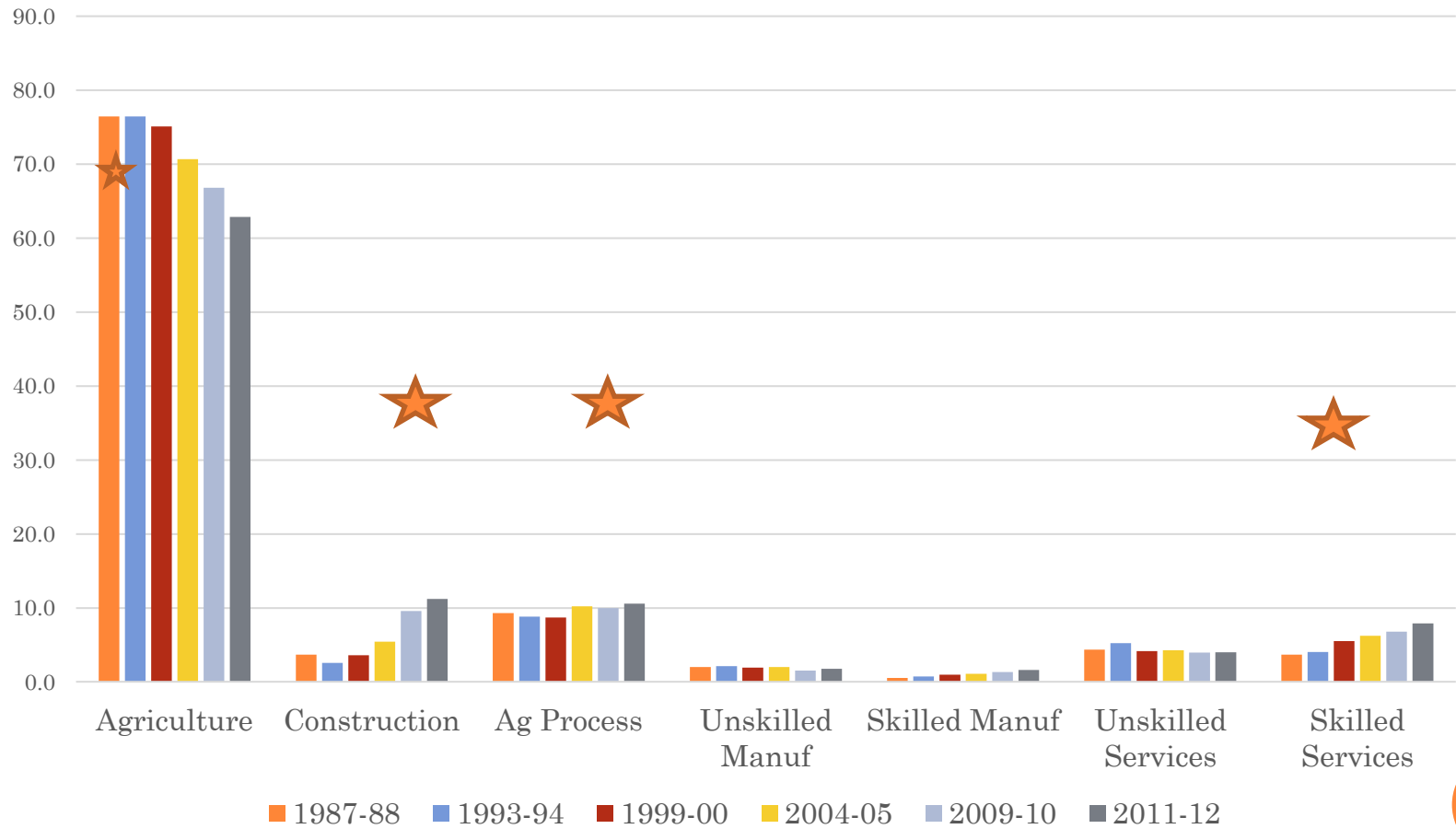
CHANGES IN SECTORAL SHARES (PERCENT) IN EMPLOYMENT

