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Urbanisation and Agricultural Growth in India

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I

INTRODUCTION

Agriculture is the mainstay of Indian economy because of its high share in employment and livelihood notwithstanding its reduced contribution to the nation's gross domestic product (GDP). The share of agriculture in GDP has registered a steady decline from 36.4 per cent in 1982-83 to 18.5 per cent in 2006-07. Yet this sector continues to support more than half a billion people providing employment to 52 per cent of the workforce (Government of India, 2008a). In spite of rapid urbanisation during last few decades, India's rural population still accounts for about three-fourths of the total population. The rural population constitutes about 80 per cent of the total population in 1971 and the population has been continuously falling marginally since then to 76.7, 74.3 and 72.2 per cent in 1981, 1991 and 2001, respectively.

India shares most characteristic features of urbanisation in the developing countries. India is the second most populous country in the world after China. The country supports 16.87 per cent of the world's population on its meager 2.4 per cent world surface area of 135.79 million square kms. Historical evidence suggests that urbanisation process is inevitable and universal. Urbanisation is the process through which rural population tends to move over to cities and towns in search of livelihood and better amenities and good lifestyles. Though urbanisation is a worldwide phenomenon, it is especially prevalent in India, where urban areas have experienced an unprecedented rate of growth over 30 years. India has shared the growth patterns with some of the fast growing regions in Asia. The country has witnessed around 8 per cent growth in GDP in the last couple of years and India's urban population is increasing at a faster rate than its total population. Urbanisation has been recognised as an important component of economic growth. At 28 per cent, the pace of urbanisation, however, has been slow and lower than the average Asia. The absolute number of people in urban cities and towns, however, has gone up substantially. It is expected that rate of urbanisation will increase in the coming years. *The Report of the Technical Group on Population Projections* constituted by the National Commission on Population estimates that around 38 per cent of our population will live in cities and towns by 2026, a rise of 10 percentage point from the level of 28 per cent of

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2001. But this success has been accompanied by poverty in urban areas. Urban poverty in India remains high, at over 25 percent. Over 80 million poor people lives in the cities and towns in India. This is roughly equal to the population of Egypt.

Urbanisation is an index of transformation from traditional rural economies to modern industrial one and progressive concentration of population in urban unit. It is arguably the most dramatic form of irreversible land transformation. With per capita incomes higher in urban areas than in rural areas, and non-agricultural growth having a greater impact on urban incomes, access to urban opportunities through migration and remittance is an important aspect of the diffusions of incomes. With large migrations from rural to urban areas, there have been significant changes in land utilisation. Land converted to urban uses is increasing, though it has little effect on total crop production. Urbanisation and rising buying power have moved up the food chain. The demand for expensive animal products grows. The developmental factors like agriculture modernisation, commercialisation, increased demand for non-crop goods and services, urbanisation, growing literacy and even welfare-oriented policy intervention leading to increased job opportunities, etc., have tried to pull the labour force away from agriculture towards more lucrative non-farm activities. At the same time, distress factors like poverty, un/underemployment due to the inability of agriculture to absorb the surplus labour, and even frequent natural calamities like drought have tried to push the rural households to go in search of various non-farm activities to supplement their income and employment. A shift away from agriculture appears to have occurred in most parts of India over the last decade.

Indian agriculture has witnessed significant variations over the last five decades, there were phases of significant growth and stagnation (Sawant, 1983 and Sawant and Achuthan, 1995). But over the years the country has emerged out of the state of chronic hunger and abject dependence on the import, to achieve self-sufficiency in the availability of foodgrains. Particularly, this was achieved even under the increasing pressure of population growth at a significant rate. With a 24.2 per cent contribution (triennium ending 2001-02) to the gross domestic product (GDP), agriculture still provides livelihood support to about two-thirds of country's population. The sector provides employment to 56.7 per cent of the country's workforce and is the single largest private sector occupation. Agriculture accounts for about 14.7 per cent of the total export earnings and provides raw material to a large number of industries (textiles, silk, sugar, rice, flour mills, milk products). Besides, the rural areas are the biggest markets for low-priced and middle-priced consumer goods, including consumer durables and rural domestic savings are an important source of resource mobilisation. Any change in this sector, positive or negative, has a multiplier effect on the entire economy. A nation of more than a billion people cannot be dependent on imports for the basic item like foodgrains. The agriculture sector, therefore, acts as a mainstay of the Indian economy for maintaining food security and, in the process, national security as well.

Urbanisation and economic development are broadly synonymous and therefore the issue of agricultural production needs to be dealt in the context of recent developments of sustained growth in incomes and urbanisation as well. Urbanisation per se becomes significant since it affects employment, migration, literacy, access to markets and infrastructure. Therefore, an attempt is made in this paper to analyse the relationship between urbanisation and agriculture growth in India.

II

DATA AND METHODOLOGY

The study is based on secondary data collected from the different sources such as government publications, reports, research papers and websites. The entire data on population and related data has been complied from *Selected Socio-Economic Statistics India 2006*, Census of India and related websites. The data on area, production and yield of crops, per capita foodgrain availability and related data have been compiled from *Agricultural Statistics at a Glance 2008* published by Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, New Delhi and website. Besides tabular analysis, annual compound growth rates were calculated to indicate an increase or decrease in various parameters.

