

Status of Agricultural Infrastructure in Uttar Pradesh: An Analysis

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Abstract-Uttar Pradesh is the most populous state in India and agriculture is backbone of the state economy. But economic condition is backward. Almost 50%of the districts are in the backward categories. Agriculture is the main occupation and source of livelihood for rural people. In this regard agricultural infrastructure has vital role in agricultural productivity and betterment of standard of living of rural population and sparking point for state economy and country as whole. The present paper deals with status of agricultural infrastructure (economic & social) in Uttar Pradesh in six sections: I. Introduction, II. Human Development Status, III. Population Trends and Demographic Indicators,IV. Agriculture, V. Infrastructure Development and lastly Concluded in section VI.

I.Introduction

Uttar Pradesh has been the cradle of Indian civilization. Since time immemorial people belonging to diverse ethnic, religious and social groups have been coming to this region and settling here. According to the 2011 Census, 80.6 per cent of the State population was Hindu. Muslims formed 18.5 percent of the population. The remaining 0.9 per cent of population consisted of other religious minorities like Sikhs, Boudhs, Jains and Christians. Scheduled castes formed 21.15 per cent of the State's population. Theproportion of Scheduled tribes residing in the

State is negligible at 0.06 per cent .Sharp differences in the level of human development prevail among the different social and religious groups in the State. The socio-economic status of Muslims, other backward classes and scheduled castes is much lower as compared to that of the higher castes. The high proportion of the population belonging to the socially and economically depressed sections has profound implications for the policy and the status of human development in the State.

II. Human Development Status

The status of human development in U.P. continues to be far from satisfactory even after more than five decades of development planning aimed at social and economic upliftment of the people. It ranked at 15th position in terms of Human Development Index (HDI) prepared by the Planning Commission in 2011. This shows a marginal down shifted from the 13th position that U.P. occupied in 2001. Kerala, Punjab and Tamilnadu are the three top ranking States in terms of HDI both in 1991 and 2001. Uttar Pradesh continues to languish at a low level of human development and is in the lowest cluster of States, along with Bihar, Madhya Pradesh, Rajasthan and Orissa. Uttar Pradesh is lagging behind most of the States of the country in terms of the major indicators of social development. Uttar Pradesh is

similarly lagging behind in health indicators like life expectancy, infant mortality rate, etc. Nearly 71 per thousand of children in U.P., die before reaching the age of one. Only Madhya Pradesh and Orissa have higher infant mortality rate Life expectancy in U.P. during the period 2001-05 was 60.1 years for males and 59.3 years for females, while the corresponding figures were 71.3 and 76.3 years respectively in Kerala, the best performing State in this respect. The sex ratio, an important demographic and social indicator, was 908 in 2011, significantly below the national level of 940. In terms of sex ratio, U.P.'s rank among all States and UTs was 27th in 2011. The various dimensions of human development in Uttar Pradesh have been discussed in detail in the following chapters with focus on lagging regions, social groups and women. In this chapter an overview of the economy and society of the State is provided, in the light of which the status and problems of human development may be analyzed.

III. Population Trends and Demographic Indicators

Uttar Pradesh is the most populous State in India. One sixth of the world's population lives in India and one-sixth of India's population lives in Uttar Pradesh. Only four other countries of the world namely China, USA, Indonesia and Brazil have a population higher than that of Uttar Pradesh. The population pressure in Uttar Pradesh is considered as one of the important aspects which has hindered the proper exploitation and utilization of its resources. It is not possible to achieve sustainable development in the State without achieving desirable demographic goals and population stabilization. The State has witnessed high population growth in recent decades without any perceptible sign of decline. The decadal increase in population during the past two decades

was almost identical at 26 per cent. As against this, the national population shows a declining trend from 23.8 per cent in 1981-91 to 21.5 per cent in 1991-2001 and further to 17.64 per cent in 2001-2011. The annual growth rate of population in Uttar Pradesh stood at 2.00 during 2001-2011 well above the national average of 1.76 per cent. Uttar Pradesh's dismal performance on population front stands in sharp contrast with the performance of States like Kerala and Tamil Nadu where population growth rate has come down to around one percent. Among major States, birth rate is highest in the State of Uttar Pradesh. The decline in birth rate has also been slow in the State. Birth rate stood at 38.6 in 1951, at 35.7 in 1991 and at 30.1 in 2005-06. Total fertility rate in the year 2005-06 was 3.82 in Uttar Pradesh as against 2.68 in India. Latest data of census 2011 are given in following Table:1. The demographic indicators presented above reflect an explosive situation in years to come for the State of Uttar Pradesh.

