

Research Report No. 71

Statistical Series on Private
Tubewell Development in West Pakistan

INSTALLATION OF PRIVATE TUBEWELLS
IN WEST PAKISTAN - 1964-1967

Mohammad Ghaffar Edwin H. Clark II

The Research Reports of the Pakistan Institute of Development Economics are circulated to inform interested persons with regard to research programs at the Institute. These reports may be freely circulated but they are not to be quoted without the permission of the author. Work on this manuscript is still in progress; comments are invited to improve the final version.

July 1968

PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS
Old Sind Assembly Building
Bunder Road
Karachi-1
Pakistan

P r e f a c e

Since 1964 the Agricultural Section of the Pakistan Institute of Development Economics, under the leadership of the late Mr. Ghulam Mohammad, has been conducting extensive investigations into the growth of private tubewells in West Pakistan. As part of this programme we have conducted several field surveys on various aspects of the development - probably the best known being the Annual Surveys of Private Tubewells, the fifth of which will be conducted this year. Most of these surveys have been carried out in conjunction with the West Pakistan Department of Agriculture.^{1/}

Partial results of these surveys have appeared in several articles written by Mr. Ghulam Mohammad^{2/}, but much of the data had not been fully processed and detailed results had not been published. Since West Pakistan's private tubewell development is of such general interest, both to the planners concerned with irrigation development in West Pakistan and, more widely, to many economists concerned with the problems of agricultural development, we have decided to reprocess all of the more important surveys and publish the results in a series of PIDE Research Reports entitled "Statistical Series on Private Tubewell Development in West Pakistan". The data published in this series along with the results of our other research on this subject are being further analysed and will be published in a PIDE Monograph which should appear in the Fall or Winter of 1968.

E.H.C.

^{1/} We must express our deep appreciation to the West Pakistan Department of Agriculture, especially the Lahore Region and its Director, Mr. Shafi Gill, for their generous cooperation in this work, without which most of it could not have been carried out.

^{2/} Particularly, "Private Tubewell Development and Cropping Patterns in West Pakistan", Pakistan Development Review, v.V, n.1, Spring 1965, pp 1-53; "Development of Irrigated Agriculture in East Pakistan: Some Basic Considerations", PDR, v.VI, n.3, Autumn 1966, pp.315-375; "Programme for the Development of Irrigation and Agriculture in West Pakistan: An analysis of the Public and Private Groundwater Development Programme and the IBRD Draft Report", PIDE Research Report No. 59, July 1967. This last publication to be superseded by a forthcoming article in the PDR by Ghulam Mohammad and Edwin H. Clark, "Groundwater Development in West Pakistan: An Analysis of the IBRD's Recommendations".

Introduction

The Agricultural Section of the Pakistan Institute of Development Economics (under the direction of the late Mr. Ghulam Mohammad) in conjunction with the West Pakistan Department of Agriculture has conducted four Surveys of Private Tubewells in West Pakistan for the years 1964 through 1967. These surveys have been organized by the PIDE and conducted by the Field Assistants in the Department of Agriculture.

We have attempted to conduct each survey at the same time of year. The Proformas are sent out in July with instructions that they should be completed during August. Unfortunately, the response is not so well coordinated, and the last returns may not be received until January of the following year. When development occurs as rapidly as it has in West Pakistan, such a delay in responses can affect the apparent rate of growth. For this reason it is perhaps fortunate that the delayed responses have generally come from the same districts each year since this results in the growth rates computed from the survey being more accurate than they would be if the delays were random. However, a problem which still remains is that the levels of development reached in different Districts are not strictly comparable.

The field reports include information on the number of tubewells in operation, how many of these are diesel and how many are electric, and the number that had been installed during the past year. In the Third and Fourth Surveys (1966, 1967), information was also obtained on the type of strainers and their operating condition. For the first two surveys the data were reported by Union Council. For the second two surveys they were reported by village and Union Council. There seems to have been some undercounting in each survey, probably to a greater extent in the earlier surveys than in the more recent ones. Unfortunately, it is not possible to determine exactly how serious this has been. The boundaries, names and numbers of the Union Council are apt to change from year to year so that it is not possible to make comparisons by Union Councils. The reported number of tubewells installed during any year is also thought to be sufficiently inaccurate that it can only be considered roughly indicative of the amount of growth which has taken place.