	Agriculture		Industry		Services	
	1991	2019	1991	2019	1991	2019
China	60	25	21	27	19	47
Indonesia	56	29	15	22	29	49
Thailand	60	31	15	23	24	46
Philippines	45	23	14	19	41	58
Malaysia	22	10	31	27	46	63
Korea, Rep.	15	5	37	25	49	70
Pakistan	45	37	22	25	34	38
India	63	43	15	25	22	32

STRUCTURAL TRANSFORMATION (GAP) – EMPL SHARE – GDPA SHARE IN SELECTED ASIAN COUNTRIES (1980 TO 2018)



SECTORAL SHARES IN RURAL EMPLOYMENT - INDIA



NON –REALISATION OF STRUCTURAL CHANGES IN THE WORK FORCE

Sectoral Asymmetry in GDP and Employment (2011-12)

- Agriculture : employs 49% workers
: supports 55% population
- Yet produces only 13% of GDP
- Most – almost two thirds – of the poor are in agricultural households
- Agricultural growth – generally lower, between 2 to 4 % during the last two decades against 6 to 9 % overall growth; high growth volatility

<i>Agriculture</i>	<i>GDP Share</i>	<i>Employment Share</i>
1987-88	33 %	65 %
1993-94	28 %	60 %
2011-12	13 %	49 %

Agriculture: non-agriculture
per worker income ratio

1987-88 = 1: 3.8

1993-94 = 1: 4.5

2011-12 = 1: 5.3

Require favourable public policies – investments in education, skill formation, health and small scale industry

Source: NSS



A KEY ROLE OF AGRICULTURE IN ST

Direct effect: farm and labor incomes – poor and women

- Producer incomes
- Food price - rural wages link
- Decline in food and raw material prices – impact on real wages

Indirect effects: backward and forward linkages (high multipliers)

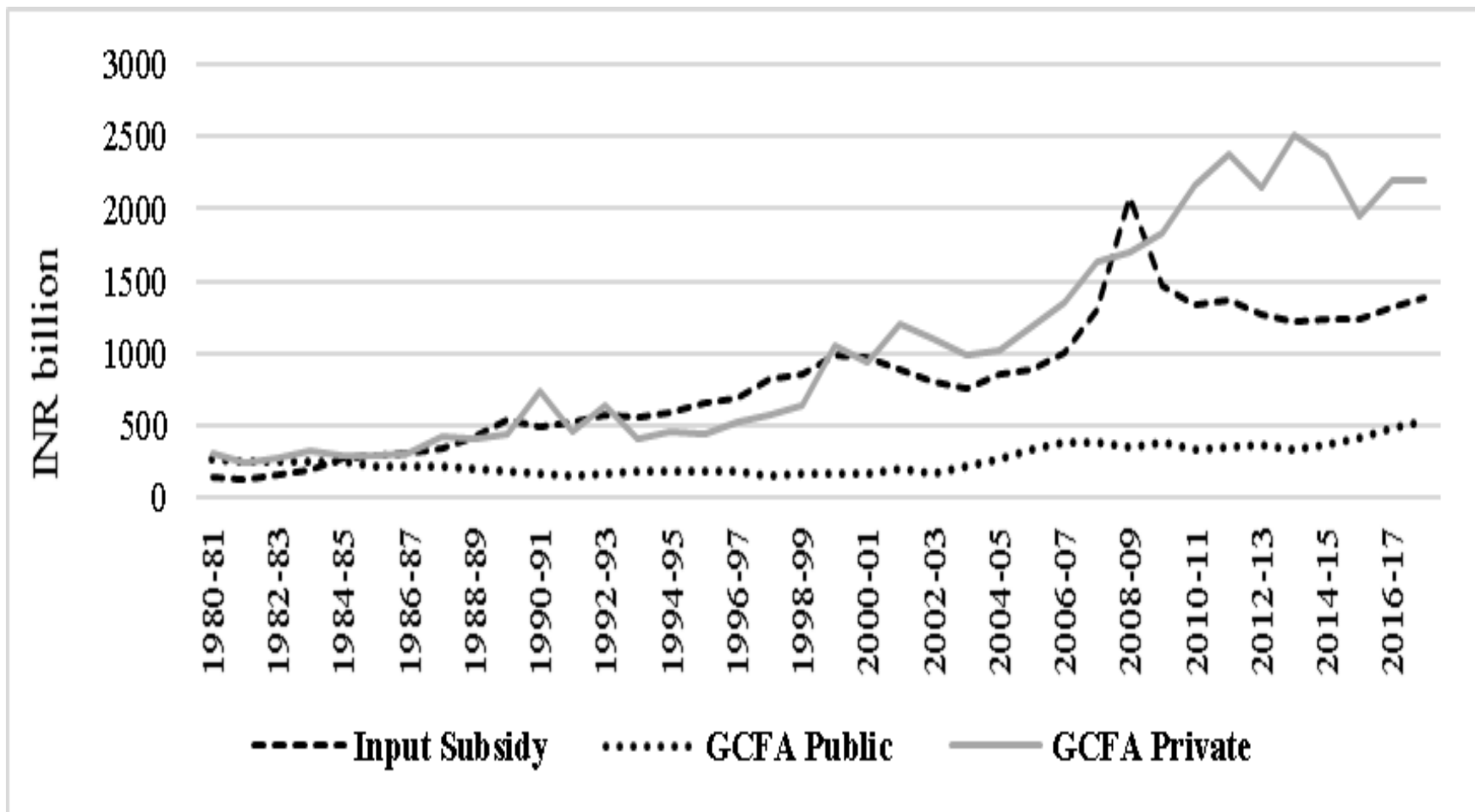
- Backward linkages: input industries – machinery & input markets/supply chains
- Forward linkages – supply side: downstream industries
 - food and other value chains – food/textile/leather/hospitality industries
 - agro-processing + other ancillary industrial development (packaging, logistics)
- Demand linkages – also forward: non-farm industrial goods and services; Consumer durables, construction, automotive, utilities, etc.

