

BEST PRACTICES OF THE RAJASTHAN



Best Practice: LED Street Light Project in Rajasthan (September 2019)

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ACKNOWLEDGEMENT

Proper Street Light is one of the main functions of Urban Local Body. In Rajasthan number of municipal bodies finances are not in position to meet out the cost of street light and various issues regarding regular payment arouse. In Rajasthan an urban cess on electricity bill is imposed which is 15 paisa per unit consumed. If cost of street light is kept at minimal by consuming energy efficient bulbs this amount of urban cess is suffice to meet the expenditure made by ULB on Street Light. Rajasthan is first state in country where an ambitious project of converting all street light with LED Light has been taken and implemented successfully. Rajasthan Shahari Vikas Kendra (RSVK) conducted a study and best practice paper prepared by Sh. Mahendra Kumar Bairwa, Addl. Chief Engineer, Directorate of Local Bodies, Rajasthan who is associated with the project is published.

When I was Director, Directorate of Local Bodies, Govt. of Rajasthan started this project. Sh. M. K. Bairwa, Addl. Chief Engineer, who look after this project from starting and now this has been an ambitious project of Rajasthan and awarded rank 1st in series year 2016 and 2017 for energy conservation.

Purushottam Biyani, IAS(R)
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RSVK, HCM RIPA

STREET LIGHT NATIONAL PROGRAMME

Street Light National Programme is an initiative of the Government to promote energy efficiency in the country. Government aims to replace 3.5 crore conventional street lights with energy efficient LED lights. This would result in annual energy saving of 900 crore units and the total cost savings of municipalities every year will be Rs 5,500 crore.

Energy Efficiency Services Limited, a Public Energy Services Company under the administration of Ministry of Power, Government of India (GoI) is the implementing agency for SLNP.

The National Programme has been launched on 5th January 2015 to convert conventional street and domestic lights with energy efficient LED lights.

Objectives:

- Mitigate climate change by implementing energy efficient LED based street lighting
- Reduce energy consumption in lighting which helps DISCOMs to manage peak demand
- Provide a sustainable service model that obviates the need for upfront capital investment as well as additional revenue expenditure to pay for procurement of LED lights
- Enhance municipal services at no upfront capital cost of municipalities

EESL Service Model:

EESL replaces the conventional street lights with LEDs at its own costs and consequent reduction in energy and maintenance cost of the municipality is used to repay EESL over a period of time. The contracts that EESL enters into with Municipalities are typically of 7 years duration where it not only guarantees a minimum energy saving but also provides free replacements and maintenance of lights at no additional costs to the municipalities. The service model enables the municipalities to go in for the state of the art street light with no upfront capital cost and repayments to EESL are within the present level of expenditure. Thus there is no additional revenue expenditure required to be incurred by the municipality for change over to smart and energy efficient LED street lights.

Overall Target

Overall target of no of street lights to be replaced	3.5 crore
Expected overall annual energy savings	9000 million KWh
Expected reduction of installed street light load	1500 MW
Expected annual cost reduction of ULBs	Rs. 5,500 crore
Annual estimated greenhouse gas emission reductions	6.2 million tonnes of CO ₂

LED STREET LIGHT PROJECT IN RAJASTHAN

PROJECT: -

Government of Rajasthan had decided to save Electrical Energy in the field of street lighting hence **State Government had signed MoU with Energy Efficiency Services Limited New Delhi (EESL)** on 23January 2015 to implement energy saving project (LED Project) in Rajasthan for all ULBs.

The following is the target achieved under LED Project Rajasthan: -

1. Progress of State: -

✓ MoU signed on Date:	23rd Jan 2015
✓ Project Started:	July 2015.
✓ Project Cost:	Rs. 1500 Cr.
✓ Total no. of street light points to be replaced in all the ULBs:	12 lakhs.
✓ LED Street light installation up to 31-03-2016:	1.88 lakhs.
✓ LED Street light installation up to 31-03-2017:	6.75 lakhs.
✓ LED Street light installation up to 31-03-2018:	9.08 lakhs.
✓ LED Street light installation up to 31-03-2019:	10.55 lakhs.
✓ Total LED Street light installed so far (EESL-10,14,184, SMC-67,716):	10.81 lakhs.
✓ Total no. of ULBs:	191 ULBs.
✓ LED installation completed in:	190ULBs.
✓ LED installation work under progress in:	01ULB(Jaipur)
✓ Target to complete LED installation in all ULBs:	Dec 2019

2. Progress of Jaipur only: -

✓ Total points:	2.30 lakhs.
✓ Total LED Installed (EESL-90,921, EIPL-67,716):	1.58 lakhs.
✓ Balance:	0.72 lakhs.
✓ Project implementing agencies:	
i. Samudra Infrastructure Agency:	
• LED Street Lights to be installed:	70,000Nos.
• LED Street Lights replaced till date:	67,716 Nos.
ii. EESL	
• LED Street Lights to be installed:	1.33 lakhs.
• LED Street Lights replaced till date:	90,921 Nos.