III

RESULTS AND DISCUSSION

World Urbanisation Scenario

The world has experienced an unprecedented increase in population during the past century, with a billion people added every decade during the last three decades. The United Nations population projections indicate that world population will increase to 8.01 billion in 2025 and 9.19 billion in 2050 from the level of 6.51 billion in 2005. Such unprecedented growth in population necessitates food production to be almost doubled by 2050. The world urban population is estimated to be 50.60 per cent in 2010 (Table 1). It was estimated that nearly 50 million people are added to the world's urban population and about 35 million to the rural population each year (Bhagat, 2001). The share of world's population living in urban centers has increased from 39.10 per cent in 1980 to 46.60 per cent in 2000. The developed countries have higher urbanisation level (73.10 per cent) compared with less developed/developing countries (40.18 per cent) in 2000. The level has almost stabilised in developed countries. Africa and Asian countries are in the process of urbanisation. The proportion of people in developing countries who live in cities has almost doubled since 1960 (from less than 22 per cent to more than 40 per cent), while in more developed regions the urban share has grown from 61 per cent to 76 per cent.

TABLE 1. WORLD POPULATION RESIDING IN URBAN AREAS BY REGION

	World		More developed regions		Less developed regions		Africa		Asia		Latin America and the Caribbean		India	
Year	Total (billion)	Urban (per cent)	Total (billion)	Urban (per cent)	Total (billion)	Urban (per cent)	Total (billion)	Urban (per cent)	Total (billion)	Urban (per cent)	Total (billion)	Urban (per cent)	Total (billion)	Urban (per cent)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1980	4.45	39.10	1.08	68.77	3.37	29.56	0.48	27.86	2.64	26.32	0.36	64.93	0.69	23.10
1985	4.86	40.95	1.12	69.98	3.74	32.29	0.55	29.89	2.90	28.97	0.40	67.90	0.77	24.35
1990	5.29	42.96	1.15	71.20	4.15	35.13	0.64	32.00	3.18	31.91	0.44	70.64	0.86	25.55
1995	5.72	44.72	1.18	72.22	4.54	37.60	0.73	34.08	3.45	34.39	0.48	73.05	0.95	26.59
2000	6.12	46.60	1.19	73.10	4.93	40.18	0.82	35.95	3.70	37.05	0.52	75.35	1.05	27.66
2005	6.51	48.58	1.22	74.02	5.30	42.74	0.92	37.89	3.94	39.74	0.56	77.52	1.13	28.70
2010	6.91	50.60	1.23	75.03	5.67	45.29	1.03	39.94	4.17	42.47	0.59	79.36	1.22	30.07
2015	7.30	52.70	1.25	76.21	6.05	47.86	1.15	42.16	4.39	45.27	0.63	80.93	1.30	31.91
2020	7.67	54.91	1.25	77.55	6.41	50.48	1.27	44.57	4.60	48.12	0.66	82.30	1.38	34.26
2025	8.01	57.23	1.26	79.01	6.75	53.17	1.39	47.19	4.78	51.06	0.69	83.51	1.45	37.17
2030	8.32	59.69	1.26	80.56	7.06	55.97	1.52	50.02	4.93	54.13	0.71	84.65	1.51	40.60
2035	8.59	62.20	1.26	82.06	7.33	58.79	1.64	52.93	5.05	57.22	0.73	85.74	1.55	44.19
2040	8.82	64.70	1.26	83.48	7.57	61.58	1.77	55.87	5.15	60.27	0.75	86.79	1.60	47.84
2045	9.03	67.17	1.25	84.80	7.77	64.34	1.88	58.82	5.22	63.27	0.76	87.79	1.63	51.51
2050	9.19	69.61	1.25	86.04	7.95	67.04	2.00	61.76	5.27	66.21	0.77	88.73	1.66	55.17

Source: *World Population Prospects: The 2006 Revision and World Urbanisation Prospects: The 2007 Revision,* Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (http://esa.un.org/unup/).

Urbanisation is projected to continue well into the next century. By 2030, it is expected that nearly 5 billion (about 60 per cent), out of the world's total 8.3 billion people will live in cities. India shares this global trend toward urbanisation; about 41 per cent of total population in India will live in cities by 2030.

Urbanisation in India

In India, urban population has grown more rapidly than the rural population throughout the Independence period, taking the share of urban population up from 17.29 per cent in 1951 to about 28 per cent in 2001. But the rate of increase in the urban share has been only one per cent per annum, and this rate has in fact slowed down during 1980s and 1990s. The selected demographic characteristics of the population of India are presented in Table 2. The number of urban agglomeration/towns has grown from 1827 in 1901 to 5161 in 2001. According to 2001 census, in India out of total population of 102.87 crore about 28.61 crore live in urban areas and 74.25 crore live in rural areas. The number of total population has increased from 23.84 crores in 1901 to 102.87 crores in 2001 whereas the number of population residing in urban areas has increased from 2.59 crores in 1901 to 28.61 crores in 2001. It reflects a gradual increasing trend of urbanisation. At the time of Independence, the country's population was 342 million. The population of India almost tripled during last five decades period of 1951-2001.

TABLE 2. DEMOGRAPHIC CHARACTERISTICS OF THE POPULATION IN INDIA

Census Years (1)	No. of urban agglomeration /town (2)	Total population (crore) (3)	Urban population (crore) (4)	Rural population (crore) (5)	Urban population (per cent to total) (6)	Rural population (per cent to total) (7)	Urban-Rural ratio (per cent) (8)
1901	1827	23.84	2.59	21.25	10.84	89.16	12.16
1911	1825	25.21	2.59	22.62	10.29	89.71	11.47
1921	1949	25.13	2.81	22.32	11.18	88.82	12.58
1931	2072	27.90	3.35	24.55	11.99	88.01	13.63
1941	2250	31.87	4.42	27.45	13.86	86.14	16.08
1951	2843	36.11	6.24	29.86	17.29	82.71	20.91
1961	2363	43.92	7.89	36.03	17.97	82.03	21.91
1971	2590	54.82	10.91	43.90	19.91	80.09	24.85
1981	3378	68.33	15.95	52.39	23.34	76.66	30.44
1991	3768	84.63	21.76	62.87	25.71	74.29	34.61
2001	5161	102.87	28.61	74.25	27.81	72.17	38.54

Source: Census Reports (various years).

