

Chapter 8

Changing Economic Scenario of the Peri-Urban Area of Udaipur City, India

P.S. Rao, Hari Singh, and R.C. Purohit

Abstract The demographic data of the last few decades revealed an increasing tendency of urbanisation in many states in India, including Rajasthan. The rural:urban ratio of the population which remained 80:20 in 1971 changed to 69:31 in 2011. The high growth rate of the population in urban areas increased the urban demand for agricultural commodities on one hand and widened the demand for land for the construction of houses, roads and other civil amenities on the other hand. With the expansion of urban areas, the adjoining rural areas are changed to peri-urban in terms of facilities, amenities and lifestyle. Evidently, there is a visible tremendous expansion in the value addition of land in the peri-urban area of the city of Udaipur. The present study is aimed to ascertain the changing scenario of land utilisation, change in farming system, and composition of household income in peri-urban areas.

The study revealed that urban coverage in Udaipur has increased from 17 km² in 1946 to 221 km² in 2011, while the density of population in the city area has been found to decline from 4347 persons per km² in 1946 to 3773 persons per km² in 2011. This is because more than 25% plots in the urban limit are left idle after the conversion of land for residential purposes, which are owned by the people only for value addition and protected by boundary walls. This area is neither used for construction of houses nor for crop production. Large numbers of small land holders residing in the periphery of urban areas generally sold their land and purchased land 40–50 km away from the city areas. The study further revealed that farmers who partially sold their land in peri-urban areas of the city are mostly cultivating vegetables and dairy enterprises on their remaining holdings. These farmers are getting 446 days of employment and Rs. 3.52 lacs as income per year from both the enterprises. The farmers who did not sell their land area at all are getting 694 days

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employment and Rs. 4.72 lacs as income per year, while farmers who sold their total land area for residential purposes to the urban people have their income reduced up to Rs. 1.47 lacs and are getting negligible employment.

Keywords Peri-urban area • Value addition • Crop production • Vegetable farming • Employment days

8.1 Introduction

A demographic census of India is carried out every 10 years and the last census was held in 2011. The demographic data of the last few decades revealed an increasing tendency of urbanisation in many states, including Rajasthan. The rural:urban ratio of population which remained 80:20 in 1971 had changed to 69:31 in 2011. The high growth rate of population in urban areas has increased the urban demand for agricultural commodities on one side and widened the demand for land for the construction of houses, roads and other civil amenities in urban areas on the other side. With the expansion of urban areas on all sides of the cities the rural areas adjoining them were changed to peri-urban in terms of facilities, amenities and lifestyle. The land value in such areas has gone up very high. The large demand for highly perishable commodities like vegetables and milk in urban areas and also the expanding need for residential homes generated mixed responses to the census in peri-urban areas in most parts of the state. People residing within the periphery of city areas have been changing their source of income and making great changes in their farming systems. Udaipur city, being an educational hub as well as a tourist centre of global importance, resulted in the migration of a large number of people not only from nearby areas of Udaipur but from other parts of Rajasthan as well as from other states of the country. Evidently, there is a visible expansion in peri-urban areas in the city of Udaipur. The present study is aimed to (i) ascertain the changing scenario of land utilisation in peri-urban areas, (ii) ascertain the change in the farming system in peri-urban areas, and (iii) ascertain the level and composition of household income in peri-urban areas.

8.2 Methodology

It is stated that land beyond the 15 km periphery of the Udaipur Nagar Nigam area is identified as peri-urban (Socio- Economic Census-2012 of Udaipur). Udaipur city and its nearby areas fall under Girwa tehsil in which 48 panchayats exist. Out of the 48 panchayats, 16 panchayats are falling under the peri-urban area of Udaipur. Out of those 16 panchayats, 6 panchayats have been selected on the basis of six major entry routes to Udaipur city. These routes are: on the east side Debari Panchayat, on

the south side Titardi Panchayat, on the south west side Balicha Panchayat, on the north side Badgaon and Bhuwana Panchayat, and on the west side Sisarma Panchayat. They have been selected to ascertain the land use pattern, their level of income and cropping patterns. For this purpose two categories of farmers have been studied, such as (i) farmers who have sold their total land, and (ii) farmers who have not sold their land at all. Six farmers from each village, three farmers belonging to each category, were selected randomly. In all 36 farmers from the study area were selected randomly in which 18 farmers from each group have been selected to ascertain their income and employment through their land utilisation pattern.

