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GOVERNMENT OF INDIA

NATIONAL SAMPLE SURVEY ORGANISATION

THIRTY FIRST ROUND

JULY 1976—JUNE 1977

NUMBER 312

TABLES WITH NOTES ON UNIRRIGATED

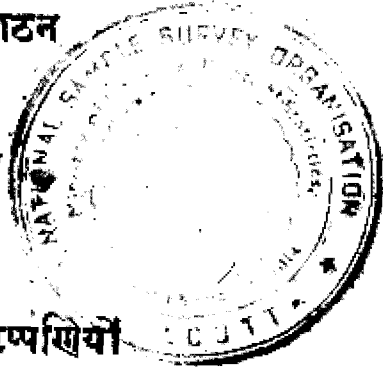
HOUSEHOLD HOLDINGS

STATES AND ALL INDIA

JUNE 1984

DEPARTMENT OF STATISTICS

NEW DELHI



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NATIONAL SAMPLE SURVEY ORGANISATION

TABLES WITH NOTES

ON

UNIRRIGATED HOUSEHOLD HOLDINGS

NSS 31ST ROUND : JULY 1976- JUNE 1977

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NATIONAL SAMPLE SURVEY  
TABLES WITH NOTES  
ON  
UNIRRIGATED HOUSEHOLD HOLDINGS

INTRODUCTION

1.1 A survey on Irrigation was carried out in the rural areas by the National Sample Survey Organisation (NSSO) during July 1976 to June 1977 as part of its 31st round survey operation. Apart from collecting information on irrigation and other particulars in respect of the holdings of the cultivator households usually using irrigation, information on unirrigated holdings of cultivator households not using irrigation was also collected in this round. The reference period for the survey data was the agricultural year July 1975-June 1976.

1.2 The survey covered the whole of rural India except the states of Sikkim, Nagaland and Meghalaya and Union Territories of Chandigarh, Arunachal Pradesh, Andaman & Nicobar Islands, Mizoram, Lakshadweep and Dadra & Nagar Haveli <sup>1/</sup>

1.3 All the States and Union Territories included in the geographical coverage of the survey participated in the survey by canvassing a sample of atleast full matching size (State Sample) following identical concepts and definitions.

1.4 For the purpose of the survey there was a general sample of villages, distributed all over the country. Also, there was an additional special sample of villages from the command areas of (i) major irrigation projects commissioned after 1947 and (ii) medium irrigation projects commissioned after 1964. In the Central Sample (the sample canvassed by the field staff of NSSO), the number of villages planned to be surveyed was 8304 for general sample and 2054 for the special sample from the command areas of major and medium projects.

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<sup>1/</sup> Two tehsils of district Surgula & four tehsils of district Bastar of Madhya Pradesh; three tehsils of district Chandrapur & one tehsil of district Amravati of Maharashtra and Ladakh district of Jammu & Kashmir were also not covered.

1.5 For the general sample the design was stratified two stage with district (or portion of district) as stratum, village as first stage unit and household as second stage unit of sampling. The list of 1971 census villages was used as sampling frame for the general sample. In each sample village a fixed number of households was initially selected circularly systematically after arranging all the households in the village in a specified order <sup>2/</sup>

1.6 The sample households selected in each sample village were divided into three mutually exclusive categories: category 1 consisted of households which cultivated at least some plot of land during 1975-76 with irrigation, category 2 consisted of the households which cultivated land during 1975-76, wholly without irrigation and category 3 consisted of residual households which did not cultivate any land during the period. Such households which cultivated usually using irrigation were however included in category 2 even if they cultivated land during 1975-76 wholly without irrigation. For the sample households of category 1, that is the households which cultivated land during 1975-76 with (or usually using) irrigation, particulars on irrigation, crops grown, use of fertiliser, manure and pesticides etc. were collected in Schedule 22.1. For the sample households of category 2, that is the sample households which cultivated land without irrigation during 1975-76, particulars of unirrigated holding were collected in Schedule 22.2. For the households of category 3, no schedule was canvassed.

1.7 This Report is based on the data collected in Schedule 22.2 in the general sample of villages of the central sample in the different States, Union Territories and all India. It presents information on area possessed, net area sown, area cropped more than once, area under different crops, feasibility of irrigation etc. relating to the holdings of the cultivator households which cultivated land wholly without irrigation. Estimates on some of these items of information for the different States, Union Territories and all India <sup>are</sup> ~~one~~ presented in a summarised form in table (A) below:

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2/ A detailed note on sample design and estimation procedure is given in Appendix-II.