For this reason we present two tabulations in this report. The first contains the results of the actual field reports, except in the areas outside the 16 major Districts where estimates are based on partial returns. The second is our admittedly subjective estimate of how many tubewells there actually were after making adjustments for undercounting and missing returns. These estimates were made after comparing the Union Council totals for all four years, tehsil by tehsil. In some cases it is clear that some areas were missed during one year. This, for instance, is true in Sahiwal District where consistent reports were received for a group of 12 Union Councils in the First, Second and Fourth Surveys, but no report was received for the Third Survey. The same is true in Sialkot District where the actual Third survey count showed a net decrease in the number of tubewells in operation. After making the revised estimates, they were checked against and found to be generally consistent with the results of the size of Holdings study conducted independently in four districts in 1965/66.^{1/} The Size of Holdings Survey was conducted somewhat later and thus shows a generally higher number of tubewells than our estimates for 1965.^{2/} For our 1967 data, however, we have no such check and it has already been communicated to us that we may have missed some areas in Jhang, Gujranwala and Sialkot Districts.

The revised estimates were made for the total number of tubewells operating in a Tehsil in each year. These were divided into diesel and electrical tubewells in the same proportions as the two types were reported in the field survey.

We believe that the revised estimates are more accurate than the actual counts, but have no way of estimating how much more accurate. It is possible that we have even over-adjusted in some areas resulting in our estimates being too high. The revised estimates show the number of tubewells to have been consistently higher but the growth rate to have been lower than indicated by the actual field counts.

^{1/} Ref: Mohammad Ghaffar, Amir Mohammad, and Edwin H. Clark II; Research Report No.69; "Statistical Series on Private Tubewell Development". Size of Holdings of Private Tubewells Owners", Pakistan Institute of Development Economics, Karachi, June 1968.

^{2/} Except for Gujranwala tehsil where the Size of Holdings Study did not include about 15 per cent of the Union Councils, probably because of the effects of the 1965 hostilities.

In both sets of tables the number of tubewells installed from one year to the next does not include replacements, being only the difference between the number of tubewells in operation in the two years. Thus the total number of tubewell installations is probably somewhat greater than the figures given.

In both sets of tables the data for the Districts of Sheikhupura, Gujranwala and Lyallpur have been adjusted to separate out the effects of the SCARP I public tubewell project. Lyallpur District excludes all that area in Jaranwala Tehsil which falls within SCARP I. Gujranwala District excludes all of Hafizabad Tehsil which falls within the SCARP I *area.*, but includes that part of Ferozwala Tehsil of Sheikhupura District which falls outside the SCARP I area. Thus Sheikhupura District includes only those areas which are covered by SCARP I.

M. G.
E. H. C.

July, 1968.

Index of Tables

	<u>Actual Survey Figures</u>		<u>Revised Estimates</u>	
	<u>Table No.</u>	<u>Page</u>	<u>Table No.</u>	<u>Page</u>
West Pakistan Summary	I	5	VII	11
Rawalpindi Division	II	6	VIII	12
Gujrat District				
Sargodha Division	III	7	IX	13
Sargodha District				
Mianwali District				
Jhang District				
Lyallpur District				
Lahore Division	IV	8	X	14
Sialkot District				
Gujranwala District				
Sheikhupura District				
Lahore District				
Multan Division	V	9	XI	15
Multan District				
Sahiwal(Montgomery)District				
Muzaffar Garh District				
Dera Ghazi Khan District				
Bahawalpur Division	VI	10	XII	16
Bahawalpur District				
Bahawalnagar District				
Rahimyar Khan District				