8.3 Results

There are ten tehsils holding the whole district of Udaipur. The district's headquarters and city of Udaipur fall in the Girwa tehsil of Udaipur district. All 48 village panchayats are located in these tehsils of the district. These panchayats are located within 100 km from Udaipur. A list of the total number of panchayats existing in the Girwa tehsil adjoining Udaipur city is given in Table 8.1. These panchayats are in the close proximity to urban areas where all facilities are accessible to the area. However, these do not come under the municipal area of the Udaipur. The Urban Improvement Trust is acquiring the area for residential purposes, where the independent identity of the panchayat still exists.

8.3.1 Land Use Patterns and Urbanisation Trends

The land use patterns in the Udaipur district at two different periods of times is shown in Table 8.2. It clearly indicates that only 16.50% of the area was not available for cultivation in the Udaipur district of Rajasthan in 1976–1977 which increased up to 32.42% in 2006–2007. Out of the total geographical area only 15.58% area is shown as net sown area in 1976–1977, with an increase to 18.38%

Table 8.1 List of Girwa Tehsil Panchayats adjoining Udaipur city

S. No.	Name of Panchayat	Tehsil	S. No.	Name of Panchayat	Tehsil
1	Dakan Kotra	Girwa	9	Bhuwana	Girwa
2	Debari	Girwa	10	Shobhagpura	Girwa
3	Gudli	Girwa	11	Loyara	Girwa
4	Kaladwas	Girwa	12	Badi	Girwa
5	Kanpur	Girwa	13	Balicha	Girwa
6	Lakadwas	Girwa	14	Kavita	Girwa
7	Savina	Girwa	15	Bedla	Girwa
8	Titardi	Girwa	16	Badgoan	Girwa

Table 8.2 Land use pattern of Udaipur district (area in 000' ha)

S. No.	Particulars	(1976–1977)	(2006–2007)
1.	Reporting area for land utilization purpose	1917.20 (100.00)	1917.20 (100.00)
2.	Forest area	471.09 (24.57)	439.20 (22.91)
3.	Area not available for cultivation	316.32 (16.50)	621.60 (32.42)
4.	Other uncultivated land (permanent pasture and misc. Uses)	92.75 (4.84)	149.48 (7.80)
5.	Land area excluding fallow land (cultivable waste land)	180.55 (9.42)	245.69 (12.82)
6.	Fallow land	96.51 (5.03)	108.87 (5.36)
	(i) Fallow land other current fallow	40.70 (2.12)	90.15 (4.70)
	(ii) Current fallow	55.81 (2.91)	18.72 (0.98)
7.	Net area sown	298.61 (15.58)	352.30 (18.38)
8.	Total cropped area	402.05 (20.57)	497.03 (25.92)
9.	Area sown more than once	103.44 (5.40)	144.73 (7.55)

Numbers in parentheses indicates percentage to geographical area

Table 8.3 Trend of urbanization in India, 1951–2001

Census year	Urban population (in Millions)	Percent urban	Decennial growth rate of urban population	Tempo of urbanization		
				Annual exponential growth rate	Annual gain in % urban	Annual rate of gain in % urban
1951	62.44	17.29	41.42	3.47	0.34	2.48
1961	78.94	17.97	26.41	2.34	0.07	0.39
1971	109.11	19.91	38.23	3.24	0.19	1.08
1981	159.46	23.34	46.14	3.79	0.34	1.72
1991	217.18	25.72	36.19	3.09	0.24	1.02
2001	286.12	27.83	31.34	2.76	0.21	0.83

in 2006–2007. Most of the area is hilly, while 28.57 % of the area was under forest and in 1976–1977 this increased to 22.91 %. Similarly, it is remarkable that cultivable waste land also increased in 2006–2007 from 4.84 % in 1976–1977 to 7.80 % in 2006–2007 (Fertilizer Statistics -2011–2012).