The phenomenal increase in the population during the last fifty years has led to rapid industrialisation and high rate of urbanisation which have created tremendous pressure on natural resources like land, air and water. The urban population has

increased three and half times, from 62.4 million in 1951 to 217.6 million in 1991 and it again increased to 286.1 million in 2001. The percentage of urban population increased from 17.29 per cent in 1951 to 23.34 per cent in 1981, 25.71 per cent in 1991 which further increased to 27.81 per cent in 2001. The decadal growth rates of the population are irregular, as it increased from 13.31 per cent in 1951 to 24.8 per cent in 1971 and afterwards it marginally declined to 24.7 per cent in 1981, 23.9 per cent in 1991 and 21.5 percent in 2001. The state-wise urban population, population decadal growth and population density is presented in Annexure I.

India is at the acceleration stage of the process of urbanisation. The pattern of urbanisation in India is characterised by continuous concentration of population and activities in large cities. According to Census of India 2001, there were 5161 towns of which 441 were Class I towns with population exceeding 1 lakh each. During the last two censuses (1991-2001), 672 new settlements were designated as urban areas of which 15 per cent were class I towns. Nearly 62 per cent of urban population reside in Class I towns, but they account for only 9 per cent of towns. The distribution of urban population is thus skewed. Within Class I cities, the "million cities" constitute another class. These cities are large in size, have stronger economic base of manufacturing, trade and commercial activities and provide employment opportunities in traditional and non-traditional sectors. There were 27 cities having more than one million population in 2001, an increase from 18 of 1991. These 27 cities accounted for 10 per cent of population of Class I cities, while in terms of number they accounted for only 7 per cent. Cities grow on account of urban pull factors, created due to emergence of economic opportunities and push factors from rural areas. About 30 per cent of urban population contributes 60 per cent of national income in 2001 (Kumar, 2003) (Table 3) and likely to be register 16 percent growth and touch 70 percent by 2011 (*www.assocham.org*). Therefore, given the current thrust of sustained growth in gross domestic product (GDP), the processes of urbanisation and economic development will be irreversible and hence how agricultural production will respond to such changes needs to be analysed.

TABLE 3. URBAN CONTRIBUTION TO NATIONAL INCOME

Year	Percentage of urban to total population	Estimated contribution to national income (per cent)
(1)	(2)	(3)
1951	17.3	29
1981	23.3	47
1991	25.7	55
2001	30.5	60

Sources: Government of India (2007).

Pace of Urbanisation in India

Urbanisation in India has been relatively slow compared to many developing countries (Bhagat, 2001). The percentage of average annual growth rate of urban

population grew at faster pace from the decade 1921-31 to until 1951(Table 4). Thereafter it registered a sharp drop during the decade 1951-61. The decades 1961-71 and 1971-81 showed a significant improvement in the growth which has thereafter steadily dropped to the present level 2.7. The sharp drop in urban rate during 1951-61 was mainly due to declassification of a very large number of towns during that period. The rural growth has been fluctuating since 1901. The decline in rural population growth was within small range during 1981-91 and 1991-2001. During the process of urbanisation, it is natural that rate of growth of total population was lower than growth of urban population and higher than rate of growth of rural population. This fact is supported in the case of Indian urbanisation also since 1911. The tempo of urbanisation refers to speed of urbanisation and is measured as change registered in the level or degree of urbanisation over the years. From Table 4, it is clear that tempo or speed of urbanisation is not uniform over the years. It shows a fluctuating trend over the years 1901-1981 and a declining trend during 1981-91, 1991-2001. Again it is required to mention the tempo of urbanisation measured as a per cent will tend toward zero as the urban population reaches the 100 per cent level, since the urban and total population growth would become the same.

TABLE 4. ANNUAL GROWTH RATE AND TEMPO OF URBANISATION- 1901-2001

	Average annual growth rate (per cent)			Tempo of urbanisation	
Year (1)	Total population (2)	Urban population (3)	Rural population (4)	Urban (PU) (5)	Rural (RU) (6)
1901-1911	0.57	0.03	0.64	-0.5240	0.0618
1911-1921	-0.03	0.83	-0.13	0.8250	-0.0099
1921-1931	1.10	1.91	1.00	0.7054	-0.0924
1931-1941	1.42	3.20	1.18	1.4444	-0.2139
1941-1951	1.33	4.14	0.88	2.2160	-0.4072
1951-1961	2.15	2.60	2.06	0.3846	-0.0823
1961-1971	2.48	3.82	2.19	0.1492	-0.0329
1971-1981	2.47	4.61	1.93	2.4629	-0.6434
1981-1991	2.39	3.64	2.00	0.9734	-0.3161
1991-2001	2.15	3.15	1.81	0.7714	-0.2815

Source: Government of India (2006) and Datta (2006).

Notes: Tempo of PU = 1/n [l n (PU t+n /PU t)]* 100, where l n = natural log, PU t+n and PU t = percent urban in t+n th census and t th census respectively, n = census interval=10. *Tempo of PR = 1/n [l n (PR t+n /PR t)]* 100, where l n = natural log, PR t+n and PR t = percent urban in t+n th and t th census respectively, n= census interval=10 (for detail, see Datta, 2006).