TABLE I

WEST PAKISTAN SUMMARY - ACTUAL COUNT

District	First Survey of 1964				Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase 1963/64	Total	Elect.	Diesel	Increase 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Multan	5147	644	4503	1337	6325	835	5490	1178	7958	1325	6633	1633	9931	1871	8060	1973
Sahiwal	4205	1164	3041	1138	5159	2013	3146	954	6897	2180	4717	1738	9496	2896	6600	2599
Gujranwala ^{a)}	4198	1261	2937	1170	5112	1826	3286	914	6066	2291	3775	954	7169	3120	4049	1103
Sialkot	2481	437	2044	504	3036	579	2457	555	3286	773	2513	250	4088	1030	3052	796
Lahore	1619	857	762	501	2156	1302	854	537	3008	2121	887	852	3475	2446	1029	467
Jhang	1540	448	1092	298	1804	651	1153	264	2590	909	1681	786	2994	1325	1669	404
Lyallpur ^{a)}	1054	291	763	301	1534	441	1093	480	1939	593	1346	405	3113	1054	2059	1174
Bahimyar Khan Sheikhupura ^{a)}	443	9	434	178	553	22	531	110	930	92	838	377	1145	114	1031	215
Muzaffargarh	453	0	453	140	488	5	483	35	890	17	873	402	1149	151	998	259
Gujrat	719	300	419	275	976	473	503	257	760	431	329	- 216	1164	674	490	404
Bahawalpur	397	26	371	122	492	54	438	95	755	160	595	263	1171	316	855	416
Sargodha	350	178	172	110	491	236	255	141	557	287	270	66	764	465	299	207
Mianwali	228	107	121	70	371	167	204	143	492	257	235	121	660	384	276	168
Dera Ghazi Khan	221	0	221	42	285	0	285	64	421	3	418	136	574	7	567	153
Bahawalnagar	272	3	269	87	343	4	339	71	361	33	328	18	534	53	481	173
Total:																
16 Districts	23,775	5,845	17,930	6,399	29,850	8,806	21,044	6,075	37,867	11,746	26,121	8,017	48,780	16,313	32,467	10,913
Other Dists. ^{b)}	1,225	355	870	201	1,750	694	1,056	525	2,133	954	1,179	383	2,620	1,287	1,333	487
West Pakistan	25,000	6,200	18,800	6,600	31,600	9,500	22,100	6,600	40,000	12,700	27,300	8,400	51,400	17,600	33,800	11,400
Net Increase Over Previous Year					6,600	3,300	3,300		8,400	3,200	5,200		11,400	4,900	6,500	

Source: Surveys by PIDE and Directors of Agriculture, Lahore, Hyderabad & Peshawar.

Notes: a) Gujranwala District excluded all of Hafizabad Tehsil which falls within the SCARP I area but includes that part of Ferozwala Tehsil of Sheikhupura District which falls outside the SCARP I area. Lyallpur District excludes all that area of Jaranwala Tehsil which falls within SCARP I area.

b) Based on Partial Counts.

TABLE II

RAWALPINDI DIVISION

District	First Survey of 1964				Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase 1963/64	Total	Elect.	Diesel	Increase 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Gujrat Dist.																
Gujrat Teh.	547	250	297	204	636	316	320	89	521	260	261	- 115	776	494	282	255
Phalia Teh.	153	41	112	66	232	72	160	79	104	73	31	- 128	247	82	165	143
Kharian Teh.	19	9	10	5	108	85	23	89	135	98	37	27	141	98	43	6
D District Total	719	300	419	275	976	473	503	257	760	431	329	- 216	1164	674	490	404