B. RAISING AGRICULTURE PRODUCTIVITY & FARMERS INCOME: INVESTMENTS AND SUBSIDIES

- ✓ Agriculture and irrigation in a federal structure
- ✓ State's financing of agriculture; Sources of revenue and expenditure of states
- ✓ Centre directly funds ICAR, food and fertilizer subsidies, PDS and Centrally Sponsored Schemes (CSSs)
- ✓ Asymmetry in the fiscal relations and increasing deficit
- ✓ High fiscal burden due to schemes and loan waivers ; Agri budget allocation 9 to 43%; CSSs tied up with conditions

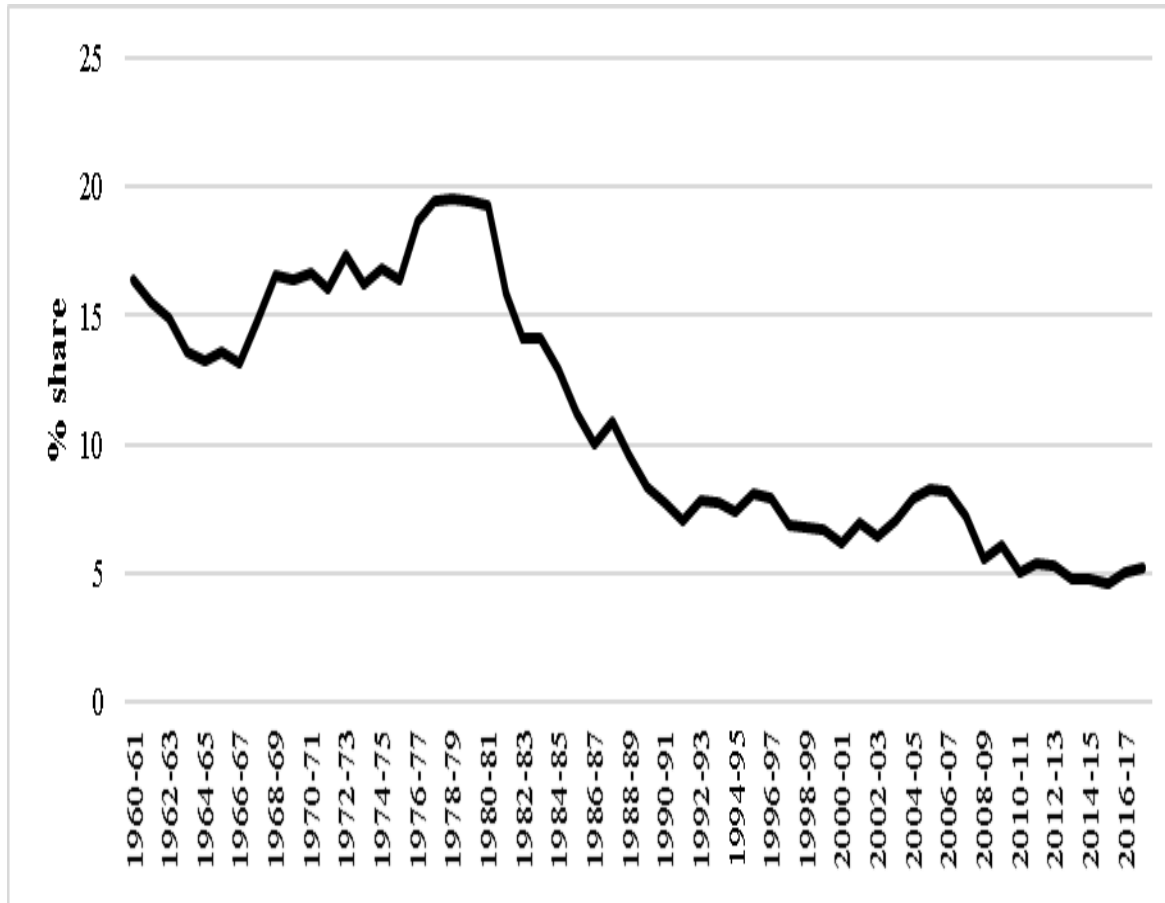


RESOURCE DEFICIT AND ITS IMPACT : LESS EXPENDITURE ON INVESTMENT & INPUT SUBSIDY (2011-2012 PRICES)



Pvt Inv 16000/ha; Pub inv 3600/ha; Subsidy 8600/ha; Note: GCFA -Gross capital formation in agriculture & allied activities; Input subsidy is the sum total of subsidy on account of power, fertilizer, irrigation and credit; Source: National Accounts and Union Budgets, various years

A LOWER SPENDING : % SHARE OF PUBLIC GCFA (INVESTMENT) IN PUBLIC GDCF (TOTAL INVESTMENT)



GCFA/GDCF - 17 to 6%

GCFA/GDPA - 5 to 16%

Public GCFA/GDPA - 3%

Input subsidy/GDPA - 8%

Agri subsidy/total subsidy -25%
(close to mining, manufacturing, construction)

Note: GCFA-gross capital formation in agriculture & allied activities; GDCF-Gross domestic capital formation; GDP-Gross domestic product;GDPA-Gross domestic product in agriculture & allied activities; Source: National Accounts Statistics, CSO



INCREASING PUBLIC EXPENDITURE