Table: 1 Important Demographic Indicators for Uttar Pradesh and India

Indicators	U.P.	India
1 Total Population (in million) 2011	199.58	1210.19
2 Decadal rate of population growth (%) 1991-2001 2001-2011	25.85 20.09	21.53 17.64
3 Population density (per sq. km.) 2001 2011	690 828	324 382
4 Sex Ratio (Female per 1000 males) 2001 2011	898 908	933 940
5 Literacy rate (%) in 2011 Total Male Female	69.72 79.24 59.26	74.04 82.14 65.46

Source: Report of Registrar General Office, India

C. Economic Profiles

Economically Uttar Pradesh is among the most backward States of India, characterized by the predominance of the agricultural sector with

heavy dependence on Monsoon, high percentage of marginal and small land holdings, high population pressure, small manufacturing sector, structural deficiencies in infrastructure, glaring regional imbalances and sluggish economic growth. These aspects are briefly highlighted below.

a. Income Levels and Growth

Income levels are an important determinant of the economic well being and social development. In terms of per capita income, U.P. is among the 'low income category' States along with Bihar, Madhya Pradesh and Orissa. Moreover, due to sluggish economic growth in U.P., the gap in per capita income of the State and that of the country has been increasing. Per capita income in U.P., which was almost equal to the national average in the beginning of the planning period, is now half of the national average.

Table:2 Trends in Total and Per Capita Income of India and Uttar Pradesh at constant 1999-2000 Prices: 1999-2000 to 2005-06 & at constant 2004-05 price:2011-2012

Year	Net income In Rs. Crore		U P As % of India	Per Capita Income in Rs		U P As Percent
	India	UP		India	UP	
1999-00	1585501	151283	9.5	15839	9405	59.38
2000-01	1643998	155564	9.5	16133	9451	58.58
2001-02	1739876	159613	9.2	16762	9475	56.53
2002-03	1801430	165647	9.2	17075	9657	56.56
2003-04*	1959599	174833	8.9	18263	9993	54.72
2004-05*\$	2103350	182409	8.7	19297	10224	52.98
2005-	22952	193457	8.4	2073	106	51.30

06\$	43			4	37	
2011-12	4618739	367185	7.9	38005	18103	47.63

Source: Annual Plan of Uttar Pradesh, 2007-08, Vol.-1 & For Sl. No. 1-32 -- Directorate of Economics & Statistics of respective State Governments, and for All-India -- Central Statistics Office

The State economy is also characterized by sharp differences in per capita income levels across different regions and districts of the State. During the first twenty five years of planning, growth rates in U.P. were low and lagged behind the modest growth observed at the national level. However, during the period 1975 to 1990 the growth performance of U.P. compared well with the national level growth. However, after 1990 growth rate in U.P. has decelerated sharply, whereas the national economy has moved to a higher growth path (Table: 2).

During the period 1999-2000 and 2005-06 the annual growth of net income of Uttar Pradesh at constant prices was only 4.1 against the national average of 6.3 per cent. The growth rate of per capita income during this period was 2.1 and 4.6 per cent for U.P. and India respectively. It may be observed that Uttar Pradesh's contribution in net national income has declined from 9.5 per cent to 8.4 per cent during this period. The high growth rate of population of Uttar Pradesh along with the deceleration in the SDP growth rate since the Eighth Plan period has led to a fairly low growth rate of State's per capita income. Consequentially, the general standard of living as exhibited in per capita income levels continues to below. One of the reasons for the relatively slow economic growth in U.P. is the low level of plan expenditure in the State as compared to the national average and that of the more developed States. Low plan

investments in U.P. have been due to the fact that being a poor State it is not able to generate public savings on the required scale. Plan assistance received by U.P. from the centre has also been relatively low especially in the earlier Plans.

b. Poverty Levels

Poverty levels are relatively high in Uttar Pradesh. However, poverty levels have gone down in the State over time declining from 57.4 per cent in 1973-74 to 32.8 per cent in 2004-05. During the corresponding period poverty at the national level declined from 54.9 percent to 27.5 per cent. Despite the substantial decline in the poverty ratio, the absolute number of poor has remained high in the State. Almost 6 million people in U.P. were living below the poverty line in 2004-05 constituting over one-fifth of the total poor in the country on the basis of uniform recall period. The incidence of poverty is comparatively higher in Scheduled castes and OBC categories. The agricultural labourers and artisans are affected by poverty, Muslims in the urban areas are also vastly hit by poverty. Wide variations in poverty levels are also observed across regions and districts of the State.