Source: Surveys by PIDE and Director of Agriculture, Lahore

TABLE III

SARGODHA DIVISION

District	First Survey of 1964				Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase 1963/64	Total	Elect.	Diesel	Increase 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Sargodha Dist.																
Sargodha Teh.	42	15	27	9	64	24	40	22	76	28	48	12	123	49	74	47
Bhalwal Teh.	280	153	127	89	394	202	192	114	249	122	127	- 145	299	221	78	50
Khushab Teh.	28	10	18	12	33	10	23	5	32	8	24	- 1	74	21	53	42
Shahpur Teh.	0	0	0	0	0	0	0	0	200	129	71	200	268	174	94	68
District Total	350	178	172	110	491	236	255	141	557	287	270	66	764	465	299	207
Mianwali Dist.																
Mianwali Teh.	43	19	24	23	88	51	37	45	151	102	49	63	232	150	82	81
Isakhel Teh.	55	52	3	35	93	91	2	38	109	108	1	16	142	140	2	33
Bhakkar Teh.	130	36	94	2	190	25	165	60	232	47	185	42	286	94	192	54
District Total	228	107	121	70	371	167	204	143	492	257	235	121	660	384	276	168
Jhang Dist.																
Jhang Teh.	639	181	458	95	759	312	447	120	1057	309	748	298	1502	675	827	445
Chiniot Teh.	660	267	393	106	797	339	458	137	1094	586	508	297	1046	621	425	- 48
Shorkot Teh.	241	0	241	97	248	0	248	7	439	14	425	191	446	29	417	7
District Total	1540	448	1092	298	1804	651	1153	264	2590	909	1681	786	2994	1325	1669	404
Lyallpur Dist.																
Lyallpur Teh. a)	174	65	109	58	204	86	118	30	456	194	262	252	570	222	348	114
Samundri Teh.	598	158	440	149	778	265	513	180	740	180	560	- 38	1200	382	818	460
Toba Tek Sing Teh.	282	68	214	94	552	90	462	270	743	219	524	191	1343	450	893	600
District Total	1054	291	763	301	1534	441	1093	480	1939	593	1346	405	3113	1054	2059	1174

Source: Surveys by PIDE and Director of Agriculture, Lahore

Note: a) Includes all that area of Jaranwala Tehsil which falls outside SCARP I.

TABLE IV

LAHORE DIVISION

District	First Survey of 1964				Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase 1963/64	Total	Elect.	Diesel	Increase 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Sialkot Dist.																
Sialkot Teh.	658	235	423	181	769	307	462	111	695	313	382	- 74	1095	537	558	400
Daska Teh.	1300	175	1125	194	1556	230	1326	256	1925	375	1550	- 369	1992	393	1599	67
Pasrur Teh.	326	26	300	107	455	40	415	129	360	76	284	- 95	554	73	481	194
Narowal Teh.	178	1	177	8	230	2	228	52	291	9	282	- 61	402	27	375	111
Shakargarh Teh.	19	0	19	14	26	0	26	7	15	0	15	- 11	39	0	39	24
District Total	2481	437	2044	504	3036	579	2457	555	3286	773	2513	250	4082	1030	3052	796
Gujranwala Dist. a)																
Gujranwala Teh.	2796	836	1960	517	3321	1124	2197	525	3588	1196	2392	267	4213	1725	2488	625
Wazirabad Teh.	1015	248	767	462	1220	359	861	205	1446	456	990	226	1663	522	1141	217
Ferozwala Teh.	387	177	210	191	571	343	228	184	1032	639	393	461	1293	873	420	261
District Total	4198	1261	2937	1170	5112	1826	3286	914	6066	2291	3775	954	7169	3120	4049	1103
Sheikhupura Dist. b)																
Sheikhupura North	339	67	272	79	525	121	404	186	621	113	508	96	824	160	664	203
" Centre	6	1	5	2	95	32	63	89	140	64	76	45	215	85	130	75
" South	103	52	51	45	105	45	60	2	196	97	99	91	320	162	158	124
District Total	448	120	328	126	725	198	527	277	957	274	683	232	1359	407	952	402
Lahore Dist.																
Lahore Teh.	586	502	84	212	809	749	60	223	1115	1080	35	306	1145	1090	55	30
Kasur Teh.	610	283	327	184	769	242	527	159	1121	567	554	352	1303	688	615	182
Chunian Teh.	423	72	351	105	578	311	267	155	772	474	298	194	1027	668	359	255
District Total	1619	857	762	501	2156	1302	854	537	3008	2121	887	852	3475	2446	1029	467

Source: Surveys by PIDE and Director of Agriculture, Lahore

Notes: a) Excludes all of Hafizabad Tehsil which falls within the SCARP I area but includes Ferozwala Tehsil of Sheikhupura District which falls outside SCARP I.
b) Covers all the area which falls within SCARP I.