Historically, cities have been the driving force in economic and social development. At present approximately 286 million Indians lives in nearly 5161 towns and cities spread across the country. This is about 28 per cent of its population, in sharp contrast to only 60 millions (15 per cent) who lived in urban areas in 1947 when the country became Independent. As per the 2001 Census, about two-third of

the country's urban population lived in Class-I cities with more than 1,00,000 population (Table 5). Out of the total increase in the country's urban population of 58 million between 1981 and 1991, 44 million were added to Class I cities alone, and 28 million persons were added in metropolitan cities. During the last fifty years, the population of India has grown almost three times, but Urban India has grown by nearly 5 times. In numerical terms, India's urban population is second largest in the world after China, and is higher than the total urban population of all countries put together barring China, USA and Russia. Urban areas are the engines of productivity and growth in the country. This is manifest in the increasing contribution of urban sector to national income.

TABLE 5. DISTRIBUTION OF URBAN POPULATION BY CLASS OF TOWNS, INDIA -2001 CENSUS

Size class (1)	Population Range (2)	No. of towns (3)	Total population (4)	Percentage to total population (5)
	All Classes	5,161	286,119,689	100.0
Class I	1, 00,000 & above	441	178,224,290	62.3
Class II	50,000 to 99,999	496	34,451,500	12.0
Class III	20,000 to 49,999	1,388	42,119,280	14.7
Class IV	10,000 to 19,999	1,561	22,593,015	7.9
Class V	5,000 to 9,999	1,041	7,889,668	2.8
Class VI	Less than 5,000	234	841,936	0.3

Source: Office of the Registrar General, India.

IV

GROWTH IN AGRICULTURAL PRODUCTION

Indian agriculture has witnessed tremendous changes during the last three decades following the adoption of green revolution technology during late 1960s. India has made considerable progress in foodgrain production (Table 6). The green revolution technology was initially adopted on a large scale in the regions well endowed with irrigation. As this technology possessed vast potential for increase in productivity, it led to impressive growth in agricultural output in the regions where it was adopted. Because of the spread of green revolution was highly skewed in favour of certain states and regions, this led to high growth in agricultural output in selected regions while the other regions suffered from stagnancy or poor growth in agricultural output (Chand and Chauhan, 1999). The spread of new technology and then the pattern of growth of agriculture has, however, brought in its wake uneven development across regions and crops (Deosthali and Nikam, 2004) and technological change resulted in widening the regional as well as interpersonal disparities (Bhalla and Alagh, 1979; Bhalla and Singh, 2001).

TABLE 6. GROWTH IN POPULATION AND PRODUCTION OF MAJOR CROPS IN INDIA

Year/ Census/ Period	Population (crore)	Production (million tonnes)					
		Rice	Wheat	Coarse Cereals	Pulses	Foodgrains	Oilseeds
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1951	36.11	20.58	6.46	15.38	8.41	50.82	5.16
1961	43.92	34.58	11.00	23.74	12.70	82.02	6.98
1971	59.82	42.22	23.83	30.55	11.82	108.42	9.63
1981	68.33	53.63	36.31	29.02	10.63	129.59	9.37
1991	84.43	74.29	55.14	32.70	14.26	176.39	18.61
2001	102.70	84.98	69.68	31.08	11.08	196.81	18.44

Growth rate of population and production of major crop in India

(per cent per annum)

Period	Population	Rice	Wheat	Coarse Cereals	Pulses	Foodgrains	Oilseeds
1950-51 to 1959-60	2.51	4.34	4.93	2.51	3.51	3.72	4.11
1960-61 to 1969-70	2.48	1.92	9.46	1.92	-0.22	2.89	1.47
1970-71 to 1979-80	2.47	2.58	5.02	1.56	0.12	2.72	1.53
1980-81 to 1989-90	2.39	4.05	3.29	0.43	1.27	2.83	6.10
1990-91 to 2005-06	2.15*	1.03	1.73	0.41	-0.02	1.09	0.43

Source: IDR (2008).
Note: * for the period 1990-91 to 2000-01.

Indian agriculture has witnessed significant variations over the last five decades, there were phases of significant growth and stagnation (Sawant, 1983 and Sawant and Achuthan, 1995). But over the years, the country has emerged out of the state of chronic hunger and abject dependence on the import, to achieve self-sufficiency in availability of foodgrains. Particularly, this was achieved even under the increasing pressure of population growth at a significant rate. The performance of agriculture growth could be broadly classified into a few major phases (Deshpande *et al.*, 2004). The first phase covering the period up to mid-1960s, widely known as pre-green revolution period, was marked by growth achieved through area expansion. The agricultural production of all crops registered an annual growth of 3.15 per cent with the growth rate in area of 1.58 per cent and productivity of 1.21 per cent. Despite major achievement in the initiatives taken by the government, the foodgrain production was not adequate to meet the needs of growing population, particularly from the year 1961. The imports of foodgrains increased steeply from 3.5 million tonnes in 1961 to 10.36 million tonnes in 1966. The possibility of increasing production by bringing more additional area under cultivation was limited. Hence, it was felt necessary to look for alternatives to meet the demand of increasing population in the near future. The situation worsened by the droughts in two successive years in mid-sixties. As a response the Green Revolution was ushered in through, adoption of high-yielding varieties seeds (wheat and rice) and increased use of chemical fertilisers under irrigated conditions. During this phase the country witnessed a significant growth in foodgrain production. The growth in this period was

characterised by productivity-led growth. Soon the negative externalities of the technological changes began surfacing in various forms (Deshpande *et al.* 2004, Bhalla, 2007). The decade of nineties indicated mixed performance for the agricultural sector. Initially, the agricultural sector showed positive signs of growth but soon under the pressure of inter-sectoral growth pulls the investment trends in the agricultural sector showed signs of deceleration. The situation was further impacted by signing of the WTO Agreement on Agriculture and that placed the additional factor in front of the policy planners. A clear picture of intensifying stress in the agriculture sector was emerging and that took very ugly culmination in a few regions.