Table (A) Estimates of cultivator households not using irrigation, possessed, net area sown, area under crop, area under non-agricultural use and area needing no irrigation, by states

State	number	area in (00) hectares				
	households not using irrigation (00)	area possessed	net area sown	area under crop	area under non-agricultural	area needing no irrigation
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Andhra Pradesh	13258	29754	26511	28416	1227	315
Assam	19228	23697	21205	28088	1887	5281
Bihar	37487	34699	32444	43310	1094	1343
Gujarat	13485	41563	39623	40350	1106	1830
Haryana	1323	4266	4154	5270	30	138
Himachal Pradesh	3842	4857	3504	6114	1231	85
Jammu & Kashmir	2450	3002	2286	2905	691	98
Karnataka	17150	47456	43327	44555	2334	2042
Kerala	17900	7172	6452	7718	542	2907
Madhya Pradesh	37428	104547	95833	106324	3951	1892
Maharashtra	27575	82995	69750	72357	7513	1051
Manipur	1148	1292	1177	1264	113	327
Orissa	19610	26907	25590	27113	717	196
Punjab	513	1158	1054	1611	51	15
Rajasthan	17181	92921	79505	85457	4499	407
Tamil Nadu	12149	10405	9571	10295	327	80
Tripura	1680	1322	1085	1596	161	132
Uttar Pradesh	19777	28894	26628	33737	970	993
West Bengal	22763	17006	15313	20103	1240	988
Delhi	56	69	64	105	1	7
Goa, Daman & Diu	399	202	189	199	7	23
Pondicherry	76	20	19	19	1	
All India	286478	564184	505365	567306	29693	20453

1.8 The statistical tables for the different States/Union Territories and all India are presented in Appendix-I. The important concepts and definitions adopted in the survey are given in Appendix-II and Appendix-III presents a note on the sample design and estimation procedure.

A P P E N D I X - I

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NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (O) : Number of sample villages allotted and the number surveyed and number of households surveyed for Schedule 22.2

Continued Table 22.2

s t a t e	number of sample villages		number of sam- ple households surveyed for Sch. 22.2
	allotted	surveyed	
(1)	(2)	(3)	(4)
Andhra Pradesh	672	672	3490
Assam	456	456	6798
Bihar	712	712	8038
Gujarat	312	312	4066
Haryana	144	144	335
Himachal Pradesh	248	248	3179
Jammu & Kashmir	440	440	5325
Karnataka	312	312	4635
Kerala	360	360	5820
Madhya Pradesh	640	640	10071
Maharashtra	528	528	7482
Manipur	120	120	1567
Orissa	304	304	4820
Punjab	344	342	295
Rajasthan	360	360	3644
Tamil Nadu	672	672	3423
Tripura	120	111	1156
Uttar Pradesh	968	967	3365
West Bengal	488	488	4958
Delhi	24	24	53
Goa, Daman & Diu	40	40	596
Pondicherry	40	40	122
All India	8304	8292	85238

sc/



Table (1)

Estimates of number of households, area possessed, net area sown and cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land.

## GENERAL SAMPLE

size class of holding (hectare)	number of households (00)	in hectares (00)					
		area possessed			net area sown	cropped more than once	gross cropped area
		total	owned	leased i			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>ANDHRA PRADESH</u>							
below 0.5	3702	929	846	83	872	326	1342
0.5 - 1.0	2179	1609	1512	97	1508	123	1638
1.0 - 2.0	2541	3544	3397	147	3266	154	3433
2.0 - 4.0	2567	6691	6194	497	6145	217	6384
4.0 - 10.0	1917	11263	10033	1230	10015	384	10412
10.0 & above	352	5698	5290	408	4705	453	5207
<b>all class</b>	<b>13258</b>	<b>29734</b>	<b>27272</b>	<b>2462</b>	<b>26511</b>	<b>1657</b>	<b>28416</b>
<u>ASSAM</u>							
below 0.5	5071	1337	968	369	1081	300	1395
0.5 - 1.0	5350	3997	3574	423	3505	1128	4645
1.0 - 2.0	5703	8040	7328	712	7231	2318	9593
2.0 - 4.0	2393	6332	5787	545	5791	1756	7577
4.0 - 10.0	678	3547	3360	187	3292	1108	4423
10.0 & above	32	444	444	-	86	53	455
<b>all class</b>	<b>19228</b>	<b>23697</b>	<b>21461</b>	<b>2236</b>	<b>21286</b>	<b>6663</b>	<b>28088</b>

