

CHAPTER – 10

AGRICULTURE & RURAL DEVELOPMENT

Contribution of agriculture sector has been reduced in NCT of Delhi due to rapid urbanisation and the growth of trade and industry sector in Delhi. Around 25% of the total area of NCT, as per 2011 census, was in rural and the remaining 75% in urban. The number of rural villages in Delhi reduced from 214 in 1981 to 112 in 2011.

- 1.2 The percentage distribution of Gross State Value Added (GSVA) of Delhi at current prices showed a declining trend of agriculture and allied sector. More clearly, the percentage contribution of agriculture sector to GSVA of Delhi at current prices reduced from 0.94 % in 2011-12 to 0.47% in 2017-18.

2. Land Holding Pattern

- 2.1 As economy is moving along-with rapid urbanization, the agriculture holdings in Delhi is also reducing at a speedy rate. This is evident as per the Agricultural Census. The information regarding the agricultural land holding pattern and area operated for agricultural purposes in Delhi, during the last two agricultural censuses is presented in Statement 10.1.

Statement 10.1

LAND HOLDINGS & OPERATIONAL AREA IN DELHI: 2005-06 & 2010-11

S. No.	Details	Agricultural Census 2005-06	Agricultural Census 2010-11
1.	Operational Holdings (Number)		
	a. Individual	11741 (46.39)	8195 (39.98)
	b. Joint	12624 (49.87)	11358 (55.41)
	c. Institutional	946 (3.74)	944 (4.61)
	Total	25311 (100.00)	20497 (100.00)
2.	Operational Area (in Hectares)		
	a. Individual	10590.95 (28.04)	7087.95 (23.92)
	b. Joint	25977.85 (68.78)	21341.82 (72.03)
	c. Institutional	1201.49 (3.18)	1198.44 (4.05)
	Total	37770.29 (100.00)	29628.21 (100.00)

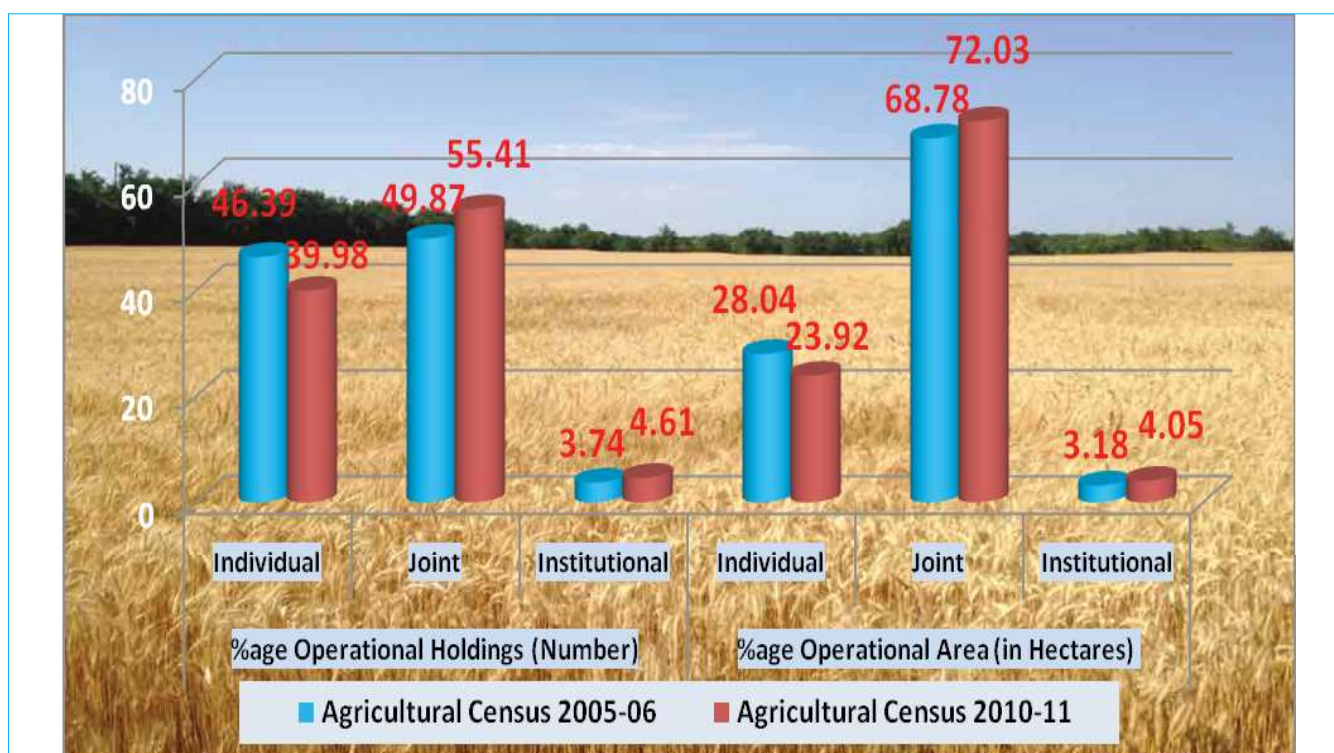
Sources: Agricultural Census 2005-06 & 2010-11