The trend of urbanisation in India with effect from 1951 to 2001 has been presented in Table 8.3. This table clearly indicates that in the year 1951 the total urban population was 62.44 million which increased up to 286.12 million in the year 2001. The percentage of the population that lived in urban areas in the year 1951 was 17 which increased to 28 % in the year 2001. Annual exponential growth rate was observed around 3 %. Thus, the pressure on urban areas has increased manifold over the period.

The growth in urban areas of Udaipur city over more than 65 years together with population density is given in Table 8.4. Udaipur city covered an area of 17.17 km² in 1946 with a density of 4347 persons per km². The expansion of urban areas

Table 8.4 Growth of urban limit in Udaipur city

Year	Area increased (sq.km.)	Density (persons/km ²) ^a	Per bigha value of land (Rs.) ^b
1946	17	4347	500
1951	185	5049	525
1961	36	3089	1000
1971	61	3886	3500
1991	64	5035	5,00,000
2001	1016	4458	25,00,000
2011	221	3773	1,00,00,000

Source- District Statistical manual-2012, Udaipur

^aSocio- Economic Census-2012 of Udaipur

^bData are taken from property dealers of the city

doubled from 17.75 km² in 1951 to 35.97 km² in 1961, while the population density decreased from 5049 persons per km² to 3089 persons per km² during the same period of time. Similarly, the urban area further expanded from 35.97 km² in 1961 to 61.10 km² in 1971. During the 20 year period from 1971 to 1991 the expansion of the city was only marginal at 64.28 km² in 1991 (Bharadwaj 2014). The population density in existing areas increased from 3886 persons per km² in 1971 to 5035 persons per km² in 1991. Again, the expansion in the urban area increased from 64.28–100.66 km² in 2001. The urban area has increased from 100.66 km² in 2001 to 221.00 km² in 2011, while the population density has decreased tremendously to 3733 persons per km² (Blackwell, Oxford Loibl W, Bell S 2011). The main reason for the decreasing density population over the period is wider roads in newly developed areas and many plots of residential purposes are lying vacant (25 %) and public purchased it only for value addition purposes.

The value of land in peri-urban areas has increased manyfold for UIT converted land after independence, i.e., from Rs. 500 per bigha in 1946 to Rs. 1.0 lac per bigha in 2011 (Arha et al. 2014). The increased value of land in peri-urban areas is mainly due to increasing pressure of population as well as changes in land use from agriculture to non- agriculture uses viz. residential and industrial purposes. The second important reason of increasing land value is that more than 50 % of converted plots for residential purposes are left idle. The householders purchase the plots for investment purposes and such plots are left idle after constructing the boundary walls. On such small plots one cannot grow crops. As an individual, the owner of the plot is gaining the profit from the land by increasing its value but to society as a whole such idle land is not beneficial. The increasing scarcity of agricultural land due to population pressure and the concept of multi-storied houses in urban as well as rural areas should be considered and acted upon by the government in the near future. It is a well known fact that most of the old cities are established near to the river due to water availability and fertile land of the area has been used for residential purposes during the expansion of the urban area. Hence, there should be a clear cut policy for the change in land use by the government of any nation to protect the land for future generations.

Table 8.5 Cropping pattern of major field crops grown in the Udaipur district

S. No.	Major crops	1976–1977	2006–2007	% increase or decrease
1	Maize	172.02	244.59	+42.17
2	Rice	Negligible	5.86	–
3	Wheat	77.50	84.31	+9.09
4	Barley	47.80	14.84	–236
5	Other cereals	18.20	17.91	+5.89
6	Gram	23.60	14.53	–64.29
7	Mustard	1.30	27.44	+2600
8	Groundnut	6.50	8.90	+40.00
9	Sorghum	12.55	17.62	+41.66
10	Sesame	4.68	7.22	+5.43

The change in cropping patterns of the Udaipur district during 1976–1977 to 2006–2007 has been presented in Table 8.5. With the exception of gram and barley crops, the area under all other crops has been increased. The area under mustard has increased by 26 times followed by wheat (42.17%), sorghum (41.66%) and groundnut (40.00%). The area under barley crop decreased by 236% and has been substituted with mustard cultivation. Similarly, the decreased area under gram crop is substituted with the production of mustard (Vital Statistics of Rajasthan-2011).