VI

SHARE OF AGRICULTURE IN GROSS DOMESTIC PRODUCT AND WORKFORCE

As mentioned earlier, agriculture is the mainstay of the Indian economy because of its high share in employment and livelihood creation notwithstanding its reduced contribution to the nation's gross domestic product (GDP). The share of agriculture in the GDP has registered a steady decline from 55.4 per cent in 1950-51 to 38.1 per cent in 1980-81 and 20.5 per cent in 2006-07 (Table 7).

TABLE 7. SECTORAL SHARE IN GDP OF INDIA (AT FACTOR COST, 1999-2000 PRICES)

Sector	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01	2006-07
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Primary	55.4	50.9	44.5	38.1	34.9	26.2	20.5
Secondary	16.1	20.0	23.6	25.9	24.5	23.5	24.4
Tertiary	28.5	9.12	31.9	36.0	40.6	50.3	55.1

Source: TSL (2007).

Growth of agricultural GDP decelerated from over 3.5 per cent per year during 1981–82 and 1990-91 to only around 2.5 per cent during 1997–98 and 2006-07 (see Table 8). This deceleration, although most marked in rainfed areas, occurred in almost all States and covered almost all major sub-sectors, including those such as horticulture, livestock, and fisheries where growth was expected to be high. Consequently, growth of agricultural GDP has been well below the target of 4 per cent set in both Ninth and Tenth Plans. But, although GDP from agriculture has more than quadrupled, from Rs. 108374 crore in 1950–51 to Rs. 485937 crore in 2006–07 (both at 1999–2000 price), the increase per worker has been rather modest. GDP per agricultural worker is currently around Rs. 2000 per month, which is only about 75 per cent higher in real terms than in 1950 compared to a four-fold increase in overall real per capita GDP.

TABLE 8. AVERAGE GDP GROWTH RATES - OVERALL AND IN AGRICULTURE
(AT 1999–2000 PRICES)

Period (1)	(2)	Total economy (3)	Agriculture and allied sectors (4)	Crops and livestock (5)	Non-agriculture (6)
1. Pre-green revolution	1951–52 to 1967–68	3.7	2.5	2.7	4.9
2. Green revolution period	1968–69 to 1980–81	3.5	2.4	2.7	4.4
3. Wider technology dissemination period	1981–82 to 1990–91	5.4	3.5	3.7	6.4
4. Early Reforms period	1991–92 to 1996–97	5.7	3.7	3.7	6.6
5. Ninth and Tenth Plan	1997–98 to 2006-07	6.6	2.5	2.5	7.9
	2005-06 to 2006–07	9.5	4.8	5.0	10.7

Source: Government of India (2008a).

Although its share in gross domestic product (GDP) has declined from over half since Independence to less than one-fifth currently, agriculture remains the predominant sector in terms of employment and livelihood with more than half of India's workforce engaged in it as the principal occupation. While slower growth of GDP in agriculture than non-agriculture is expected, the main failure has been the inability to reduce the dependence of the workforce on agriculture significantly by creating enough non-farm opportunities to absorb the labour surplus in rural areas and equipping those in agriculture to access such opportunities. As its share in the workforce having declined marginally over the last four decades, still 73 per cent of rural workforce depends on agriculture, near about half of the agricultural workers being labourers (Table 9). It can be also observed that the share of cultivators in the total rural workforce is declining, while that of agricultural laboures is increased marginally at national level. Thus, the crucial dependence of its rural labour force on agriculture is quite evident and it is unlikely to diminish drastically in the future.

TABLE 9. RURAL WORKFORCE DISTRIBUTION IN INDIA

Particulars (1)	1981 (2)	1991 (3)	2001 (4)
Cultivators*	51.10	48.39	40.14
Agricultural labourers*	29.88	31.64	33.20
Household industry workers*	3.08	2.16	3.77
Other workers*	15.94	17.80	22.90
Rural main workers (million)	176.43	222.90	229.67
Rural main +marginal workers (million)	197.31	249.03	310.66
Rural population (million)	507.61	622.82	742.49

Sources: Government of India (1981 and 1991) and www.censusindia.net.

Note: *1981 and 1991 figures are percentage to total main workers and data for 2001 are per cent to total workers (main + marginal).

VII

DECLINING PER CAPITA FOODGRAIN AVAILABILITY IN INDIA

India's population is still rapidly expanding. The per capita availability of foodgrains has declined substantially during the last decade of reforms, and the maximum decline has taken place during the last five years. Although there is wide variability from one year to the next, broad trends can still be picked up from this figure showing multi-decadal data. The early years of bounty from the green revolution period were followed by more gradual increases leading up to a peak of 186.2 kg/person/year at the national level in 1990-91 (Table 10). Since then, however, food security has steadily declined, throughout what is popularly referred to as the years of liberalisation and 'reforms'. As per 2001 data, per capita availability of foodgrain is typical of availability seen in the late 1970s and early 1980s, which was at the lower stage of about 152 kg at the national level. It is due to the fact that during the last decade, the foodgrain production grew at the rate of 1.60 per cent per annum at national level. High growth rate during 1970-71 to 1980-81 was due to the low production base (due to drought). During overall period (1960-61 to 2000-01), the foodgrain production increased at the rate of 2.59 per cent per annum at the national level. Of course, availability does not mean accessibility because of lack of purchasing power among poor sections of society. However, better organisational management can assure better distribution and thus consumption when the availability is assured.