Note : Figures in parenthesis relate percentage to total

- 2.2 It may be inferred from Statement 10.1 that the number of operational holdings in Delhi reduced from 25311 in 2005-06 to 20497 in 2010-11. The reduction in land holdings in Delhi worked out at 3.80 per cent per annum. The reduction of operational holdings by the individual category was highest at 6.04 per cent per annum; while the same in joint and institutional category at 2.01 per cent and 0.04 per cent per annum respectively. The operational area of Delhi decreased from 37770.29 hectares during 2005-06 to 29628.21 hectares during 2010-11. The reduction in operational area during the last two agricultural censuses in Delhi was worked out at 4.31 per cent per annum. The reduction in operational area of institutional category during the same period was highest at 6.62 per cent per annum. The same in case of joint and institutional category was worked out at 3.57 per cent per annum and 0.05 per cent per annum respectively. The tenth Agriculture Census with reference year 2015-16 has been launched in the country during the State Agriculture Report 2016-17 Census Commissioner's meeting held on 3rd February, 2016 at New Delhi. The land holdings and operational area of Delhi during the last two agricultural census is depicted in Chart 10.1.

Chart 10.1

LAND HOLDINGS & OPERATIONAL AREA IN DELHI: 2005-06 & 2010-11



- 2.3 As per Agriculture Census 2010-11, out of 20497 total operational holdings in the State, 77.21 per cent operational holdings belonged to marginal and small farmers with land holding less than or equal to two ha. Only 0.73% of operational holdings were under the category of large holdings which size was above ten hectares. Area operated in agriculture in Delhi was highest in medium and semi-medium size and it constitutes about 57 percent area operated. The information regarding number and area of operational holdings of all social groups in Delhi are presented in Table 10.1.

3. Land Use Pattern in Delhi

- 3.1 The total cropped area during 2000-01 was at 52816 hectares which reduced to 34750 hectares in 2015-16. The reduction of cropped area during this period was worked out at 2.28 per cent per annum. Simultaneously, the percentage of cropped area from total area (Excluding Forest Area) was reduced from 35.81 per cent in 2000-01 to 23.26 per cent in 2015-16. The remaining areas of the Delhi are being used for various other uses such as non-agricultural purposes, forest, fallow land, uncultivable land, etc. The main reasons behind such reduction in agriculture area in Delhi are due to the fast urbanization, and shift in occupational pattern especially during the last two decades. This results in reduction of share of this sector to the Gross State Domestic Product of Delhi. The information regarding the land use pattern of Delhi during the last eighteen years is presented in Table 10.2.

4. Crop Intensity

- 4.1 Crop intensity is an index of agriculture development and is directly related to irrigation facilities. It is the percentage ratio of gross cropped area to net area sown. It may be measured by the formula-gross cropped area/net sown area x 100. The intensity of cropping, therefore, refers to raising a number of crops from the same field during one agricultural year. The index of cropping intensity is 100 if one crop has been grown in a year and it is 200 if two crops are raised. Higher the index, greater is the efficiency of land use. The cropping intensity has direct correlation with assured irrigation which enables farmers to go for multiple cropping and use higher dose of fertilizers and HYV seeds. Hence, besides irrigation fertilisers, early maturing high yielding variety of seeds, selective mechanization such as the use of tractors, pumping sets and seed drills, etc., plant, protection measures through the use of insecticides, pesticides etc. do have role in affecting the intensity of cropping. The information regarding crop intensity of Delhi during the last 18 years in presented in Statement 10.2.