3. CCMS installation

✓ Total no. of CCMS to be provided in all ULBs:	13,131 Nos.
✓ CCMS provided till date:	7,966 Nos.
✓ Target to complete the installation:	Dec 2019

4. Energy Saving: -

Comparison of Energy Saving before and after implementation of LED Street Light project						
Year	Energy consumption before installation (kWh) in Lakh unit	Energy consumption before installation (in Crore) in Rupees	Energy consumption after installation (kWh) in Lakh unit	Energy consumption after installation (in Rupees) in Crore	Saving in Lakh Units (in kWh)	Saving in Rupees (in Crores)
2015-16	1021.33	81.70	428.81	34.30	592.51	47.40
2016-17	2212.58	177.00	953.84	76.31	1258.74	100.70
2017 -18	2725.30	218.02	1172.00	93.76	1550.90	124.26
2018-19	4603	344	1807	144	2500	200
TOTAL					5278.52	422.31

- ✓ After completion of the project: -
 - Total energy saving (in units) per year: **25Crore units.**
 - Total energy saving (in Rs.) per year: **Rs 200Crores.**

5. Funds Sanctioned by RUDF Committee

- ✓ Collection of “Urban Cess” in one year (2018-19): **Rs. 220 Crores(Approx.)**
- ✓ Per year payment to Discom: **Rs. 310 Crores(Approx.)**
- ✓ Per year payment to EESL: **Rs. 161 Crores(Approx.)**
- ✓ Per year payment to EIPL: **Rs. 01 Crore (Approx.)**

EESL

- ✓ Funds Sanctioned up to March 2019 for Payment to EESL: **Rs. 124.82 Crores**
- ✓ Amount paid to EESL: **Rs 81.35 Crores**
(Positive Cess - Rs. 69.86 Crores + Negative Cess- Rs. 11.49 Crore)

EIPL – SMC

- ✓ Funds Sanctioned up to March 2019 for Payment to EIPL: **Rs. 17.44 Crores**
- ✓ Transferred to PD account of JMC: **Rs. 17.44 Crores**
- ✓ Payment made by JMC to EIPL-SMC: **Rs. 17.44 Crores**

Bills processed for payment (up to June 2019)

- ✓ EESL: **Rs. 70.64 Crores**
- ✓ SMC: **NIL**

Discom

- ✓ Bills raised by DISCOM up to Dec 2018: **Rs. 373.82 Crores**
(Rs.114 Cr.+ Rs.259.82 Cr.)
- ✓ Payment / Bills paid to Discom: **NIL**
- ✓ Payment / Bills Pending: **Rs. 373.82 Crores**
- ✓ Payment payable as per LSG (Rs.114 Cr.+Rs.136 Cr.): **Rs. 250 Crores**

6. Energy Conservation award 2016:

(National Energy Conservation Award 2016 & Rajasthan Energy Conservation Award 2016)

- ❖ Sh. Piyush Goyal the then Hon'ble Union Minister, GoI presented 1st prize for this project to Dr. Manjit Singh, Pr. Secretary, LSG on dated 14.12.2016 in New Delhi.
- ❖ Rajasthan Energy Conservation Award 2016 was received by Mr. M.K.Bairwa, Addl. Chief Engineer (Elec.) on dated 14.12.2016 in Jaipur.