TABLE 10. NET AVAILABILITY OF FOODGRAINS IN INDIA

(kg/person/year)

Years (1)	Rice (2)	Wheat (3)	Other cereals (4)	Cereals (5)	Gram (6)	Pulses (7)	Foodgrains (8)
1951	58.0	24.0	40.0	122.0	8.2	22.1	144.1
1961	73.4	28.9	43.6	145.9	11.0	25.2	171.1
1971	70.3	37.8	44.3	152.4	7.3	18.7	171.1
1981	72.2	47.3	32.8	152.3	4.9	13.7	166.0
1991	80.9	60.0	29.2	171.0	4.9	15.2	186.2
2001	69.5	49.6	20.5	141.0	2.9	10.9	151.9
2005	64.7	56.3	21.7	142.7	3.9	11.5	154.2
2007	71.8	57.0	20.8	149.6	4.3	10.7	160.4

Source: Government of India (2008b).

VIII

CHANGING RURAL AND URBAN CONSUMPTION PATTERN

Urbanisation is an important determinant of demand for high value commodities (Rao *et al.*, 2004). In India about 28 per cent of India's population lives in urban

areas and is increasing rapidly. Between 1991 and 2001 urban population increased at a rate of 3.15 per cent per year compared to 1.81 per cent for rural population. The faster growth in urban population is largely on account of migration from rural areas. By 2020 urban population is expected to be nearly 35 per cent of the total population. This is expected to fuel rapid growth in the demand for high value food commodities. Except cereals, the consumption level of all food commodities is higher in urban areas (Table 11). The difference however is substantial in the case of high value commodities such as fruits and vegetables and animal products (65 to 75 per cent) (Rao *et al*., 2006). With rapid growth in income, the food basket of both rural and urban consumers however, is changing gradually in favour of high value commodities. In 1999, an urban consumer spent over 58 per cent of the food budget on high value commodities, up from 49 per cent in 1983. In rural areas too, the share of high value commodities went up from 36 to 46 per cent during this period. At a more disaggregated level, the share of fruits and vegetables increased from about 6 per cent in 1983 to 13.3 per cent in 1999 in rural areas and from 9.3 to 15.7 per cent in urban areas. The share of milk, which is the most important high value food in rural as well as urban areas also increased, but not as fast as that of fruits and vegetables. These results suggest that although consumption is increasing in both rural and urban areas, urbanisation would remain an important driver of the overall growth in demand for high value foods because of faster increase in the urban population and higher levels of consumption. Also one should expect a significant decline in average per capita consumption of foodgrains in the country with increasing urbanisation (Rao, 2000). Evidence shows that by 2025 demand for fruits, vegetables, milk and meat, eggs and fish would almost be double that in 2000 (Kumar *et al.,* 2003).

TABLE 11. FOOD CONSUMPTION PATTERN OF RURAL AND URBAN POPULATION IN INDIA

(*Rs./capita/month at 1999-2000 prices*)

	Rural		Urban	
Commodity	1983	1999	1983	1999
(1)	(2)	(3)	(4)	(5)
Cereals	137.3	108.7	119.6	106.9
Pulses	19.4	18.5	25.8	24.3
Edible oils	12.4	18.2	21.7	26.8
Sugar	12.4	11.6	14.0	14.1
Fruits and vegetables	17.6	38.3	33.1	64.6
Milk and milk products	30.8	42.6	55.0	74.2
Meat, egg and fish	17.5	16.1	29.1	26.8
Others	30.8	34.8	59.0	73.3
Total food	277.9	288.7	357.3	410.8

Source: Dev *et al.* (2004).

Declining Per Capita Forest Land and Agricultural Land

The population growth has resulted in a downward trend in per capita availability of forest and agricultural land since the 1950s. Per capita availability of forests in India is much lower than the world average (Nagdeve, 2007). The per capita availability of forest land and agricultural land is depicted in Table 12. Overall, per capita availability of forest land had oscillated around 0.113 hectare during the 1950s, and then has consistently declined. The per capita availability of forest land declined from 0.124 hectare from 1960-61 to 0.074 hectare in 2000-01, which is extremely low compared to the world standards. The growth of population is expected to be faster than hoped for improvements in forest cover as well as quality. Over the last ten years, despite governmental initiatives of joint forest management, tree grower's co-operative movements and other efforts tangible results are still to be observed, and forest depletion and degradation is still increasing. Similarly, the per capita availability of agricultural land in rural areas has declined consistently from 0.638 hectare in 1950-51 to 0.271 hectare in 2000-01 and is expected to decline further as population continues to grow.

TABLE 12. PER CAPITA AVAILABILITY OF FOREST AND AGRICULTURAL LAND IN INDIA

Year (1)	Forest land (ha) (2)	Agricultural land in rural areas (ha) (3)
1950-51	0.113	0.638
1960-61	0.124	0.503
1970-71	0.115	0.410
1980-81	0.099	0.356
1990-91	0.081	0.315
2000-01	0.074	0.271

Source: Government of India (2006).

Rural-Urban Linkages

Rural–urban linkages include flows of agricultural and other commodities from rural based producers to urban markets, both for local consumers and for forwarding to regional, national and international markets; and, in the opposite direction, flows of manufactured and imported goods from urban centres to rural settlements. They also include flows of people moving between rural and urban settlements, either commuting on a regular basis, for occasional visits to urban-based services and administrative centres, or migrating temporarily or permanently (Tacoli, 2004). Mobility and migration are closely interrelated with livelihood diversification. Rural to Urban migration is a response to diverse economic opportunities across space. Historically it has played a significant role in the urbanisation process of several countries and continues to be significant in scale, even though migration rates have

slowed down in some countries. In India, though rural-urban migration has been found to be modest (accounting for around 30 per cent of the total urban growth), in the context of urban poverty, urban slums and informal sector employment a great deal has been talked in reference to rural-urban population mobility. In other words, much of the urban ills are attributed to the rural-spills (Mitra and Murayama, 2008). Population in the urban areas expands due to the following three factors: natural growth of population, rural to urban migration and reclassification of rural areas as urban in course of time. As can be seen from Table 13 that much of the urban growth continues to be due to natural growth of population. Even during 1991-2001 natural growth played a major role in stepping up the urban growth. However, around one-fifth of the urban growth is accounted by rural to urban net migration. There was a continuous rise in the contribution of net migration to total urban growth since the sixties, though between 1991 and 2001 there has been a slight decline in the rate compared to the previous decade (Table 13).