- More fiscal space to agriculture-irrigation (DFI committee - investment requirements -14%) (low per ha public & private investment 320 \$)
- Capital use efficiency, better governance, irrigation management and productivity of irrigation (more crop per drop)
- Synchronise public investment with changing farmers investment requirements to strengthen 'crowding in effect' at the state level
- Private corporate investments –PPP model, more in R&D, yield augmenting & water conserving technologies
- Incentivise start-ups to invest in GIS, app-based weather advisories & digital technologies
- Private (HHs) investment through institutional credit; digitisation of land records
- Focus on poorer agri dependent eastern states for higher returns – agriculture income and poverty alleviation



A Differential Expenditure Policy at the State Level and Prioritisation

Marginal Returns from Additional Investments & Subsidies (1981/82–2013/14)- Investments > effect than Subsidy

	Agriculture Income (INR per INR spent):			
	20 Major States	High Per Capita Income States	Middle Per Capita Income States	Low Per Capita Income States
Rural development	0.14	0.01	0.02	0.01
Irrigation inv. (canals)	0.15	0.19	0.01	0.64
Road investment	0.42	0.06	1.42	0.21
Power subsidy	0.69	0.94	1.31	3.60
Credit subsidy	0.92	0.51	1.21	1.28
Fertilizer subsidy	1.07	1.05	3.18	1.34
Irrigation subsidy	1.67	2.71	0.41	6.48
Energy investment	1.73	1.57	1.18	1.01
Health investment	1.83	1.55	0.84	1.74
Education investment	2.39	1.74	2.27	1.50
Agriculture R&D inv.	2.47	3.23	4.44	9.92
Well irrigation (private inv)	9.51	1.66	2.87	19.80