c. Employment Structure

As per census 2011, the workforce participation rate for Uttar Pradesh stood at 32.5 per cent. The respective figures were 33.9 per cent in rural areas and 26.9 per cent in urban area. The work force participation rates for females in U.P. are particularly low-16.5 per cent as compared to the figure of 46.8 per cent for males. The total number of workers in the State in 2001 was 539.84 lakh, out of which 393.38 lakh were main workers

(i.e. who get employment for more than 183 days in a year) and 146.46 lakh were marginal workers (i.e. those who get employment for less than 183 days in a year). The growth rate of marginal workers has been much faster. Thus, the main workers registered an annual growth rate of only 0.12 per cent during 1991- 2001, whereas the marginal workers increased at a rate of 16.78 percent per year. Marginal workers now constitute 27.1 per cent of total workers in the State. Two thirds of the total workers in U.P. are still engaged in the agricultural sector as per 2001 Census. This proportion is higher in case of female workers at 76.2 per cent. Rural areas of U.P. are also less diversified with 77 per cent of work force in agriculture. Nearly one-fourth of total workers are landless agricultural labourers. According to 61st Round of NSS (2004-05), 61.7 percent of total workers in U.P. were employed in the primary sector, 18.2 percent in secondary sector and remaining 20.1 percent in tertiary sector. The lack of diversification of the economy and heavy dependence of people on land is one of the major causes of low incomes and poverty in rural U.P. The pace of diversification has also been slow in U.P. as compared to the all India level. Uttar Pradesh registered an unemployment_rate of 19 per 1000 persons between July 2009 and June 2010. This has been revealed in a data released by the Union ministry of statistics and programme implementation through its National Sample Survey Office. The data is based on information gathered during the 66th round of the national sample survey. The last such survey was held between July 2004 and June 2005.

d. Agriculture Base

Uttar Pradesh comprises 7.6 per cent of India's land area, including 16.4 per cent of the country's

area under foodgrains production (2000-01) and 12.33 per cent net area under cultivation (1997-98). Almost 51 per cent of the land in Uttar Pradesh is used for cultivation and 74 per cent of the cultivated land is irrigated. Approximately, 66 per cent of the state's worker population is engaged in agricultural activities. The state is the largest producer of foodgrains (particularly wheat), sugarcane, pulses and potatoes, in the country (Table:3). About one-third of wheat produced in the country in 2001-02 comes from Uttar Pradesh. Almost half of the total sugarcane growing area in India during 2001-02 can be found in Uttar Pradesh, accounting for 38.73 per cent of total sugarcane production. The state ranks second in rice production, after West Bengal. Uttar Pradesh is the second largest producer of pulses in India. Thus, agriculture has a strong base in the state, and has the potential to feed a major population of the country. Unsurprisingly, Uttar Pradesh has the highest agriculture GSDP in the country and is far ahead of the second ranking Maharashtra

Table:3 Share of Uttar Pradesh in All-India Production of its Major Crops, 2001-02

Wheat	Rice	Sugarcane	Potato	Pulses
U.P.(38.84)	W.B.(16.39)	U.P.(38.73)	U.P.(39.74)	M.P.(22.90)
PU(21.58)	U.P.(13.39)	MH(15.04)	WB(32.48)	U.P.(18.12)
HY(13.14)	AP(12.24)	TN(12.11)	BH(5.95)	MH(14.25)

Source (basic data): Agriculture Statistics at a Glance, Ministry of Agriculture

U.P. economy is dominated by agriculture, which employs about two thirds of the work force and contributes about one third of the State income. The average size of holdings is only 0.86 hectare, while 75.4 per cent of holdings are below one hectare. Uttar Pradesh is a major food grain producing State in rice, wheat, chickpea and pigeon pea. Sugarcane is the principal commercial crop of the State, largely concentrated in the western and central belts of State. U.P. is also a major producer of vegetables, fruits and potato. The average yield of major crops in the State is considerably lower than those in the agriculturally developed States like Punjab and Haryana. A number of factors are responsible for low productivity and slow growth of agriculture in the State the most important factor being the very small size of holdings in the State. Around three fourth of cropped area in the State is irrigated. Private tube wells are the major source of irrigation followed by canals. However, the cropping intensity in the State is only 154 per cent, much lower as compared to States like Punjab and Haryana, which have a cropping intensity of 192 and 173 respectively. Agriculture in the State showed dynamism during the seventies and the eighties in the wake of the green revolution. However, since early nineties the performance of the agricultural sector in the State has been rather poor as reflected by the declining growth rates of the production and productivity for all crops. Sharp year to year fluctuation in food grain output and total agricultural produce have also been observed in the State indicating the dependence of agriculture on monsoons despite the fact that a high proportion of cultivated area in U.P. is irrigated. There are fluctuation in annual Percentage Change in Output of Food Production and Value of Agriculture Produce (Table:4) with decreasing trends in rate of cropped area (Table:5).