Energy Conservation award 2017:

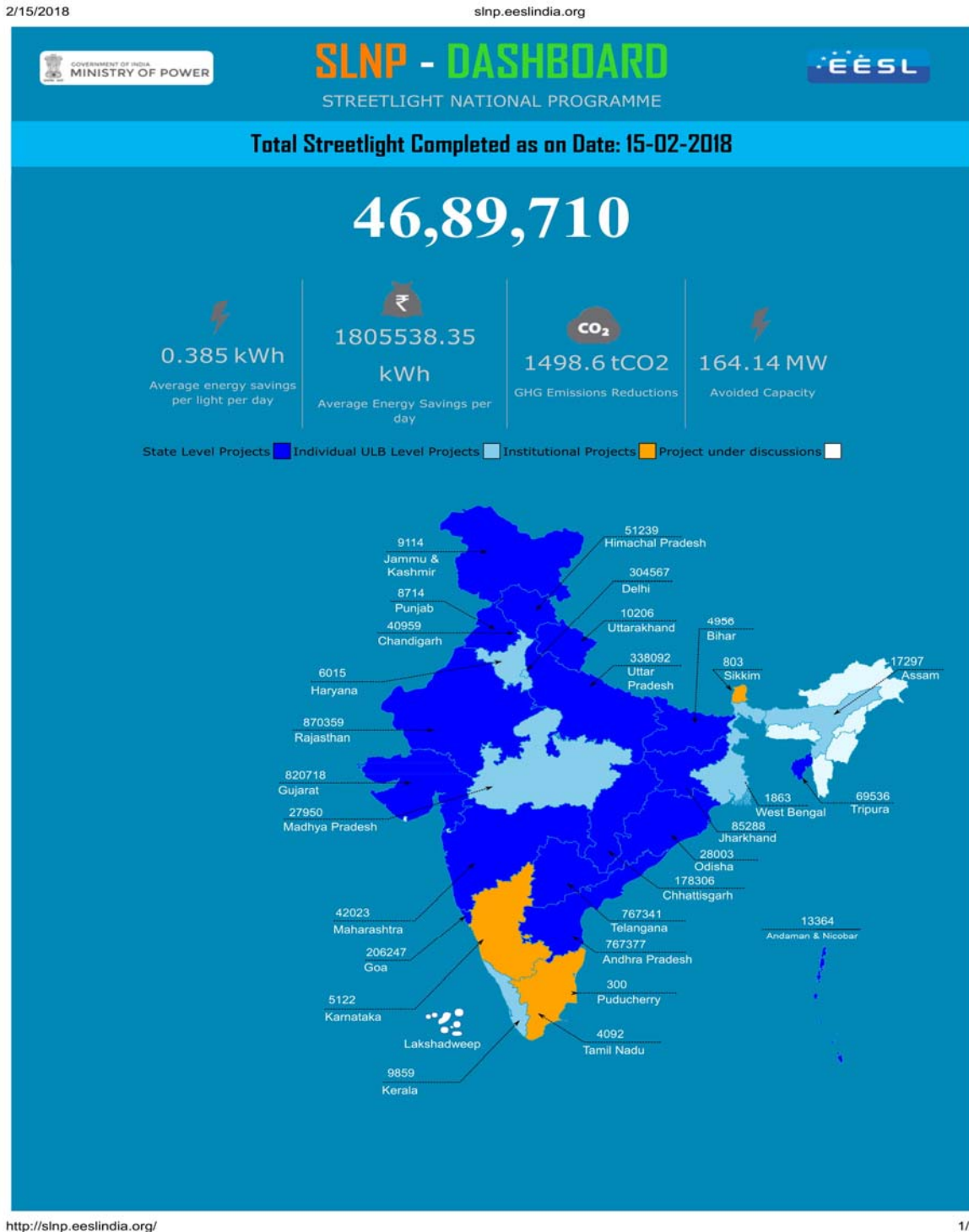
(National Energy Conservation Award 2017& Rajasthan Energy Conservation Award 2017)

- ❖ Managing Director, Bureau of Energy Efficiency (BEE) presented award for this project to Sh. PawanArora, Director cum Joint Secretary, LSG on dated 14.12.2017 in New Delhi.
- ❖ Rajasthan Energy Conservation Award 2017 was received by Mr. M.K.Bairwa, Addl. Chief Engineer (Elec.) on dated 14.12.2017 in Jaipur.

7. Street Light "Dashboard":As on dated 15.02.2018

There is a "dashboard" indicates daily updated positions of LED Street Lights under Street Light National Programme.