Source: S. Bathla, PK. Joshi, A. Kumar (2020) Agricultural Growth and Rural Poverty Reduction in India: Targeting Investments and Input Subsidies, Springer

Nature:

RATIONALISING PUBLIC SPENDING ON SUBSIDIES

○ **Intensify Investment Support that is underway :**

- Solar pumps in place of electric pumps to save energy but overuse of groundwater
- Micro irrigation for water use efficiency
- Water Regulatory Authorities for pricing of canal water & Water User Associations for water delivery
- Urea under the NBS; Cap subsidy at current level to reflect increase in prices in retail prices
- Support to organic farming

○ **Direct income support (DIS) may assure efficiency in input use & financial autonomy to farmers but a big challenge**

- Estimation of the amount as per the existing cropping pattern & use of inputs (DIS in fertilizer - Rs. 7000 per ha; Rs. 5300 per ha)
- A rise in fertilizer price may reduce its use and affect productivity; Problem of ready cash with farmers
- Inclusivity and unresolved issue regarding support to tenants/sharecroppers/women farmers/landless labour
- Feasibility of price policy shift towards differential price policy or price deficiency payment




RAISING AGRICULTURE PRODUCTIVITY & FARMERS INCOME: STRENGTHENING COORDINATION BETWEEN CENTRE AND STATES



- Centre not disconnected from agriculture ; require handholding
- Increasing the state capacity; and more Flexibility
- Good governance in irrigation and other sectors
- Convergence of various schemes and effective coordination across Central ministries
- Resolve disagreements by involving institutions - Inter-State Council and NITI Aayog



C. RAISING AGRICULTURE PRODUCTIVITY & FARMERS INCOME: LINKING FARMERS WITH MARKETS

- ✓ **Agri Marketing Reforms as per the Constitution (Model APMC 2003; Farm Laws 2020)**
 - ❖ Developing alternate markets, contract farming, organised retail chains
 - ❖ Value Addition/processing, linkages with the industry through FPOs/cooperatives
 - ❖ Financial inclusion and outreach
 - ❖ Interlocked (input and output) markets and farmers loss
 - ❖ Storage/transport/logistics, exports infrastructure
 - ✓ **Diversification to higher-value commodities and livestock**
 - ✓ **Potential opportunities in innovations**
 - ❖ Insurance to address climatic risks; yield augmenting & water conserving technolog.
 - ❖ Agriculture - nutrition linkages – food systems approach
 - ❖ Precision farming, Artificial Intelligence and Weather Advisories (Digital Farm Services; E-retailing)
 - ✓ **Enhancing competitiveness in the world markets**
 - ❖ Protectionist policies; Adhocism in exports; negligible presence in Global Value Chains
- 

Thank you



GDP AND EMPLOYMENT SHARES IN SELECTED COUNTRIES (2002) AND 2018

(SOURCE: WORLD DEV INDICATORS, WORLD BANK)

Country	Share in Output/GDP (%)			Share in Employment (%)		
	Agriculture	Industry	Services	Agriculture	Industry	Services
United Kingdom	(1) 0.6	(26) 17.5	(73) 71	(1) 1.1	(25) 18.1	(74) 80.8
United States	(2) 0.9	(23) 18.6	(75) 76.9	(2) 1.4	(24) 19.9	(74) 78.8
France	(2) 1.7	(22) 17.1	(76) 70.2	(3) 2.5	(25) 20.3	(72) 77.2
Japan	(1) 1.2	(31) 29.1	(68) 69.3	(5) 3.5	(31) 24.4	(64) 72.1
Germany	(1) 0.7	(30) 27.4	(69) 62.1	(3) 1.2	(33) 27.3	(64) 71.4
Italy	(3) 1.9	(29) 21.5	(69) 66.3	(5) 3.8	(32) 26.1	(63) 70.1
Australia	(4) 2.5	(26) 24.2	(69) 66.7	(5) 2.6	(21) 19.9	(74) 77.5