Statement 10.2

CROP INTENSITY OF DELHI DURING 2000-01 TO 2016-17

(in hectares)

S.No.	Year	Net Area Sown	Gross Cropped Area	Cropping Intensity (%)
1.	2000-01	34,034	52,816	155
2.	2001-02	29,116	48,445	166
3.	2002-03	29,477	43,391	147
4.	2003-04	26,971	41,509	154
5.	2004-05	24,214	36,957	134
6.	2005-06	23,809	36,041	161
7.	2006-07	23,109	34,981	151
8.	2007-08	23,056	33,078	143

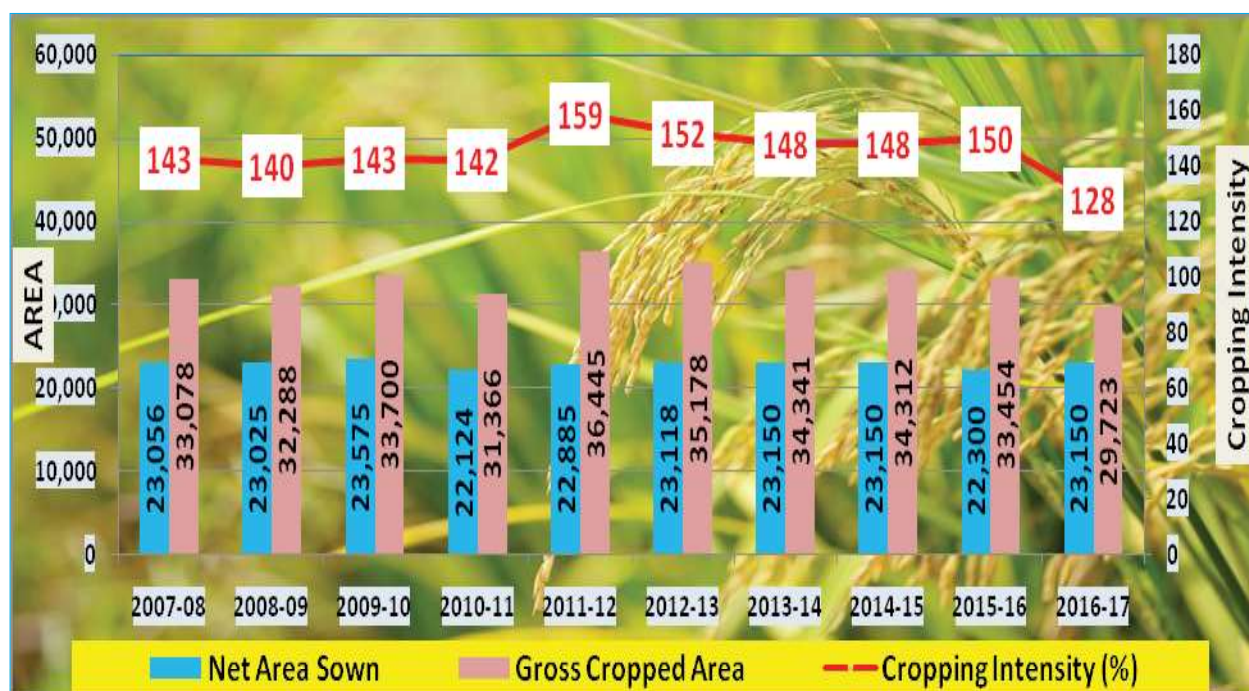
S.No.	Year	Net Area Sown	Gross Cropped Area	Cropping Intensity (%)
9.	2008-09	23,025	32,288	140
10	2009-10	23,575	33,700	143
11	2010-11	22,124	31,366	142
12	2011-12	22,885	36,445	159
13	2012-13	23,118	35,178	152
14	2013-14	23,150	34,312	148
15	2014-15	23,150	34,312	148
16	2015-16	23,150	34,312	148
17	2016-17	23,150	34,750	150
18	2017-18 (Estimated)	23,150	34,750	150

Source: Development Department, Govt. of NCT of Delhi

- 4.2 It may be observed from Statement 10.2 that the the crop intensity was highest at 166% during 2001-02 and lowest at 134% during 2004-05. The crop intensity of Delhi during 2017-18 is estimated at 150%. In addition, area under the food-grain crops have been decreased during this period but the same in vegetables increased being one of the fast growing mega cities in India, showing the importance of agriculture activity with the limited available land. The same is also depicted in chart 10.2.