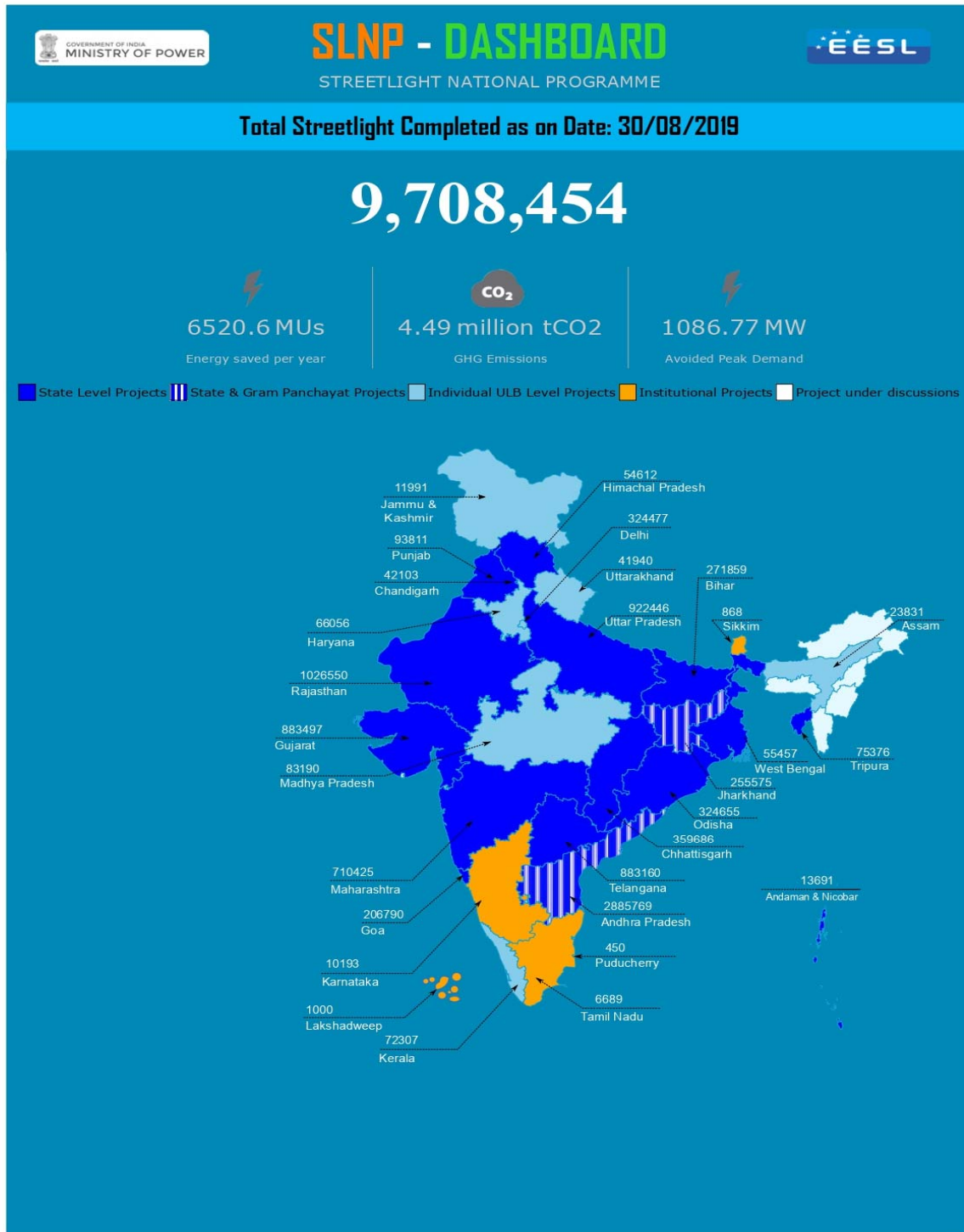
As on dated 15.02.2018 total quantity 46,89,710 LED street lights installed in India out of which total 8,70,359 LED street lights installed in Rajasthan. With this highest quantity of lights, Rajasthan stands in 1st position in India.



8. Street Light "Dashboard":

There is a "dashboard" indicates daily updated positions of LED Street Lights under Street Light National Programme.

As on dated 30.08.2019 total quantity 97,08,454 LED street lights installed in India out of which total 10,26,550 LED street lights installed in Rajasthan. With this highest quantity of lights, Rajasthan stands in 3rd position in India.



