

# **Crucial Role of Agriculture in Indian Development: A Japanese Perspective**

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## **1. Introduction**

- (1) Changing role of agriculture in development over time.
- (2) Differential rate of GDP growth and labour absorption.
- (3) Increasing regional disparities.
- (4) Persistent poverty.

## **2. Towards Higher Labour Absorption in Rural Area.**

- (1) Role of R&D for labour absorption; Region Specific Products Development (RSPD) for enhancing total household income;
- (2) Role of SME for rural non-farm households.

## **3. Criterion for Reducing Regional Disparities.**

- (1) Trend of Regional Disparities; declining employment elasticity.
- (2) Direction of public investment in reducing as well as increasing disparities.
- (3) The State of Higher Priority: Intensive and Extensive Index.

## **4. The Neglected Issues of Poverty Reduction Strategy**

- (1) Rural Non-Farm Households.
  - (i) Proportion of rural non-farm households; their socio-economic status and poverty.
  - (ii) Limitation of conventional agricultural policies.
- (2) Relationship between Income and Assets in Agriculture.
  - (i) Declining trend of rent / land price ratio for 1.5 century.
  - (ii) Bubble economy and its characteristics in India and Pakistan.
  - (iii) Increasing inequality in terms of income and assets, and its implication to poverty and future investment, in particular public investment, housing and SME development.

## **5. Conclusion**

## **Appendix 1 Indicators for Constructing Ranking**

### **1. Enhancement of Labour Absorptive Capacity: Growth and Efficiency**

#### **<Extensive Indicators>**

- (1) State Gross Domestic Products of Agriculture
- (2) Gross Irrigated Area
- (3) Production of Foodgrains

#### **<Intensive Indicators>**

- (1) Share of Agriculture in State GDP (P) \*
- (2) Yield Gap of Foodgrains (Punjab=100) (N)
- (3) Irrigation Ratio (N)

### **2. Reducing Regional Disparities: Sustainability**

#### **<Extensive Indicators>**

- (1) Number of Scheduled Castes and Tribes
- (2) Public Investment in Agriculture
- (3) Area under Forest

#### **<Intensive Indicators>**

- (1) Per capita SGDP agriculture (N)
- (2) Forest Area per Sown Area (N)
- (3) Public Investment in Agriculture per Hectare (N)

### **3. Poverty Alleviation: Equity**

#### **<Extensive Indicators>**

- (1) Livestock population (bullock and sheep & goat) \* \*
- (2) Population below Poverty Line
- (3) Value of Rural Assets

#### **<Intensive Indicators>**

- (1) Livestock Intensity (bullock, sheep and goat per net sown area) (P)
- (2) State Population below Poverty Line (P)
- (3) Rural Assets per Rural Population (N)

\* P=positive, N=negative

\* \* Conversion rate between big and small animal = 1 : 10

( Please see the next page also )

## Appendix 2 Formula for Constructing Index

$$S_{ij} = (E_{ij} / \sum_i^n E_{ij}) * 100; i = 1, \dots, n, j = 1, \dots, k$$

$$BLI_e = (\sum_{j=1}^k W_j S_{ij})$$

**S<sub>ij</sub>** = share of *i*th state in *j*th extensive indicators

**E<sub>ij</sub>** = the value of *j*th extensive indicators in *i*th state

**N** = number of states, **k**= number of extensive indicators

**BLI<sub>e</sub>** = Base Line Index for extensive indicators

$$C_{ij} = (M_{ij} / \text{Max}M_{ij})$$

$$BLI_i = (\sum_{j=1}^k C_{ij} W_j)$$

In the case of negative sign (N), C<sub>ij</sub> becomes;

$$C_{ij} = (1 - M_{ij} / \text{Max}M_{ij} \cdot W_j)$$

**M<sub>ij</sub>** = the value of *j*th intensive indicators in *i*th state

**Max M<sub>ij</sub>** = the state with the best performance of each intensive indicators

**C<sub>ij</sub>** = index of *i*th int

Table 2 Total GDP Growth Rate and Agricultural GDP Growth Rate

	Coefficient	St. Error	R Square
1951/52-59/60	1.608	(0.177)	0.922
1960/61-69/70	1.789	(0.174)	0.930
1970/71-79/80	1.790	(0.172)	0.931
1980/81-89/90	2.302	(0.394)	0.810
1990/91-99/00	1.044	(0.562)	0.301