8.3.2 Income and Employment Patterns of Peri-Urban Households Who Did Not Sell Their Land

Land use, income and employment patterns of the peri-urban farmers who did not sell their land at two different points of time (1993–1994 and 2013–2014) are shown in Table 8.6. The average size of holding was found to be 1.75 ha out of which 0.25 ha is leased out by the farmers, because the younger generation is showing less interest in agriculture. Data clearly indicate that the income and employment generated by such farmers is more than those cultivators who sold all their land. Farmers who did not sell their land were getting 283 man days employment and Rs. 70,185/- as an annual income in the year 1993–1994. Data show that employment days were reduced to 252 man days due to technological changes over the period but the annual income of farmers increased up to Rs. 2,43,575/- annually during the year 2013–2014. These peri-urban farmers have sufficient land for crop production, vegetable production and dairy farming. They have also leased out land to the farmers who sold their land area in the peri-urban region and purchased land 30–40 km away from Udaipur. In peri-urban areas there is more profit from the production of items regularly used, such as vegetables and milk. When they were in rural areas they were growing both rabi and kharif crops on an average 0.50 ha and growing maize, jowar, urd, and guar crops in kharif and wheat, barley, gram and mustard in rabi season in the year 1993–1994. They were growing fodder crops like cheri,

Table 8.6 Land use, income and employment pattern of the peri-urban, does not sold the land (Average size of holding is 1.75 ha, 0.25 ha area is leased out)

S. No.	Crops	Area (ha)	Production (qt)	Cost/ha (Rs.)	Price/ (qt)	Income (Rs)	Employment (days)
2013–2014							
1.	Kharif crops						
	Jowar, maize, urd, guar	0.50	13.50	450	1050	14,175	52
	Rabi crops						
	Wheat, barley, gram, mustard	0.50	21.00	685	1400	29,400	75
2.	Fodder crops						
	Jowar, lucerne, cheri, berseem	0.50	100.00	250	500	50,000	40
3.	Vegetable crops						
	Okra, pea, spinach, tomato, brinjal and others	0.50	150.00	200	1000	1,50,000.	85
	Total					2,43,575	252
1993–1994							
1.	Kharif crops						
	Maize, groundnut, urd, moong	1.00	9.50	250	430	4085	65
	Rabi crops						
	Wheat, barley, gram	1.00	16.00	260	525	8400	82
2.	Fodder crops						
	Lucerne, cheri	0.25	80.00	125	215	17,200	44
3.	Vegetable crops						
	Pea, tomato, brinjal and others	0.25	90.00	230	450	40,500	92
	Total					70,185	283

berseem, lucerne and jowar crops. Similarly, when these farmers fell under the peri-urban region they changed their production system and are getting more income through growing vegetables like okra, pea, gourds, spinach, tomato, brinjal etc. and gaining more employment from such production.

The cropping pattern was very different in the year 1993–1994 than that of 2013–2014. In the year 2013–2014 farmers were allocating 0.50 ha under Kharif cereals, 0.50 ha under Rabi cereals, 0.50 ha under fodder crops, and 0.50 ha of area was allocated to vegetable crops. At present farmers are allocating 0.25 ha for leased out area. If this area is to be compared with 20 years ago it is found that more emphasis was given on the growing of cereal crops and farmers were allocated on

an average 1.0 ha of land for cereal production during Kharif crops and again the same area was allocated under rabi cereals. There was no emphasis on dairy production due to fewer avenues for selling milk and its products in the urban areas. Likewise, the area allocated for vegetable production was also less due to the marketing problem of perishable products such as vegetables. Farmers were getting 283 man days employment and were getting Rs. 70,185.00 annually. In this way the impact was noticed on income and employment pattern of the farmers in rural and peri-urban areas. There was a lot of difference in the income and employment patterns during this period. It was noticed that cultivators were not growing jowar and guar at that time, because guar was not commercially recognised. Similarly, jowar was also not in demand among farmers for fodder purposes as animal feed. Similarly, high yielding and low water requirement variety of mustard was not introduced. Thus, areas had more gram under cultivation than mustard. In peri-urban areas vegetable production is providing more returns to the cultivators and this started after the expansion of the urban area into peri-urban areas.