Total Nos. of LED Street light Installed So Far:

S.No.	Name of ULB	Total No. of Points	Total No. of points replaced by LED	No. of CCMS installed	Remark
1	Abu Road	2725	4031	57	Completed
2	Ajmer	31450	39959	278	Completed
3	Aklera	1670	1161		Completed
4	Alwar	23202	27763	95	Completed
5	Amet	1261	1596		Completed
6	Anta	1500	2187		Completed
7	Anupgarh	2925	2319	93	Completed
8	Asind	1896	1656		Completed
9	Bagaru	2730	2380		Completed
10	Baggar	1146	1675	13	Completed
11	Bali	1729	1867		Completed
12	Balotra	6856	8555	59	Completed
13	Bandikui	2746	2758		Completed
14	Banswara	6420	7854	50	Completed
15	Baran	6106	5466		Completed
16	Bari	1580	2342		Completed
17	Barisadari	4135	1491	11	Completed
18	Barmer	12900	9781	85	Completed
19	Bayana	770	2206	34	Completed
20	Beawar	7000	11432	85	Completed
21	Begun	1970	1927		Completed
22	Behror	900	4206		Completed
23	Bhadra	1891	3114	40	Completed
24	Bharatpur	17261	18583	150	Completed
25	Bhawanimandi	2309	3222		Completed
26	Bhilwara	28751	31917	256	Completed
27	Bhinder	1410	1680		Completed
28	Bhinmal	4025	4194	48	Completed
29	Bhiwadi	3715	3897	81	Completed
30	Bhusawar	1110	1006		Completed
31	Bidasar	2800	2765	45	Completed
32	Bikaner	27924	33859	135	Completed
33	Bilara	1510	2920	42	Completed
34	Bisau	1840	1737	18	Completed
35	Bundi	9783	6595	48	Completed
36	Chaksu	1963	1931		Completed
37	Chhabra	1400	1451		Completed
38	Chhapar	1274	1620	24	Completed

39	Chhotisadari	1595	1610		Completed
40	Chirawa	3935	2693	66	Completed
41	Chittorgarh	11931	10459	120	Completed
42	Chomu	6367	8452	54	Completed
43	Churu	9493	7293	48	Completed
44	Dausa	8258	9617	60	Completed
45	Deedwana	8260	6254		Completed
46	Deeg	3685	2200	57	Completed
47	Degana	1800	2074	3	Completed
48	Deogarh	5423	3385		Completed
49	Deoli	1215	1820	25	Completed
50	Deshnoke	668	954	12	Completed
51	Dholpur	6426	5197		Completed
52	Dungarpur	9540	10119	67	Completed
53	FatehnagarSanwar	2253	2749		Completed
54	Fatehpur	7370	6519	30	Completed
55	Fulera	1944	2194		Completed
56	Gajsinghpur	535	701	13	Completed
57	Gangapur	3330	1651		Completed
58	Gangapur city	1875	8659	133	Completed
59	Gulabpura	2510	3277	19	Completed
60	Hanumangarh	10198	11610	146	Completed
61	Hindauncity	5790	8363	102	Completed
62	Indergarh	565	591	5	Completed
63	Itawa	1050	1963	6	Completed
64	Jahajpur	932	1219		Completed
65	Jaipur	200000	158637	666	Work under progress (EESL-90921 & SMC-67716)
66	Jaisalmer	6297	6763		Completed
67	Jaitaran	2164	2810	37	Completed
68	Jalore	7396	5023	125	Completed
69	Jhalarapatan	1738	1779		Completed
70	Jhalawar	3949	2965		Completed
71	Jhunjhunu	8000	15292	112	Completed
72	Jobner	1025	923		Completed
73	Jodhpur	73497	65983	1192	Completed
74	Kairthal	4598	2393		Completed
75	Kaman	1107	1043		Completed
76	Kanod	517	900	8	Completed
77	Kapasan	1625	2173	38	Completed
78	Kapren	1452	1086	9	Completed

79	Karauli	2200	2816	6	Completed
80	Kathun	723	858	20	Completed
81	Kekari	2684	3837	25	Completed
82	Kesarisinghpur	409	1103	17	Completed
83	keshav ray patan	850	1790		Completed
84	Khandela	810	735		Completed
85	Kherali	1015	1279		Completed
86	Khetri	558	979	16	Completed
87	Khudala-Falana	2333	2005		Completed
88	Kishangarh	12801	11530	90	Completed
89	KishangarhRenwal	2138	2485	13	Completed
90	Kishangarhbas	200	200		Completed
91	Kota	36272	36922	368	Completed
92	Kotputali	3967	1637		Completed
93	Kuchaman city	4288	6038	98	Completed
94	Kuchera	940	1774	24	Completed
95	Kumher	1387	1550		Completed
96	Kushalgarh	526	855		Completed
97	Ladnun	3582	3801		Work under progress
98	Lakheri	1530	2319	19	Completed
99	Lalshot	1650	2169	20	Completed
100	Laxmangarh	2111	3163		Completed
101	Losal	1479	1093	15	Completed
102	Mahwa		1086		Completed
103	Makrana	1606	3875	72	Completed
104	Malpura	4102	1886	17	Completed
105	Mandawa	2200	2044	11	Completed
106	Mandelgarh	1367	1785		Completed
107	Mangrol	760	870		Completed
108	Merta city	5169	4596	81	Completed
109	Mount Abu	1500	2480	21	Completed
110	Mukundgarh	1268	1688	8	Completed
111	Mundwa	1095	1581	23	Completed
112	Nadbai	2998	2537	18	Completed
113	Nagar	1916	1157		Completed
114	Nagaur	6293	8180	143	Completed
115	Nainwan	732	1344		Completed
116	Napasar		2495		Completed
117	Nasirabad		588		Completed
118	Nathdwara	4350	4568	1	Completed
119	Navalgarh	7224	5380	20	Completed
120	Nawa	1544	1916		Completed