TABLE V

MULTAN DIVISION

District	First Survey of 1964				Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase 1963/64	Total	Elect.	Diesel	Increase 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Multan Dist.																
Multan Teh.	802	160	642	191	915	160	755	113	1238	264	974	323	1503	358	1145	265
Shujabad Teh.	335	4	331	122	430	9	421	95	476	17	459	46	642	26	616	166
Kabirwala Teh.	441	17	424	167	506	25	481	65	731	33	698	225	1238	53	1185	507
Khanewal Teh.	960	120	840	186	1229	196	1033	269	1454	385	1069	225	1930	542	1388	476
Vehari Teh.	955	343	612	228	1173	445	728	218	1472	600	872	299	1691	814	877	219
Mailsi Teh.	855	0	855	229	1083	0	1083	228	1345	16	1329	262	1476	39	1437	131
Lodhran Teh.	799	0	799	214	989	0	989	190	1242	10	1232	253	1451	39	1412	209
District Total	5147	644	4503	1337	6325	835	5490	1178	7958	1325	6633	1633	9931	1871	8060	1973
Sahiwal Dist.																
Sahiwal Teh.	951	424	527	337	1474	616	858	523	2051	805	1246	577	2386	957	1429	335
Okara Teh.	535	249	286	145	625	270	355	90	855	328	527	230	1005	372	633	150
Pakpattan Teh.	1873	491	1382	465	2018	929	1089	145	2623	782	1841	605	4122	1160	2962	1499
Dipalpur Teh.	846	0	846	191	1042	198	844	196	1368	265	1103	326	1983	407	1576	615
District Total	4205	1164	3041	1138	5159	2013	3146	954	6897	2180	4717	1738	9496	2896	6600	2599
Muzaffargarh Dist.																
Muzaffargarh Teh.	70	0	70	9	93	1	92	23	151	3	148	58	282	106	176	131
Kot Addu Teh.	91	0	91	32	83	4	79	8	174	12	162	91	197	23	174	23
Leiah Teh.	163	0	163	51	244	0	244	81	335	2	333	91	422	22	400	87
Alipur Teh.	129	0	129	48	68	0	68	61	230	0	230	162	248	0	248	18
District Total	453	0	453	140	488	5	483	35	890	17	873	402	1149	151	998	259
Dera Ghazi Khan Dist.																
D.G. Khan Teh.	72	0	72	14	95	0	95	23	158	3	155	63	207	7	200	49
Jampur Teh.	43	0	43	7	52	0	52	9	86	0	86	34	64	0	64	22
Taunsa Teh.	34	0	34	16	45	0	45	11	31	0	31	14	28	0	28	3
Rajapur Teh.	72	0	72	5	93	0	93	21	146	0	146	53	275	0	275	129
District Total	221	0	221	42	285	0	285	64	421	3	418	136	574	7	567	153