The income and employment generated through milk production is shown in Table 8.7. The people of this class have on average three cows and three buffaloes in their herd. They were getting 694 days employment for their family through dairy and crop enterprise during the year 2013–2014. The cultivator who did not sell the land was getting Rs. 8.68 lacs per year from both enterprises. They are producing on average 63.05 l of milk from both cow and buffalo per day and sell it in the urban market. The productivity and returns from cow's milk are higher than buffalo because these people were generally rearing crossbred cows that provide higher milk production than desi cows and buffaloes. If the data of milk production from cows and buffaloes is to be compared with the production employment and income data of the year 1993–1994 it is very clear that the average milk production and returns were less than today. Twenty years ago these milk producers were residing in a rural environment, there were less avenues of communication, transportation, use of agricultural technologies and extension services available for farmers. The results clearly indicate that there is a drastic change in production, productivity and use of technology by the farmers.

8.3.3 Income and Employment Pattern of the Peri-Urban Population Who Totally Sold the Land

Land use, income and employment pattern of the peri-urban farmers who totally sold their land have been shown in Table 8.8. These farmers sold their total area of land except their houses and purchased land nearer to the city area within the periphery of 30–40 km. Farmers were getting 283 man days employment annually when they possessed the land and this reduced to 180 man days employment (O' Neill et al. 2012) and Rs. 1,79,100/- as an income through leased land. The average annual income of the farmers when they possessed land was found to be Rs. 70,185/- annually along with 283 man days employment. The higher income during 2013–2014 is

Table 8.7 Income and employment of peri-urban population from dairy, who did not sell the land

S. No.	Milking animal	Production per day (kg)	Cost/lit. (Rs)	Price/lit.	Returns/year	Employment (days)
2013–2014						
A	Cows					
1	1. Cross breed	10.50	11.40	25	95,812	100
2	2. Cross breed	11.60	12.70	25	1,05,850	105
3	3. Cross breed	13.20	12.75	25	1,20,450	102
	Total	35.30	–	–	3,37,112	307
B	Buffalo					
1	1. Improved	8.50	13.10	30	93,075	125
2	2. Improved	9.00	13.75	30	98,550	130
3	3. Improved	10.25	14.15	30	1,12,237	132
	Total	27.75	–	–	3,03,862	387
1993–1994						
A	Cows					
1	1. Indigenous	4.25	4.31	9	13,961	91
2	2. Indigenous	4.65	5.09	9	15,275	93
3	3. Indigenous	5.01	5.13	9	16,457	95
	Total	13.91	–	–	45,694	279
B	Buffalo					
1	1. Indigenous	4.50	5.25	10	16,425	117
2	2. Indigenous	5.10	5.46	10	18,615	118
3	3. Indigenous	5.20	5.78	10	18,980	119
	Total	14.80	–	10	54,020	354

Table 8.8 Land use, income and employment pattern of the peri-urban, totally sold the land

S. No.	Crops	Area (ha.)	Production (qt.)	Cost/qt. (Rs)	Price/qt.	Income (Rs.)	Employment (days)
2013–2014 (Land sold)							
1.	Kharif crops						
	Jowar, maize	0.50	10.00	587	1100	11,000	50
	Rabi crops						
	Wheat, barley, Gram, mustard	0.50	12.00	745	1425	17,100	70
2.	Fodder crops						
	Jowar, methi, luccern, and berseem	0.25	350.00	125	200	70,000	20
3.	Vegetable crops						
	Okra, pea, spinach, tomato, brinjal and others	0.25	60.00	812	1350	81,000	40
	Total					1,79,100	180