Source) Calculated from the data in *Economic Survey 2000-2001*

Table 3 Manuf.GDP Growth Rate and Agricultural GDP Growth Rate

	Coefficient	St. Error	R Square
1951/52-59/60	0.334	(0.393)	0.094
1960/61-69/70	0.659	(0.822)	0.074
1970/71-79/80	0.782	(0.651)	0.152
1980/81-89/90	0.474	(0.859)	0.037
1990/91-99/00	0.194	(0.327)	0.042

Source\* Same as above

Table 4 Distribution of Land and Livestock, 1991/92

Size of holding	Share of household	Size of livestock				
		Cattle	bufallo	sheep/goat	pig	poultry
Landless	21.8	2.4	2.8	5.1	7.7	6.4
Less than 1 ha	48.3	47.1	36.1	46.2	49.5	54.8
1.0 – 2.0 ha	14.2	24.0	26.7	19.3	20.4	19.0
2.0 – 4.0 ha	9.7	16.6	20.2	15.0	13.9	14.4
4.0 – 10.0 ha	4.9	8.3	14.4	9.7	7.1	4.2
More than 10.0 ha	1.1	1.6	4.8	4.7	1.0	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source) Extracted from Pratap S. Birthal et.al., *Assessment of Research Priorities for Livestock Sector in India, (Draft) NCAP, 2001*

**Table 1 Per Capita State GDP, Employment Elasticity, Unemployment and Poverty Ratio in India: 1980/81 - 1999/00**

	1980/81	1998/99	1980/81	1998/99	1993/94 - 99/00	1993/94	1999/00	1983	1999/00	2001	
	-0.98795	- 00/01	-0.98795	- 00/01	Growth	Unemployment	Unemployment	Poverty	Poverty	Population	
	GDP Index : All India = 100										
	Index:Punjab=100										
					Rate(GDP)	Elasticity		Ratio	Ratio		
Punjab	165.8	157.3 (-)	100	100	4.6	0.426	3.1	4.03	16.2	6.2	2429
Haryana	140.5	144.6	84.7	91.9	5.8	0.42	6.51	4.77	21.4	8.7	2108
Maharashtra	131.9	155.7	79.5	99	5.8	0.216	5.09	7.16	43.4	25	9675
Gujarat	130.3	139.2	78.6	88.5	7.3	0.318	5.7	4.55	32.8	14.1	5060
J & K	118.5	77.7 (-)	71.5	49.4	na	na	na	na	24.2	3.5	1007
HP	106.4	111.3	64.2	70.8	7.1	0.052	1.08	2.96	16.4	7.6	608
Kerala	102.3	107.2	61.7	68.1	5.5	0.013	15.51	20.97	40.4	12.7	3184
TN	101.7	130.2	61.3	82.6	7.1	0.052	11.41	11.78	51.7	21.1	6211
Karnataka	94.5	119	57	75.6	7.6	0.185	4.94	4.57	38.2	20	5273
AP	94	100.8	56.7	64.1	5.2	0.067	6.69	8.03	28.9	15.8	7573
Assam	92.9	61 (-)	56.2	38.8	2.7	0.737	8.03	8.03	40.5	36.1	2664
W.Bengal	88.3	98.4	53.3	62.5	7.3	0.056	10.06	14.99	54.9	27	8022
Rajasthan	79.4	89.5	47.9	56.9	7	0.104	1.31	3.13	34.5	15.3	5674
Orissa	73.2	65 (-)	44.2	35	4	0.262	7.3	7.34	65.3	47.2	3671
UP	71	59.4 (-)	42.8	37.9	5.5	0.185	3.45	4.08	47.1	31.2	16605
MP	68.9	58.5 (-)	41.5	37.2	4.7	0.272	3.56	4.45	49.8	37.4	6039
Bihar	40.5	35.1 (-)	24.4	22.3	4.5	0.353	6.34	7.32	62.2	42.6	8288
All India	100	100			6.7	0.16	5.99	7.32	44.5	26	102702

Source: Calculated and compiled from GOI, Economic Survey 2002-03, Ashok Mathur, 'Regional Differences and their Interface with Social Well-being in India,' in Meiji-Gakuin University, Regional Difference and Inequalities in Asian Countries, 2004, Japan