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (1) Estimates of number of households, area possessed, net area sown, area cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land

GENERAL SAMPLE

size class of holding (hectare)	number of households (00)	in hectares (00)					
		area possessed			net area sown	area cropped more than once	gross cropped area
		total	owned	leased in			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>BIHAR</u>							
below 0.5	17376	4052	3447	605	3725	1830	5597
0.5 - 1.0	9238	6694	5919	775	6334	2094	8448
1.0 - 2.0	5565	9044	8077	967	8543	2888	11523
2.0 - 4.0	3243	8525	7875	650	7897	2524	10481
4.0 - 10.0	1009	5647	5405	242	5224	1160	6384
10.0 & above	56	737	729	8	721	156	877
<b>all class</b>	<b>37487</b>	<b>34699</b>	<b>31452</b>	<b>3247</b>	<b>32444</b>	<b>10652</b>	<b>43310</b>
<u>GUJARAT</u>							
below 0.5	1783	537	524	13	528	50	594
0.5 - 1.0	2276	1738	1707	31	1663	137	1803
1.0 - 2.0	3215	4647	4558	89	4435	218	4655
2.0 - 4.0	2988	8341	8115	226	7967	194	8185
4.0 - 10.0	2333	14229	14078	151	13482	83	13565
10.0 & above	840	12071	11887	184	11548		11548
<b>all class</b>	<b>13465</b>	<b>41563</b>	<b>40869</b>	<b>694</b>	<b>39623</b>	<b>682</b>	<b>40350</b>

## NATIONAL SAMPLE SURVEY II, 31ST ROUND : JULY 1976 - JUNE 1977

Table (1) : Estimates of number of households, area possessed, net area sown, area cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land

## GENERAL SAMPLE

size class of holding (hectare)	number of households (00)	in hectares (00)					
		area possessed			net area sown	area cropped more than once	gross cropped area
		total	owned	leased in			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>HARYANA</u>							
below 0.5	178	58	55	3	55	41	96
0.5 - 1.0	158	120	96	24	117	72	189
1.0 - 2.0	284	406	345	61	399	208	607
2.0 - 4.0	330	890	710	180	876	286	1162
4.0 - 10.0	315	1098	1496	402	1826	401	2227
10.0 & above	58	894	657	237	881	108	989
all class	1323	4266	3359	907	4154	1116	5270
<u>HIMACHAL PRADESH</u>							
below 0.5	1000	300	289	11	253	208	463
0.5 - 1.0	1128	826	808	18	679	526	1209
1.0 - 2.0	1049	1472	1428	44	1145	822	1969
2.0 - 4.0	520	1382	1329	53	976	721	1699
4.0 - 10.0	133	725	703	22	389	287	676
10.0 & above	12	152	152	-	10	38	98
all class	3842	4657	4709	148	3504	2602	6114

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (1) : Estimates of number of households, area possessed, net area sown, area cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land,

GENERAL SAMPLE

size class of holding (hectare)	number of households (00)	in hectares (00)					
		area possessed			net area sown	area cropped more than once	gross cropped area
		total	owned	leased in			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>JAMMU &amp; KASHMIR</u>							
below 0.5	555	161	157	4	128	33	163
0.5 - 1.0	696	506	491	15	385	117	504
1.0 - 2.0	805	1135	1086	49	868	260	1128
2.0 - 4.0	341	916	857	59	698	163	862
4.0 - 10.0	52	272	268	4	205	40	245
10.0 & above	1	12	12	-	2	1	3
all class	2450	3232	2871	131	2286	614	2905
<u>KARNATAKA</u>							
below 0.5	2386	706	603	103	653	37	690
0.5 - 1.0	3030	2283	2100	183	2144	112	2257
1.0 - 2.0	4503	6372	5922	450	6005	278	6296
2.0 - 4.0	3803	10256	9620	636	9454	368	9823
4.0 - 10.0	2631	15675	14505	1170	14170	287	14470
10.0 & above	797	12164	10766	1398	10901	118	11019
all class	17150	47456	43516	3940	43327	1200	44555

NATIONAL SURVEY SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (1) : Estimates of number of households, area possessed, net area sown, area cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land.