Chart 10.2

CROPPING INTENSITY OF DELHI DURING 2007-08 TO 2016-17



5. Cropping Pattern

- 5.1 Cropping pattern is the sequential arrangement of crops on a piece of land. Paddy, Jowar and Bajra during Kharif and Wheat and Mustard crops during the Rabi seasons are the major crops in Delhi. The cultivation of vegetables is in continuous process throughout the year. The information regarding the area, production and yields of some of the selected crops in Delhi during 2016-17 is presented in Statement 10.3.

Statement 10.3

AREA, PRODUCTION & YIELD OF CROPS IN DELHI 2016-17

S. No.	Name of the Crops	Area (Hectare)	Production (Metric Ton)	Yield (Kg. per Hectare)
1.	Wheat	19,623	87,182	4,473
2.	Barley	68	184	2,706
3.	Bajra	1,497	3,278	2,190
4.	Maize	34	174	5,118
5.	Jowar	3,193	3,035	960
6.	Paddy	5,973	25,891	4,335
7.	Gram	25	53	2,120
8.	Mustard	3,608	4,527	1,248

Source:- Development Department, Govt. of NCT of Delhi

- 5.2 It may be observed from Statement 10.3 that wheat was the main food crop in Delhi during 2016-17. Area, Production and Yield of Wheat were recorded at 19623 hectare, 87182 MT and 4473 Kg/Hect. respectively. During 2016-17, the yield of Barley, Bajra, Maize, Jowar, Paddy, Gram and Mustard was at 2706, 2190, 5118, 960, 4335, 2120 and 1248 kg per hectare respectively. The information regarding production and yield of food-grain in Delhi from 2005-06 to 2016-17 is presented in Table 10.3.
- 5.3 The returns from traditional agriculture are presently less attractive as compared to the high value of commercial horticulture and other high value added agriculture activities. The Govt. of NCT of Delhi is therefore encouraging farmers to take-up vegetables, floriculture production, mushroom cultivation etc. The area under floriculture has been increased from 5,479 hectares in 2005-06 to 12,638 hectares during the year 2015-16.

6 Irrigation in Delhi

- 6.1 Irrigation in Delhi mainly depends upon ground water and partly upon surface water. Irrigation from the ground water is provided through shallow cavity and the deep cavity state tube-wells, whereas surface irrigation provided by way of utilizing treated effluent available from existing sewage treatment plants located at coronation pillar, Okhla and Keshopur. Water from Western Yamuna Canal system under the control of Haryana Govt. is also utilized for irrigation purpose.
- 6.2 Due to fast urbanization taking place in the rural areas of Delhi, cultivable command area under irrigation is getting reduced day by day. In Master Plan of 2021 for Delhi, Delhi Development Authority has also proposed complete urbanization of Delhi. Hence any increase in the command area in future is not possible. The information regarding the source-wise irrigated area in Delhi during the last eight years is presented in Statement 10.4

Statement 10.4**SOURCE-WISE IRRIGATED AREA IN DELHI 2009-10 TO 2016-17**

(Area in hectares)

S. No	Sources	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17*
1.	Canals	2238	2241	2225	2225	2225	2225	2218	2240
2.	Wells	21205	21742	19561	19561	19561	19561	19533	19727
3.	Area Irrigated	23443	23982	18581	21786	21786	21786	21751	21967
4.	Area irrigated under more than one crop	7310	8309	7875	7875	7875	7900	7678	7756
5.	Gross area Irrigated	30753	32291	29661	29661	29661	29661	29429	29723

Source: Revenue Department & Development Department

* Estimated

- 6.3 It may be inferred from the statement 10.4 that gross area irrigated reduced from 30753 hectares during 2009-10 to 29723 hectare during 2016-17 indicating a decline of 3.35% during the last eight years likewise, area irrigated through wells which was main source of irrigation also reduced from 21205 hectare during 2009-10 to 19727 hectare during 2016-17 recording a decrease of 6.97% during the same period.
- 6.4 Rainfall is also one of the other main sources of irrigation in Delhi. Generally rainfall in Delhi is concentrated in three months viz. July, August and September. The detail of rainfall during the last eleven years in Delhi especially in the months of July, August and September is presented in Statement 10.5.