TABLE 13. DECOMPOSITION OF URBAN GROWTH IN INDIA

Components of Urban Growth	1961-71	1971-81	1981-91	1991-2001
(1)	(2)	(3)	(4)	(5)
1. Natural Increase	64.6	51.3	61.3	59.4
2a. Population of new towns or less declassified towns	13.8	14.8	9.4	6.2
2b. Increase due to expansion in urban areas and merging of towns	2.9	14.2	7.6	13.0
3. Net Migration	18.7	19.6	21.7	21.0

Source: Mitra and Murayama, 2008.

The definition of migration based on the last residence concept of migration refers in analysis to those who migrated in ten years (1991-2001) preceding the year of survey 2001. The gross decadal inflow of rural to urban migrants as a percentage of total urban population in 2001 turns out to be a little above 7 per cent at the all-India level (Table 14). However, it varies considerably across states. Both industrialised states like Gujarat and Maharashtra and the backward states like Orissa and Madhya Pradesh show high rates of migration. Similarly examples can be found from both the types of states which have recorded sluggish migration rate, e.g., industrialised states such as Tamil Nadu and West Bengal and backward states such as Uttar Pradesh, Bihar and Rajasthan.

TABLE 14. GROSS DECADAL MIGRANTS (AS A PER CENT OF TOTAL URBAN POPULATION) IN 2001

States (1)	Rural-to-Urban migrants (1991-2001) as a per cent of Urban Population (2)	States (1)	Rural-to-Urban migrants (1991-2001) as a per cent of Urban Population (2)
Andhra Pradesh	6.72	Maharashtra	10.41
Assam	7.12	Orissa	10.97
Bihar	6.28	Punjab	7.63
Gujarat	10.63	Rajasthan	6.18
Haryana	11.45	Tamil Nadu	3.34
Karnataka	7.03	Uttar Pradesh	4.44
Kerala	6.99	West Bengal	4.83
Madhya Pradesh	9.5	All India	7.32

Source: Census of India 2001, Migration Tables.

Note: Migration is defined as the gross decadal (1991-2001) inflow of intra- and inter-state rural to urban migration (based on the last residence concept) as a percentage of total urban population (2001). Bihar includes Jharkhand, Madhya Pradesh includes Chhattisgarh and Uttar Pradesh includes Uttaranchal.

The flows of information between rural and urban areas include information on market mechanisms, from price fluctuations to consumer preferences and information on employment opportunities for potential migrants. Financial flows include, primarily, remittances from migrants to relatives and communities in sending areas, and transfers such as pensions to migrants returning to their rural homes, and also investments and credit from urban-based institutions. These spatial flows overlap with inter-linkages between sectors both at the household level and at the level of local economies. They include backward and forward linkages between agriculture and manufacturing and services, such as production inputs and the processing of agricultural raw materials. Most urban centres, especially small and intermediate ones, rely on broad-based demand for basic goods and services from surrounding populations to develop their secondary and tertiary sectors. Overall, synergy between agricultural production and urban-based enterprises is often key to the development of more vibrant local economies and, on a wider level, to less unequal and more 'pro-poor´ regional economic growth. Some factors can be generalised as having a key role in the increase in the scale of rural–urban linkages. Decreasing incomes from farming, especially for small-scale producers who, because of lack of land, water or capital, are unable to intensify production and switch to higher value crops, mean that growing numbers of rural residents engage in non-farm activities that are often located in urban centres. For those who continue farming, direct access to markets is essential in the wake of the demise of parastatal marketing boards – and markets are also usually located in urban centres. Better access to markets can increase farming incomes and encourage shifts to higher value crops or livestock. Population growth and distribution patterns affect the availability of good agricultural land and can contribute to rural residents moving out of farming. With the expansion of urban centres, land uses change from agricultural to residential and industrial, and in the peri-urban interface these processes go hand in hand with transformations in the

livelihoods of different groups with the poorest often losing out. Perhaps more significant than the absolute availability of natural resources in relation to population numbers and density are the mechanisms which regulate access to, and management of, such resources. These include land tenure systems and the role of local government in negotiating the priorities of different users and in providing a regulatory framework which safeguards the needs of the most vulnerable groups while, at the same time, making provision for the requirements of economic and population growth.

Exchanges of goods between urban and rural areas are an essential element of rural-urban linkages. The 'virtuous circle' model of rural-urban local economic development emphasises efficient economic linkages and physical infrastructure connecting farmers and other rural producers with both domestic and external markets. This involves three phases, (i) rural households earn higher incomes from production of agricultural goods for non-local markets, and increase their demand for consumer goods; (ii) this leads to the creation of non-farm jobs and employment diversification, especially in small towns close to agricultural production areas, and (iii) which in turn absorbs surplus rural labour, raises demand for agricultural produce and again boosts agricultural productivity and rural incomes.