IV. Agriculture

Table:4 Annual Percentage Change in Output of Food Production and Value of Agriculture Produce at 1999-2000 Prices during Ninth and Tenth Plan Year Food grain Value of Agriculture Production Produce

Year	Food grain production	Value of agriculture produce
1999-00	14.0	-
2000-01	(-) 3.4	(-) 1.6
2001-02	3.3	0.2
2002-03	(-) 13.3	(-)1.3
2003-04	16.2	3.3
2004-05	(-) 10.0	(-)2.7
2005-06	2.7	(-)1.2
2006-07	1.3	5.6

Source: Economics & Statistics Division, State Planning Institute, State Income Estimate

Table:5 Annual compound growth rate of crop yield (%) and cropped area (%)

Year	Yield growth rate (%)	Rate of cropped area (%)
1980-83/1962-65	2.13	2.19
190-93/ 1980-83	3.71	1.05
2003-06/1990-93	1.31	0.46
2003-06/ 1962-65	2.25	1.36

Source-EPW DEC26, 2009 VOL XLIV 52

V. Infrastructure Development

The development of service sector is sine-qua-non for high and sustained growth. It may be classified in terms of physical and social transport, irrigation, power, telecommunication etc, social infrastructure comprises education, health and housing and financial infrastructure consists of banking and insurance. Physical infrastructure contributes to economic growth through generation

of income and employment, lowering transaction cost; social infrastructure contributes to the process of growth through generation of human capabilities and capacity building by enriching the quality of human life made possible through better education, better health, improved housing and recreation facility.

a. Transport

An efficient transport system has an important role to play in promoting and strengthening national integration, accelerating productivity, enhancing the competitive efficiency of the economy in the world market and integrating the backward parts of the State with the mainstream of the economy. The policy package of the State Government under the Eleventh Five Year Plan is reflected in the delineation of priorities like development of rural roads, up gradation of existing road networks and bridges, construction of additional flyovers and sub-ways, modernization of urban roads, greater private sector participation, structural change in road safety measures etc. Although marked improvement in infrastructure has taken place during the planning era, U.P. is lagging behind other States in infrastructure development. In 2001-02, roads length per one lakh population in the State is 99.00 km as against the national level of 136.9 km. In terms of road length the State occupies 15th position among the major 19 States. However, in terms of road length per 100 sq. km., Uttar Pradesh's coverage (69.1 km) is better than the national level (43.2 km) and but much poorer than best performing State Punjab (105.5 km).

b. Irrigation

Irrigation is being considered as a powerful catalyst for providing food security in addition to its role as a stabilizer against the uncertainty of monsoon. Thus, it contributes significantly to productivity, cropping intensity and diversification of agriculture. The gross cropped area in U.P. in 2004-05 was around 255.2 lakh hectares. Ground water resources accounted for about 78 per cent of irrigated area and surface water resources for about 22 per cent. It may be noted that less than three fourth of the irrigation potential is actually utilized due to various deficiencies prevalent in the irrigation management system. The problem of over-exploitation of ground water has also emerged in many districts particularly in western U.P.

c. Power Sector

Power occupies a critical place in economic infrastructure. Per capita consumption of power in U.P. in 2004–05 was only 202 KWH as against the all India average of 411 KWH. The State occupies 15th position among the 18 major States in the country in terms of per capita power consumption. Moreover, 69.43 per cent of villages in the State are electrified as compared to the national average of 75.93 per cent. Only 20 per cent of rural households in the State are electrified as against 44 per cent at the national level. The coverage of electrification in the urban households of the State is 80 per cent as against 88 per cent for the country as a whole. The power sector in the State, as in the country as a whole, has been facing a serious crisis due to poor financial health of the State power corporation. After the bifurcation of the State, the major hydel plants have gone to Utrakhand. The power sector of Uttar Pradesh has been incurring burgeoning power deficit on account of supply bottlenecks and rigidities. The

creation of installed capacity has lagged behind the rapidly growing demand for power. Presently the State is importing more than half of its power requirement. The transmission losses are also extremely high.