Statement 10.5**RAIN FALL IN DELHI (JULY - SEPTEMBER)**

(in mm)

S.No.	Details	July	August	September
1.	Normal	210.60	247.70	125.40
2.	2006	313.30	98.00	129.60
3.	2007	163.10	214.30	85.60
4.	2008	146.20	301.70	165.40
5.	2009	161.20	216.60	191.20
6.	2010	239.60	455.10	332.90
7.	2011	111.70	190.30	225.80
8.	2012	94.80	378.80	54.80
9.	2013	340.50	321.40	94.40
10.	2014	103.00	139.10	82.60
11.	2015	235.20	181.60	22.00
12.	2016	292.50	122.70	75.00

Source:- Regional Metrological Centre, New Delhi

- 6.5 It may be observed from above statement that the rainfall in Delhi during 2010 was higher than the normal rainfall in Delhi. Normal rainfall relates to the norms of the Metrological Department of Govt. of India.

7. Animal Husbandry

- 7.1 Animal husbandry is the occupation which takes care of domestic animals that are used primarily as food or product source. The word “Livestock” is an umbrella term used for domesticated animals raised in an agricultural environment, with the intent of providing food, textiles, labor, or fertilizer to their owners. Common examples of livestock are horses, pigs, goats, buffaloes cows etc. Raising livestock is an important source of livelihood of the people all over the world. It is an important component in the agriculture sector which affects the development of the economy directly and indirectly. The information regarding the livestock Census in Delhi during 2003, 2007 and 2012 is presented in Statement 10.6.

Statement 10.6

LIVESTOCK IN DELHI AND ITS GROWTH: 2003, 2007 AND 2012

S. No.	Livestock	Livestock Census(Number)			Growth (%)	
		2003	2007	2012	Per cent (2003-2012)	Per annum
1.	Cow	91589	107730	86433	- 5.63	- 0.62
2	Buffalo	230552	266626	162142	- 29.67	- 3.30
3	Sheep	3377	5896	932	- 72.40	-8.04
4	Goat	16779	21176	30470	81.60	9.07
5	Others	32481	21891	86012	164.81	18.31
	Total	374778	423319	365989	- 2.35	-0.26

- 7.2 It may be inferred from statement 10.6 that the livestock in Delhi decreased marginally from 3.75 lakh in 2003 to 3.66 lakh in 2012 recording a negative annual growth at -0.26 per cent. The highest growth of livestock was reported at 18.31% per annum in case of others Category of the livestock. Similarly, growth of 9.07% per annum was recorded in case of Goats. On the other hand, the highest negative growth was recorded at -8.04% per annum in the case of sheep. The negative growth also reported at -3.30% per annum and -0.62% per annum in buffaloes and cows respectively. The main reason for decline in number of live stock may be attributed to decline in agricultural and allied activities and rapid urbanization in Delhi.

8. Veterinary Facilities

- 8.1 There are 46 Govt. Veterinary hospitals, 28 Veterinary Dispensaries, 2 laboratory/research centre and 1 Veterinary Poly Clinic for providing veterinary facilities in Delhi. The number of Govt. Veterinary Hospitals and Dispensaries almost remained unchanged in Delhi during the last one decade. The number of animals treated in Govt. Veterinary Hospitals/ Dispensaries increased from 3.64 lakh during 2000-01 to 4.38 lakh during 2016-17. It may be due to enhancement of education and awareness among the farmers. The information regarding veterinary services in Delhi is presented in Statement 10.7.

Statement 10.7**VETERINARY SERVICES IN DELHI DURING 2000-01 TO 2016-17**

S. No.	Years	Veterinary Facilities (No.)			Animal treated
		Hospitals (inc. one Vety. Poly. Clinic)	Dispensaries	Labs/ Research Centres	
1	2000-01	48	27	2	363555
2	2001-02	48	27	2	364592
3	2002-03	48	27	2	376734
4	2003-04	48	27	2	390023
5	2004-05	48	27	2	405009
6	2005-06	48	27	2	506017
7	2006-07	48	27	2	470879
8	2007-08	47	27	2	485501
9	2008-09	48	29	2	462778
10	2009-10	45	29	2	406878
11	2010-11	46	27	2	483709
12	2011-12	46	28	2	415986
13	2012-13	47	28	1	391152
14	2013-14	47	28	2	378359
15	2014-15	47	28	2	367518
16	2015-16	47	28	2	412363
17	2016-17	47	28	2	438504