Source: Surveys of PIDE and Director of Agriculture, Lahore

TABLE VI
BAHAWALPUR DIVISION

District	First Survey of 1964				Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase 1963/64	Total	Elect.	Diesel	Increase 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Bahawalpur Dist.																
Bahawalpur Teh.	135	3	132	34	174	10	164	39	293	41	252	119	408	119	289	115
Ahmadpur Teh.	111	3	108	38	136	13	123	25	216	52	164	80	276	90	186	60
Hasilpur Teh.	151	20	131	50	182	31	151	31	246	67	179	64	487	107	380	241
District Total	397	26	371	122	492	54	438	95	755	160	595	263	1171	316	855	416
Bahawalnagar Dist.																
Bahawalnagar Teh.	100	3	97	29	111	4	107	11	123	18	105	12	209	39	170	86
Chistian Teh.	88	0	88	21	116	0	116	28	99	11	88	- 17	113	10	103	14
Fort Abbas Teh.	0	0	0	0	0	0	0	0	2	0	2	2	0	0	0	- 2
Minchinabad Teh.	84	0	84	37	116	0	116	32	137	4	133	21	212	4	208	75
District Total	272	3	269	87	343	4	339	71	361	33	328	18	534	53	481	173
Rahimyar Khan Dist.																
Rahimyar Khan Teh.	133	8	125	66	171	20	151	38	286	25	261	115	334	29	305	48
Sadiqabad Teh.	158	0	158	47	194	1	193	36	323	18	305	129	365	17	348	42
Liaquatpur Teh.	87	0	87	36	98	0	98	11	137	5	132	39	198	15	183	61
Khanpur Teh.	65	1	64	29	90	1	89	25	184	44	140	94	248	53	195	64
District Total	443	9	434	178	553	22	531	110	930	92	838	377	1145	114	1031	215

Source: Surveys by PIDE and Director of Agriculture, Lahore

TABLE VII

WEST PAKISTAN SUMMARY - REVISED ESTIMATES

District	Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase a) 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Multan	6930	930	6000	-	8350	1400	6950	1420	9950	1870	8080	1600
Sahiwal	5930	2130	3800	-	7860	2440	5420	1930	9580	2920	6660	1720
Gujranwala b)	5420	1980	3440	-	6380	2440	3940	960	7350	3200	4150	970
Sialkot	3490	660	2830	-	4030	940	3090	540	4670	1150	3520	640
Lahore	2150	1250	900	-	2830	1870	960	680	3580	2460	1120	750
Jhang	1950	690	1260	-	2710	980	1730	760	3270	1450	1820	560
Lyallpur b)	1600	470	1130	-	2340	750	1590	740	3180	1080	2100	840
Rahimyar Khan	660	20	640	-	940	90	850	280	1180	130	1050	240
Sheikhupura b)	780	210	570	-	1010	300	710	230	1390	420	970	380
Muzaffargarh	700	10	690	-	940	30	910	240	1160	140	1020	220
Gujrat	1010	490	520	-	1140	550	590	130	1320	750	570	180
Bahawalpur	560	60	500	-	920	190	730	360	1230	340	890	310
Mianwali	380	160	220	-	510	250	260	130	690	390	300	180
Dera Ghazi Khan	360	0	360	-	510	10	500	150	640	10	630	130
Bahawalnagar	330	10	320	-	380	30	350	50	550	60	490	170
Total:												
15 Districts	32,250	9,070	23,180	-	40,850	12,270	28,580	8,600	49,740	16,370	33,370	8,890
Sargodha c)	490	240	250	-	560	290	270	70	760	460	300	200
Other Dists.	1,660	690	970	-	2,090	940	1,150	430	2,500	1,170	1,330	410
W.Pakistan	34,400	10,000	24,400	-	43,500	13,500	30,000	9,100	53,000	18,000	35,000	9,500
Net Increase Over Previous Year					9,100	3,500	5,600		9,500	4,500	5,000	

Notes: a) No estimates were made for 1964/65 installations.

b) Gujranwala District excludes all of Hafizabad Tehsil which falls within the SCARP I area but includes that part of Ferozwala Tehsil of Sheikhupura district which falls outside the SCARP I area. Lyallpur district excludes that area of Jaranwala Tehsil which falls within the SCARP I.

c) Actual Survey Figures shown for Sargodha as there is insufficient information available to make a revised estimate.

TABLE VIII
RAWALPINDI DIVISION

District	Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase a) 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Gujrat Dist.												
Gujrat Teh.	650	320	230	-	730	360	370	80	840	530	310	110
Phalia Teh.	250	80	170	-	270	90	180	20	300	100	200	30
Kharian Teh.	110	90	20	-	140	100	40	30	180	120	60	40
District Total	1010	490	520	-	1140	550	590	130	1320	750	570	180

a) No estimates were made for 1964/65 Installations.