GENERAL TABLE

size class of holding (hectare)	number of households (00)	in hectares (00)					
		area possessed			net area sown	area cropped more than once	gross cropped area
(1)	(2)	total	owned	leased in			
<u>KERALA</u>							
below 0.5	13912	2027	1949	78	1729	365	2097
0.5 - 1.0	2104	1480	1403	77	1352	328	1686
1.0 - 2.0	1253	1686	1623	63	1544	304	1853
2.0 - 4.0	521	1384	1317	67	1281	189	1480
4.0 -10.0	107	595	547	48	546	56	602
10.0 & above							
all class	17900	7172	6839	333	6452	1242	7718
<u>MADHYA PRADESH</u>							
below 0.5	5032	1322	1167	155	1183	114	1297
0.5 - 1.0	5206	3861	3596	265	3713	810	4523
1.0 - 2.0	9227	13334	12463	871	12729	2124	14866
2.0 - 4.0	9928	27484	25644	1840	25884	2761	28662
4.0 -10.0	6771	39459	37984	1475	35981	3156	39240
10.0 above	1264	19087	18466	621	16343	1124	17736
all class	37428	104547	99320	5227	95833	10089	106324

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (1) : Estimates of number of households, area possessed, net area sown, area cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land.

GENERAL STATE

size class of holding (hectare)	number of households (00)	in hectares (00)					
		area possessed			net area sown	area cropped more than once	gross cropped area
(1)	(2)	(3)	(4)	(5)			
<u>MAHARASHTRA</u>							
below 0.5	3948	1111	1042	69	970	83	1053
0.5 - 1.0	4213	3133	3013	120	2742	238	2984
1.0 - 2.0	6200	8811	8532	279	7583	533	8121
2.0 - 4.0	6334	17861	17344	517	15287	686	15987
4.0 -10.0	5383	32163	30905	1258	26778	841	27643
10.0 & above	1375	19916	18756	1160	16390	550	16969
<b>all class</b>	<b>27575</b>	<b>82995</b>	<b>79592</b>	<b>3403</b>	<b>62750</b>	<b>2331</b>	<b>72757</b>
<u>MANIPUR</u>							
below 0.5	204	61	57	4	54	3	58
0.5 - 1.0	421	285	243	42	267	3	270
1.0 - 2.0	398	517	428	89	500	11	516
2.0 - 4.0	113	293	200	93	286	5	296
4.0 -10.0	10	46	32	14	40	-	40
10.0 & above	2	90	11	78	30	27	84
<b>all class</b>	<b>1148</b>	<b>1292</b>	<b>971</b>	<b>321</b>	<b>1177</b>	<b>49</b>	<b>1264</b>

NATIONAL SAMPLE SURVEY, 31<sup>ST</sup> ROUND: JULY 1976 - JULY 1977

of  
Table (1) : Estimates/number of households, area possessed, net area sown, area cropped more than once and **gross cropped** area by size class of holding for households possessing only unirrigated land.

GENERAL SAMPLE

size class of holding (hectare)	number of households (00)	in hectares (00)					
		total	area possessed		net area sown	area cropped more than once	gross cropped area
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>ORISSA</u>							
below 0.5	5407	1530	1400	130	1409	120	1529
0.5 - 1.0	4502	3408	3130	278	3226	270	3496
1.0 - 2.0	5424	7597	6874	723	7258	466	7728
2.0 - 4.0	3083	8170	7513	656	7790	435	8226
4.0 - 10.0	957	4981	4518	463	4735	176	4913
10.0 & above	92	1212	1200	12	1172	40	1221
all class	19610	26907	24643	2264	25590	1516	27113
<u>PUNJAB</u>							
below 0.5	80	19	17	2	17	14	32
0.5 - 1.0	38	65	57	8	61	41	102
1.0 - 2.0	121	173	132	41	156	108	264
2.0 - 4.0	142	390	261	129	371	192	563
4.0 - 10.0	75	391	307	84	347	164	512
10.0 & above	9	120	120	0	102	35	138
all class	515	1158	894	264	1054	554	1611

NATIONAL SAMPLE SURVEY : 31st JUNE - JULY 1976 - JULY 1977

Table (1) : Estimate of number of households, area possessed, net area sown, area gross cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land.