Statement 10.8

Physical Achievements 2016-17

S. No.	Activity	Target 2016-17	Achievement	Target 2017-18
i	Treatment of Sick animals cases	4.00 Lakh	438504	4.00 Lakh
ii	Vaccination against Hemorrhagic Septicaemia and FMD Disease 4T lakh each.	H.S- 4.00 Lakh F.M.D- 4 Lakh	475193 236189	H.S- 4.00 Lakh F.M.D-4 Lakh
iii	A-I with Frozen Semen in cow	20000 Nos.	11336	20000 Nos.
iv	Animal husbandry training-cum-treatment camps for farmer village level	50 Nos.	50	50 Nos.
v	Anti Rabies Vaccination of Dogs	40000 Nos.	40350	50000 Nos.
vi	Animals to be benefited in Gosadans/Goshalas.	14000 Nos.	14213	20000 Nos.
vii	Treatment of Sterility Cases	20000 Nos.	17209	22000 Nos.
viii	Training to SC/ST candidates in Modern poultry Farming	100	174	200

9. Fisheries

- 9.1 Fishing as an occupational activity is decreasing sharply in Delhi due to rapid urbanization, and resultant non-availability of water bodies suitable for fish culture. The Fisheries Unit surveyed/identified 24 water bodies in rural areas of North-west district for leasing out to the fish farmers. Another 34 and 93 water bodies are being developed by I&FC department and Delhi Jal Board respectively. All these water bodies will also be utilized for fishery activities. The Government has also stressed upon fish culture which will help in harvesting the Delhi waters for increasing fish production. Besides, there is ample scope for high-tech fishery like Cage Culture, Re-circulatory Aquaculture System, (RAS) Pearl Culture, ornamental fish breeding/farming, Shrimp Culture, Aquarium making etc. These activities will enhance the farmers income significantly through high production of high value fishes and allied items in defined area of land. This will also help in employment generation for local educated youth, fisherman, SC/ST communities and entrepreneurs in Delhi. Accordingly, department has introduced projects worth ₹ 344 lakh on Cage Culture, Re-circulatory Aquaculture System, (RAS) and Shrimp farming in Delhi under 'Blue Revaluation' Scheme during the year 2017-18 for sustainable growth of the sector and open avenues for employment generation/ entrepreneurship development.
- 9.2 The Fisheries Unit regulates fishing under the Punjab fisheries Act 1914, and Indian fisheries Act 1897, and prevent destructive practices and unscrupulous fishing. The Fisheries unit performs the dual function of producing fish seed as well as fish for consumption purpose. During the year 2016-17 the fish seeds production in Delhi was 16.15 lakh (No's) and fish production was 0.74 thousand tons. The year wise information regarding production of fish seed and fish is presented in Statement 10.9

Statement 10.9

FISH SEED AND FISH PRODUCTION IN DELHI 2002-03 TO 2016-17

S. No	Years	Fish Seed Production (lakh)	Fish Production (Thousand Tons)
1.	2002-03	23.3	2.30
2.	2003-04	20.0	2.10
3.	2004-05	17.2	1.40
4.	2005-06	13.50	0.80
5.	2006-07	12.00	0.70
6.	2007-08	12.40	0.70
7.	2008-09	13.30	0.70
8.	2009-10	13.90	0.72
9.	2010-11	12.95	0.82
10.	2011-12	13.00	0.74
11.	2012-13	15.25	0.69
12.	2013-14	18.25	0.68
13.	2014-15	16.20	0.68
14.	2015-16	16.20	0.71
15.	2016-17	16.15	0.74

10. Rural Development

- 10.1 As per Population Census 2011, total area of Delhi was 1483 Sq. Km out of which rural area of Delhi was 369.35 Sq. Km (24.91%). 2.5% population of Delhi was residing in rural area. As an economy moves towards a progressive state, rural area automatically converted into urban area, consequently reduces the number of villages and the rural population. The number of villages in Delhi reduced from 304 in 1951 to 112 in 2011. The information regarding the villages, rural population during the last seven decades is presented in Statement 10.10.