IX

CONCLUSIONS

An attempt has been made in this paper to analyse the relationship between urbanisation and agricultural growth in India. Agriculture is the mainstay of Indian economy because of its high share in employment and livelihood creation notwithstanding its reduced contribution to the nation's gross domestic product. Still this sector continues to support more than half a billion people providing employment to 52 per cent of the workforce. India is the second most populous country in the world after China. Though urbanisation is a worldwide phenomenon, it is especially prevalent in India, where urban areas have experienced an unprecedented rate of growth over last three decades. India shares most characteristic features of urbanisation in the developing countries. The country has witnessed around eight percent growth in GDP in the last couple of years and India's urban population is increasing at a faster rate than its total population. The population of India almost tripled during last five decades period of 1951-2001 and urban population has grown by nearly five times. India is at acceleration stage of the process of urbanisation. Urbanisation has been recognised as an important component of economic growth. It is an index of transformation from traditional rural economies to modern industrial one and progressive concentration of population in urban unit. Urbanisation and economic development are broadly synonymous and therefore the issue of agricultural production needs to be dealt in the context of recent developments of sustained growth in incomes and urbanisation as well. The pattern of urbanisation in

India is characterised by continuous concentration of population and activities in large cities. With heavy migrations from rural to urban areas, there have been significant changes in land utilisation. Land converted to urban uses is increasing, though it has little effect on total crop production. Therefore, given the current thrust of sustained growth in gross domestic product (GDP), the processes of urbanisation and economic development will be irreversible and hence how agricultural production will respond to such changes needs to be analysed. Indian agriculture has witnessed significant variations over the last five decades, there were phases of significant growth and stagnation. But over years, the country has emerged out of the state of chronic hunger and abject dependence on the import, to achieve self-sufficiency in availability of foodgrains. Particularly, this was achieved even under the increasing pressure of population growth at a significant rate. The population growth has resulted in a downward trend in per capita availability of forest and agricultural land since the 1950s. Also, the per capita availability of foodgrains has fallen substantially during the last decade of reforms, and the maximum decline has taken place during the last five years. The faster growth in urban population is largely on account of migration from rural areas. Exchanges of goods between urban and rural areas are an essential element of rural-urban linkages. Urbanisation is an important determinant of demand for high value commodities. By 2020, urban population is expected to be nearly 35 per cent of the total population. This is expected to fuel rapid growth in the demand for high value food commodities. There is a need to control poverty and population growth below replacement level in the country and unless significant measures are taken to incorporate environmental concerns into agricultural development, urban planning, technological innovations, industrial growth, and resource management, the situation is likely to worsen in the future.

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ANNEXURE I

STATE-WISE URBAN POPULATION, DECADAL GROWTH AND POPULATION DENSITY

		Census 2001		Decadal growth (per cent)		Population density/sq.km	
Sr. No.	India/States/Union Territories	Population (crore)	Urban population (per cent to total population)	1981-1991	1991-2001	1991	2001
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Jammu & Kashmir	1.01	24.81	30.89	29.43	77	100
2.	Himachal Pradesh	0.61	9.80	20.79	17.54	93	109
3.	Punjab	2.44	33.92	20.81	20.10	403	484
4.	Chandigarh	0.09	89.77	42.16	40.28	5,632	7,900
5.	Uttaranchal	0.85	25.67	23.13	20.41	132	159
6.	Haryana	2.11	28.92	27.41	28.43	372	478
7.	Delhi	1.39	93.18	51.45	47.02	6,352	9,340
8.	Rajasthan	5.65	23.39	28.44	28.41	129	165
9.	Uttar Pradesh	16.62	20.78	25.61	25.85	548	690
10.	Bihar	8.30	10.46	23.38	28.62	685	881
11.	Sikkim	0.05	11.07	28.47	33.06	57	76
12.	Arunachal Pradesh	0.11	20.75	36.83	27.00	10	13
13.	Nagaland	0.20	17.23	56.08	64.53	73	120
14.	Manipur	0.23	25.11	29.29	24.86	82	103
15.	Mizoram	0.09	49.63	39.70	28.82	33	42
16.	Tripura	0.32	17.06	34.30	16.03	263	305
17.	Meghalaya	0.23	19.58	32.86	30.65	79	103
18.	Assam	2.67	12.90	24.24	18.92	286	340
19.	West Bengal	8.02	27.97	24.73	17.77	767	903
20.	Jharkhand	2.69	22.24	24.03	23.36	274	338
21.	Orissa	3.68	14.99	20.06	16.25	203	236
22.	Chhattisgarh	2.08	20.09	25.73	18.27	130	154
23.	Madhya Pradesh	6.03	26.46	27.24	24.26	158	196
24.	Gujarat	5.07	37.36	21.19	22.66	211	258
25.	Daman and Diu	0.02	36.25	28.62	55.73	907	1,413
26.	Dadra and Nagar Haveli	0.02	22.89	33.57	59.22	282	449
27.	Maharashtra	9.69	42.43	25.73	22.73	257	315
28.	Andhra Pradesh	7.62	27.30	24.20	14.59	242	277
29.	Karnataka	5.29	33.99	21.12	17.51	235	276
30.	Goa	0.13	49.76	16.08	15.21	316	364
31.	Lakshadweep	0.01	44.46	28.47	17.30	1,616	1,895
32.	Kerala	3.18	25.96	14.32	9.43	749	819
33.	Tamil Nadu	6.24	44.04	15.39	11.72	429	480
34.	Pondicherry	0.10	66.57	33.64	20.62	1683	2030
35.	Andaman & Nicobar Islands	0.04	32.63	48.70	26.90	34	43
	India	102.87	27.81	23.87	21.54	267	325

Sources: Census of India, 2001, Government of India (2006) and www.censusindia.net.

Notes: 1. India and Manipur figures include estimated figures for those of the three sub-divisions viz. Mao Maram, Paomata and Purul of Senapati district of Manipur as census results of 2001 in these three sub-divisions were cancelled due to technical and administrative reasons.

2. The 1991 Census could not be held owing to disturbed conditions prevailing in Jammu and Kashmir. Hence the decadal growth rates for 1991-2001 are based on the interpolated population figures of 1991 for Jammu and Kashmir.

3. The 1981 census could not be held in Assam. Hence the decadal growth rates for 1981-1991 are based on the interpolated population figures of 1981 for Assam.