GENERAL TABLE

size class of holding (hectare)	number of households (00)	in hectares (00)					area cropped more than once	gross cropped area
		total	owned	leased in	net area sown			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>RAJASTHAN</b>								
below 0.5	1568	490	480	10	442	125	567	
0.5 - 1.0	2291	1642	1598	44	1617	327	1536	
1.0 - 2.0	3117	4575	222	153	3976	632	4608	
2.0 - 4.0	3156	8844	800	244	8304	776	9239	
4.0 - 10.0	4231	27638	26706	932	24260	930	2557	
10.0 & above	2818	69932	7323	2609	40906	1486	3680	
all class	17181	92921	89229	3992	79505	4298	85557	
<b>TABLE B</b>								
below 0.5	5857	1299	1172	127	1207	58	1275	
0.5 - 1.0	2717	1875	1786	191	1858	120	1878	
1.0 - 2.0	2425	3310	2997	313	3097	225	3322	
2.0 - 4.0	858	2337	2120	217	2158	177	2345	
4.0 - 10.0	236	1230	1148	82	1117	86	1203	
10.0 & above	16	252	204	48	124	24	172	
all class	12149	10405	9427	978	9571	700	10295	



NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (1) : Estimate of number of households, area possessed, net area sown, area cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land.

GENERAL SAMPLE

size class of holding (hectare)	number of households (00)	in hectares (00)					
		area possessed					
		total	owned	leased in	net area sown	area cropped more than once	gross cropped area
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
<u>TRIPURA</u>							
below 0.5	721	168	147	21	129	64	194
0.5 - 1.0	476	347	309	38	285	137	425
1.0 - 2.0	366	501	455	46	414	200	615
2.0 - 4.0	112	283	272	11	236	98	335
4.0 - 10.0	5	23	23		21	6	27
10.0 & above							
all class	1680	1322	1206	116	1085	505	1596
<u>UTTAR PRADESH</u>							
below 0.5	6197	1707	1573	134	1598	752	2350
0.5 - 1.0	4833	3594	3280	314	3426	1425	4854
1.0 - 2.0	4860	6801	6419	382	6515	2009	8533
2.0 - 4.0	2396	6622	6323	299	6268	1460	775
4.0 - 10.0	1192	6853	6663	190	6140	647	6787
10.0 & above	199	3317	3011	306	2681	475	3438
all class	19777	28894	27269	1625	26628	6768	33737

NATIONAL SAMPLE SURVEY, 31st ROUND : JULY 1976 - JUNE 1977

of  
Table (1) : Estimate, number of households, area possessed, net area sown, area cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land.

GENERAL SAMPLE

size class of holding (hectare)	number of households (00)	in hectares (00)					
		total	area possessed		net area sown	area cropped more than once	gross cropped area
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>WEST BENGAL</u>							
below 0.5	11858	2467	2110	357	2126	566	2706
0.5 - 1.0	5096	3713	3148	565	3104	966	4370
1.0 - 2.0	4080	5558	4787	771	5098	1673	5799
2.0 - 4.0	1461	3693	3543	350	2538	1165	4708
4.0 - 10.0	21	1328	1299	29	1101	364	1465
10.0 & above	4	47	47		46	9	55
<b>all class</b>	<b>22765</b>	<b>17006</b>	<b>14934</b>	<b>2072</b>	<b>15315</b>	<b>4743</b>	<b>20103</b>
<u>UP, HI</u>							
below 0.5	25	9	3	6	9	6	15
0.5 - 1.0	13	10	6	4	8	7	15
1.0 - 2.0	6	8	6	2	8	7	15
2.0 - 4.0	9	26	26		25	18	43
4.0 - 10.0	3	16	16		14	3	17
10.0 & above							
<b>all class</b>	<b>56</b>	<b>69</b>	<b>57</b>	<b>12</b>	<b>64</b>	<b>41</b>	<b>105</b>

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

of  
 Table (1) : Estimate of number of households, area possessed, net area sown, area cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land.