Statement 10.10

RURAL POPULATION OF DELHI: 1951-2011

S. No	Years	Villages (Number)	Population		
			Rural	Total	% of Rural to total
1	1951	304	306938	1744072	17.60
2.	1961	276	299204	1658612	11.25
3.	1971	243	418675	4065698	10.30
4.	1981	214	452206	6220406	7.27
5.	1991	199	949019	9420644	10.07
6.	2001	165	944727	13850507	6.82
7.	2011	112	419042	16787941	2.50

Source:- Delhi Statistical Hand Book, 2017

11 Delhi Village Development Board

- 11.1 A new advisory board namely 'Delhi Village Development Board (DVDB)' has been constituted in place of Delhi Rural Development Board (DRDB) vide Order dated 20.12.2017 as per cabinet decision no. 2520 dated 13.11.2017. The DVDB has been set up for integrated development of both rural and urban villages in Delhi. Earlier, Delhi Rural Development Board (DRDB) was reconstituted in the month of May, 2015.
- 11.2 Delhi Village Development Board shall advise the Government on issues connected with the infrastructure development works in all rural and urban villages of Delhi. Its function would be to consider requests for infrastructure development of the area of the residents in consultation with elected representatives (MPs/MLAs), recommend and prioritize the projects and ensure time bound implementation etc. and also to meet at regular intervals for evaluation of developmental projects recommended by the board. The functions of the Board would be as under:
- (a) To study the deficiencies in the existing infrastructure in Delhi rural areas.
 - (b) To consider and recommend the prioritization of projects and schemes for implementation.
 - (c) To examine the nature and extent of overlapping functions, if any, so as to secure an improvement in the provision of services and quicker redressal of public grievances.
 - (d) To review, from time to time, the implementation of the projects and the schemes and recommend measures for effecting coordination amongst the organizations and Departments of the Government in the matter of implementation of such projects and schemes.
 - (e) To review the progress of the implementation of the schemes and to recommend to the government of Delhi the quantum of financial assistance required for the execution or implementation of any project or scheme in the area plan, or to be include, for the subsequent financial year.
 - (f) The following nature of works will be recommended by the DVDB in the rural and urban villages of NCT of Delhi in Lal Dora areas, sizra roads and public utilities on Govt. land, except in unauthorized colonies of any status and resettlement colonies and JJ bastis falling under the jurisdiction of DUSIB:
 - i) Construction of approach roads/ link roads/ village roads.
 - ii) Construction of drainage facility.
 - iii) Development of cremation grounds, parks, playgrounds, vyamshalas etc.
 - iv) Development of ponds/ water bodies.
 - v) Construction/repair/maintenance of chaupals, barat ghars, community centres.
 - vi) Other need based works like drinking water facility, street lights etc.

11.3 Village Development Committees (VDCs)

To assist the DVDB in carrying out baseline survey of the villages to assess the facilities available , facilities required and identifying the priority areas in the villages where holistic development of the rural/ urban villages is required, the DVDB may constitute a Village

Development Committees (VDCs) for each rural and urban villages of Delhi.

- 11.4 During the Financial Year 2016-17, 85 sanctions amounting ₹ 67.30 crores were issued whereas, in FY 2017-18, 118 sanctions amounting Approx. ₹ 106.30 crores for various development projects in rural villages of Delhi, have been issued (upto December, 2017). An expenditure of ₹ 120.14 crores incurred during 2016-17 under the scheme Integrated Development of Rural villages. As during Budget 2017-18, it was announced to enhance the scope of DRDB to include both rural and urban villages of Delhi, budget outlay for the FY 2017-18 has been increased for integrated development of both rural and urban villages. An outlay of ₹ 600 crore was approved for the year 2017-16 for the execution of Rural & Urban village Development works (General & SCSP head).
- 11.5 In the rural area 78 Multi Purpose Community Centres (MPCCs) were constructed under Mini Master plan for Development of Rural Villages. All the MPCCs with complete management and maintenance thereof have been transferred to the concerned Dy. Commissioner (DMs) under the Revenue Department, Govt. of NCT of Delhi vide order No.F/PDRD/Estate/Mgmt of MPCC/2004/3121-3132 dated 16.08.2004 & subsequent F5(166)/Misc./AC/ 2005/Div.Comm./Nr/2496-2501 dated 16.06.2014.