TABLE IX

SARGODHA DIVISION

District	Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase ^{a)} 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Sargodha Dist. ^{b)}	-	-	-	-	-	-	-	-	-	-	-	-
Mianwali Dist.												
Mianwali Teh.	100	50	50	-	160	100	60	60	240	150	90	80
Isakhel Teh.	90	80	10	-	110	100	10	20	150	140	10	40
Bhakkar Teh.	190	30	160	-	240	50	190	50	300	100	200	60
District Total	380	160	220	-	510	250	260	130	690	390	300	180
Jhang Dist.												
Jhang Teh.	800	330	470	-	1170	370	800	370	1500	670	830	330
Chiniot Teh.	850	360	490	-	1100	590	510	250	1250	740	510	150
Shorkot Teh.	300	0	300	-	440	20	420	140	520	40	480	80
District Total	1950	690	1260	-	2710	980	1730	760	3270	1450	1820	560
Lyallpur Dist.												
Lyallpur Teh. ^{c)}	250	110	140	-	460	190	270	210	600	240	360	140
Samundri Teh.	800	270	530	-	1000	300	700	200	1230	390	840	230
Toba Tek Sing Teh.	550	90	460	-	880	260	620	330	1350	450	900	470
District Total	1600	470	1130	-	2340	750	1590	740	3180	1080	2100	840

Notes: a) No estimates were made for 1964/65 installations.

b) Revised estimates were not made for Sargodha District because survey data were not sufficiently detailed for 1966 and 1967.

c) Includes all that area of Jaranwala Tehsil which falls outside SCARP-I.

TABLE X

LAHORE DIVISION

District	Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase ^{a)} 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Sialkot Dist.												
Sialkot Teh.	770	310	460	-	930	420	510	160	1100	540	560	170
Daska Teh.	2000	300	1700	-	2250	440	1810	250	2500	500	2000	250
Pasrur Teh.	460	40	420	-	520	70	450	60	600	80	520	80
Narowal Teh.	240	10	230	-	300	10	290	60	430	30	400	130
Shakargarh Teh.	20	0	20	-	30	0	30	10	40	0	40	10
District Total	3490	660	2830	-	4030	940	3090	540	4670	1150	3520	640
Gujranwala Dist. b)												
Gujranwala Teh.	3400	1140	2260	-	3750	1250	2500	350	4250	1730	2520	500
Wazirabad Teh.	1220	360	860	-	1450	460	990	230	1750	560	1190	300
Ferozwala Teh.	800	480	320	-	1180	730	450	380	1350	910	440	170
District Total	5420	1980	3440	-	6380	2440	3940	960	7350	3200	4150	970
Sheikhupura Dist. c)												
Sheikhupura Noth	530	120	410	-	630	120	510	100	850	170	680	220
Sheikhupura Centre	100	30	70	-	150	70	80	50	220	90	130	70
Sheikhupura South	150	60	90	-	230	110	120	80	320	160	160	90
District Total	780	210	570	-	1010	300	710	230	1390	420	970	380
Lahore Dist.												
Lahore Teh.	700	620	80	-	900	810	90	200	1200	1100	100	300
Kasur Teh.	850	310	540	-	1130	570	560	280	1350	690	660	220
Chunian Teh.	600	320	280	-	800	490	310	200	1030	670	360	230
District Total	2150	1250	900	-	2830	1870	960	680	3580	2460	1120	750

Notes: a) No estimates were made for 1964/65 installations.

b) Excludes all of Hafizabad Tehsil which falls within the SCARP-I area but includes Ferozwala Tehsil of Sheikhupura district which falls outside SCARP-I.

c) Covers all the area which falls within SCARP-I.