not a significant increase over the time and is due to changes in prices over the period. After selling the total land area in the periphery of the urban area these farmers are residing in that area mainly due to their social development, such as education and employment of their children and health facilities available for their family at any time. After selling land, these households invested the money in the purchase of non production assets like two wheelers, four wheelers, televisions, freezers, and the construction of houses. These farmers have leased land 0.50 ha for cultivation of fodder and vegetables only. The main reason behind the total selling of their land by households residing in the periphery of peri-urban areas is higher land value offered by the property dealers. This business concern develops the land area by changing land use pattern from the Urban Improvement Trust (UIT). The value of such land has increased manyfold through infrastructure development like roads, light connections for residential use, drainage channels for waste water and drinking water supply facilities. The demand for land for non-agricultural purposes is higher in the peri-urban area. The additional land required in peri-urban areas is mainly for industrial and residential purposes.

The income and employment generation is much less for the people who sold all their land. They are leasing land from other farmers who did not sell their land area. Results at two points of time show that there is a lot of difference between employment opportunities between with and without avenues i.e. land for farmers.

The income and employment generated through milk production has been given in Table 8.9. The people of this class have on average one cow and two buffaloes in their herd. They are getting 350 days employment for their family through dairy and crop enterprises during the year (Siciliano 2012). The cultivators who have sold their total land get Rs. 3.79 lacs per year from both the enterprises. They are producing 20.00 l of milk from cows and buffalo per day and sell it in the urban market.

It is very remarkable (Annual Report of town planning, UIT, Udaipur city-2012) that these farmers have sold their land area to property dealers with the impression that their land has been acquired by the UIT for development purposes of the city but their land was not acquired by the UIT and they were cheated by either big colonisers or property dealers at lower land prices. These peri-urban people are

Table 8.9 Income and employment of peri-urban population from dairy, totally sold the land

S. No.	Milking animal	Production per day (kg)	Cost/animal (Rs)	Price/lit.	Returns/year	Employment (days)
2013–2014						
A						
Cows						
1.	1.	4.50	11.35	25	41,062	100
	Total	4.50	11.35	25	41,062	100
B						
Buffalo						
1.	1.	7.00	12.90	30	76,650	125
2.	2.	7.50	14.10	30	82,125	125
	Total	14.50	13.55	30	1,58,775	250

taking land as leased in at half share of income from other landholders. Thus, there is clear cut demarcation between land holders and landless people. These people are getting only 350 days employment for their family during the year from dairy as well as crop production. If the data of milk production from cows and buffalo during the year 1993–1994 was compared with the production employment and income data of the year 2013–2014, it is very clear that average milk production and returns from milk was less during 1993–1994 when this at present peri-urban area was a rural area. There were less avenues of communication, transportation, use of agricultural technologies, and extension services available for farmers during 1993–1994. The present data clearly indicate that there is a drastic change in production, productivity and use of technology by the farmers.

8.4 Concluding Remarks

The demographic data of the last few decades revealed an increasing tendency of urbanisation in many states in India, including Rajasthan. The high growth rate of the population in urban areas increased the urban demand for agricultural commodities on one hand and widened the demand for land for the construction of houses, roads and other civil amenities on the other hand. With the expansion of urban areas, the adjoining rural areas are changed to peri-urban in terms of facilities, amenities and lifestyle. Evidently, there is a visible remarkable expansion in the value addition of land in the peri-urban area of the city of Udaipur. The study revealed that urban coverage in Udaipur has increased from 17 km² in 1946 to 221 km² in 2011, while the density of population in the city area has reduced from 4347 persons per km² in 1946 to 3773 persons per km² in 2011. It clearly indicates that more than 25% plots in the urban limit is left idle after conversion of land for residential purposes, which is owned by the people only for value addition and protected by boundary walls. Large numbers of small landholders residing in the periphery of urban areas generally sold their land and purchased land 40–50 km away from the city areas. The study further revealed that farmers who partially sold land in peri-urban areas of the city are mostly cultivating vegetables and have dairy enterprises on their remaining holdings.

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