d. Social Infrastructure

Provision of social infrastructure strives to achieve the twin objectives of economic equality and social development, to create supportive environment for a higher rate of growth for development contributing not only to human development but also to holistic and harmonious socio-economic development. The concern with availability of social infrastructure has evolved over the years from a general emphasis on basic needs of the people to special needs of specific regions and special groups of people. A norm based approach for social infrastructure being difficult, efforts have been made to fulfill a certain level of minimum needs so that the poor and the weak do not suffer exclusion from the overall process of development due to market imperfections and conscious attempts are being made to provide these minimum needs through infrastructure facilities and services in respect to the people's health and nutritional status, educational status and housing. Social development, as it should flow from the adequate social infrastructure, would therefore mean literacy, education, good health and all that goes to make good health possible like food and nutrition security, safe drinking water, easy availability of health and medical facilities, both preventive and curative, and a hygienic environment and shelter.

e. Safe Drinking Water

As per latest survey carried out in the year 2004, out of the 2,60,110 habitations in the State, 7993 were found to be 'not covered' habitations, 18,776 'partially covered' and remaining 'fully covered' habitations as per Government of India norms. There are 6390 quality problem habitations in the State. The generic quality problems are in the form of excess arsenic, fluoride, iron, salinity or biological contamination. It may be noted that success in removal of *guinea worm* in the country was largely achieved by improving access to safe drinking water. While Uttar Pradesh is well placed as far as installation of India Mark II & III hand pumps is concerned, in several areas, people continue to use water from shallow hand pumps installed in their premises for drinking purposes and these often lead to outbreak of gastroenteritis. Often, lack of awareness regarding safe storage and handling of drinking water also causes contamination leading to deaths on account of water borne diseases.

f. Sanitation

There are about 2.58 crore households in the State and only 28 per cent households have individual house hold toilets. Open defecation continuous to be the norm in large parts of the State especially in the rural areas. Faecal matter constitutes a major source for bacteriological contamination of water. Studies have shown that about 70 per cent reduction in deaths due to diarrhoea can be achieved by focusing on improved hygiene and through safe disposal of human excreta. Problem of sanitation is not confined to rural areas alone. Even in urban areas of the State, there is frequent outbreak of diarrhoea and reports of diarrhoeal deaths keep pouring in. This can be checked if source of contamination of drinking water supply is checked and provision for safe

disposal of excreta is made apart from improved hygiene practices such as washing of hands with soap after defecation.

g. Education Infrastructure

Free and compulsory education to all children up to the age of fourteen years is our constitutional commitment. The Government of India has initiated a number of programmes to achieve the goal of Universalization of Elementary Education (UEE) among which 'Sarva Shiksha Abhiyan' (SSA) is the most recent one. The SSA is the Government of India's flagship programme to universalize elementary education in the country, and is being implemented in partnership with State Governments. The programme seeks to open new schools in those habitations which do not have schooling facilities and strengthen existing school infrastructure through the provision of additional classrooms, toilets, drinking water, maintenance grants and school improvement grants. Existing schools with inadequate teacher strength are provided additional teachers, while the capacity of existing teachers is being strengthened by extensive training, grants for developing teaching-learning materials and strengthening of academic support structure at the cluster, block and district levels. The SSA has a special focus on girl's education and children with special needs and seeks to bridge social, regional and gender gaps in educational achievements. With the implementation of Uttar Pradesh Basic Education Project – I, Uttar Pradesh Basic Education Project – II and District Primary Education Programme – III, primary schooling facilities have been provided in almost all eligible habitations as per State norm. In 2005- 06, there were 134455 primary / junior basic schools and 40021 middle / senior basic schools in the State. According to the Ministry of Statistics and

Programme Implementation, the number of schools per village in U.P. was 0.97 in 2004 against 314 children per village. These ratios are very low when compared with States like Kerala (2.96 schools / village, 416 children / village), Tripura (2.88 schools / village, 229 children / village) and Andhra Pradesh (1.93 schools/ village, 186 children/ village). In order to enhance the access of students to schools, the norms of opening new primary and upper primary schools have been revised in the year 2006-07. According to revised norm, the villages having population 300 and within a radius of 1 Km. will be eligible for the opening of new primary school. Similarly, villages having population 800 will be eligible for opening of new upper primary school, within a radius of 2 km.

VI. Conclusion

Economic and social infrastructure condition is backward due to low literacy, insufficient irrigation facilities, poor sanitation and transport, crises of power and extent of poverty in Uttar Pradesh. There is a need for agricultural infrastructure development to uplift the weaker section of society and accelerate state economy with food security and sustainability.

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