TABLE XI

MULTAN DIVISION

District	Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase ^{a)} 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Multan Dist.												
Multan Teh.	1000	180	820	-	1300	280	1020	300	1500	360	1140	200
Shujabad Teh.	430	10	420	-	500	20	480	70	650	30	620	150
Kabirwala Teh.	700	30	670	-	800	30	770	100	1240	50	1190	440
Khanewal Teh.	1400	250	1150	-	1680	440	1240	280	1930	540	1390	250
Vehari Teh.	1250	460	790	-	1480	600	880	230	1700	810	890	220
Mailsi Teh.	1100	0	1100	-	1350	20	1330	250	1480	40	1440	130
Lodhran Teh.	1050	0	1050	-	1240	10	1230	190	1450	40	1410	210
District Total	6930	930	6000	-	8350	1400	6950	1420	9950	1870	8080	1600
Sahiwal Dist.												
Sahiwal Teh.	1600	670	930	-	2100	810	1290	500	2400	960	1440	300
Okara Teh.	680	290	390	-	860	330	530	180	1030	380	650	170
Pakpattan Teh.	2400	930	1470	-	3350	1000	2350	950	4150	1170	2980	800
Dipalpur Teh.	1250	240	1010	-	1550	300	1250	300	2000	410	1590	450
District Total	5930	2130	3800	-	7860	2440	5420	1930	9580	2920	6660	1720
Muzaffargarh Dist.												
Muzaffargarh Teh.	100	0	100	-	170	10	160	70	280	100	180	110
Kot Addu Teh.	130	10	120	-	180	10	170	50	200	20	180	20
Leiah Teh.	280	0	280	-	360	10	350	80	430	20	410	70
Alipur Teh.	190	0	190	-	230	0	230	40	250	0	250	20
District Total	700	10	690	-	940	30	910	240	1160	140	1020	220
Dera Ghazi Khan Dist.												
D.G. Khan Teh.	100	0	100	-	170	10	160	70	210	10	200	40
Jampur Teh.	70	0	70	-	90	0	90	20	110	0	110	20
Taunsa Teh.	50	0	50	-	40	0	40	-10	30	0	30	-10
Rajanpur Teh.	140	0	140	-	210	0	210	70	290	0	290	80
District Total	360	0	360	-	510	10	500	150	640	10	630	130

Note: a) No estimates were made for 1964/65 installations.

TABLE XII
BAHAWALPUR DIVISION

District	Second Survey of 1965				Third Survey of 1966				Fourth Survey of 1967			
	Total	Elect.	Diesel	Increase a) 1964/65	Total	Elect.	Diesel	Increase 1965/66	Total	Elect.	Diesel	Increase 1966/67
Bahawalpur Dist.												
Bahawalpur Teh.	240	20	220	-	310	50	260	70	410	120	290	100
Ahmedpur East Teh.	140	10	130	-	220	50	170	80	300	100	200	80
Hasilpur Teh.	180	30	150	-	390	90	300	210	520	120	400	130
District Total	560	60	500	-	920	190	730	360	1230	340	890	310
Bahawalnagar Dist.												
Bahawalnagar Teh.	110	10	100	-	130	20	110	20	210	40	170	80
Chistian Teh.	100	0	100	-	100	10	90	0	120	10	110	20
Fort Abbas Teh.	0	0	0	-	0	0	0	0	0	0	0	0
Minchin Teh.	120	0	120	-	150	0	150	30	220	10	210	70
District Total	330	10	320	-	380	30	350	50	550	60	490	170
Rahimyar Khan Dist.												
Rahimyar Khan Teh.	220	20	200	-	290	20	270	70	360	30	330	70
Sadiqabad Teh.	220	0	220	-	320	10	310	100	360	20	340	40
Liaquatabad Teh.	100	0	100	-	140	10	130	40	200	20	180	60
Khanpur Teh.	120	0	120	-	190	50	140	70	260	60	200	70
District Total	660	20	640	-	940	90	850	280	1180	130	1050	240

Note: a) No estimates were made for 1964/65 installations.

This work is licensed under a
Creative Commons
Attribution - Noncommercial - NoDerivs 3.0 Licence.

To view a copy of the licence please see:
<http://creativecommons.org/licenses/by-nc-nd/3.0/>