121	Neem ka thana	2723	3236		Completed
122	Newai	3025	4220		Completed
123	Nimbahera	4168	4692		Completed
124	Nohar	3500	3855	36	Completed
125	Nokha	4117	5854	129	Completed
126	Padampur	894	1514	24	Completed
127	Pali	18400	19665	156	Completed
128	Parbatsar	2020	1504	16	Completed
129	Phalodi	5058	4013		Completed
130	Pidawa	400	679		Completed
131	Pilani	1845	2646	21	Completed
132	Pilibanga	1413	3648	37	Completed
133	Pindwara	3680	1837	14	Completed
134	Pipadacity	2464	3379	83	Completed
135	Pokran	2757	4580		Completed
136	Pratapgarh	3418	4456	35	Completed
137	Puskar	1965	1825	11	Completed
138	Raisinghnagar	1194	1718	22	Completed
139	Rajakhera	550	1475		Completed
140	Rajaldesar	1842	2089	35	Completed
141	Rajgarh	5120	4895		Completed
142	Rajgarh	2720	2749		Completed
143	Rajsamand	8364	9225	60	Completed
144	Ramganjmandi	3240	2531	70	Completed
145	Ramgarh Sekhawati	1468	1438	14	Completed
146	Rani khurd	1049	1360		Completed
147	Ratangarh	4216	5817	94	Completed
148	Ratannagar	820	1106	11	Completed
149	Rawatbhatta	810	1680		Completed
150	Rawatsar	2029	3129	-	Completed
151	Reengus	2415	1305	16	Completed
152	Sadari	1666	2137		Completed
153	Sadulshahar	1466	1918	24	Completed
154	Sagwara	2699	4186	12	Completed
155	Salumber	955	1183		Completed
156	Sambhar	3590	1925		Completed
157	Sanchor	3968	2643		Completed
158	Sangaria	1810	2626		Completed
159	Sangod	716	1125		Completed
160	Sardarshahar	4437	5821		Completed
161	Sarwad	3050	1855	16	Completed

162	Sawaimadhopur	12074	8744	64	Completed
163	Shahpura (Bhilwara)	2132	3028		Completed
164	Shahpura (Jaipur)	2331	1479		Completed
165	Shivganj	2324	3290	14	Completed
166	Sikar	9542	15740	160	Completed
167	Sirohi	7180	3677	36	Completed
168	Sojatcity	5800	4216		Completed
169	Sri Dungargarh	1965	2418		Completed
170	Sri ganganagar	12665	12849	66	Completed
171	Srikaranpur	1328	1229	13	Completed
172	Srimadhopur	5465	2569		Completed
173	Srivijaynagar	850	1328	11	Completed
174	Sujargarh	2503	7675	102	Completed
175	Sumerpur	3700	5012		Completed
176	Surajagr	1928	1809		Completed
177	Suratgarh	4917	5460		Completed
178	Takhtgarh	1449	1647		Completed
179	Taranagar	1019	3716	31	Completed
180	Tijara	1612	1641		Completed
181	Todabheem	1800	1668		Completed
182	Todaraisingh	839	1674		Completed
183	Tonk	7132	9356	79	Completed
184	Udaipur	28805	38073	323	Completed
185	Udaipurwati	7177	3034	24	Completed
186	Uniyara	691	983		Completed
187	Vidyavihar	866	1301	12	Completed
188	Vijay Nagar	2218	2830	35	Completed
189	Viratnagar	1355	1593		Completed
190	Weir	475	832	14	Completed
TOTAL		1046256	1081900	7966	