GENERAL SAMPLE

size class of holding (hectare)	number of households (00)	in hectares (00)					
		area possessed			net area sown	area cropped more than once	gross cropped area
		total	owned	leased in			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>Goa, DADP &amp; DIU</u>							
below 0.5	247	63	48	15	59	2	61
0.5 - 1.0	114	79	59	20	74	5	79
1.0 - 2.0	32	39	26	13	35	3	38
2.0 - 4.0	4	11	10	1	11	-	11
4.0 - 10.0	2	10	9	1	10	-	10
10.0 & above	-	-	-	-	-	-	-
all class	399	202	152	50	189	10	199
<u>PONDICHERY</u>							
below 0.5	64	10	9	1	9	-	9
0.5 - 1.0	6	3	3	-	3	-	3
1.0 - 2.0	6	7	6	1	7	-	7
4.0 - 10.0	-	-	-	-	-	-	-
10.0 & above	-	-	-	-	-	-	-
all class	76	20	18	2	19	-	19

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

of  
 Table (1) : Estimate/number of households, area possessed, net area sown, area cropped more than once and gross cropped area by size class of holding for households possessing only unirrigated land.

GENERAL SAMPLE

size class of holding (hectare)	number of households (00)	In hectares (00)					
		area possessed			net area sown	area cropped more than once	gross cropped area
		total	owned	leased in			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>ALL INDIA</u>							
below 0.5	87251	20363	18063	2300	18238	5107	23583
0.5 - 1.0	56315	41370	37838	3532	38371	8986	47464
1.0 - 2.0	62250	87377	81111	6266	80812	15441	96489
2.0 - 4.0	44450	120940	113660	7280	111253	14193	125843
4.0 - 10.0	28284	167989	160005	7984	149693	10199	160318
10.0 & above	7928	126145	119083	7062	106998	4706	113609
all class	286478	564184	529760	34424	505365	58632	567306

NATIONAL SAMPLE SURVEY, 31ST ROUND: JULY 1976-JUNE 1977

Table (2) : Estimates of area in the possession of households possessing only unirrigated land by type of land and size class of holding

GENERAL SAMPLE

size class of holding (hectare)	area (hectares 00) by type of land				total
	irrigation feasible	irrigation not feasible	no need for irrigation	not under agricultural use	
(1)	(2)	(3)	(4)	(5)	(6)
<u>ANDHRA PRADESH</u>					
below 0.5	403	455	26	45	929
0.5 - 1.0	765	741	53	50	1609
1.0 - 2.0	1706	1644	70	124	3544
2.0 - 4.0	3131	3277	76	207	6691
4.0 -10.0	5459	5387	32	385	11263
10.0 & above	3379	1845	58	416	5698
<b>all classes</b>	<b>14843</b>	<b>13349</b>	<b>315</b>	<b>1227</b>	<b>29734</b>
<u>ASSAM</u>					
below 0.5	593	58	447	239	1337
0.5 - 1.0	2377	220	903	417	3997
1.0 - 2.0	4912	727	1772	629	8040
2.0 - 4.0	3036	605	1447	384	6332
4.0 -10.0	2118	652	607	170	3547
10.0 & above	194	162	40	48	444
<b>all classes</b>	<b>14030</b>	<b>2484</b>	<b>5296</b>	<b>1887</b>	<b>23697</b>
<u>BIHAR</u>					
below 0.5	3130	546	101	275	4052
0.5 - 1.0	5071	1155	236	232	6694
1.0 - 2.0	6903	1530	379	232	9044
2.0 - 4.0	6268	1734	338	185	8525
4.0 -10.0	4109	1042	257	159	5647
10.0 & above	610	79	37	11	737
<b>all classes</b>	<b>26171</b>	<b>6086</b>	<b>1348</b>	<b>1094</b>	<b>34699</b>

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (2) Contd. : Estimates of area in the possession of households possessing only unirrigated land by type of land and size class of holding

GENERAL SAMPLE

size class of holding (hectares)	(hectares 00) by type of land				total
	irrigation feasible	irrigation not feasible	no need for irrigation	not under agricultural use	
(1)	(2)	(3)	(4)	(5)	(6)
<u>GUJARAT</u>					
below 0.5	181	338	11	7	537
0.5 - 1.0	843	809	23	63	1738
1.0 2.0	2418	1998	49	182	4647
2.0 4.0	3873	4032	159	277	8341
4.0 10.0	5628	7399	796	406	14229
10.0 & above	4044	7064	792	171	12071
<b>all classes</b>	<b>16987</b>	<b>21640</b>	<b>1830</b>	<b>1106</b>	<b>41563</b>

HARYANA

below 0.5	48	3		3	53
0.5 1.0	94	16	7	3	120
1.0 2.0	343	47	1	5	406
2.0 4.0	646	206	31	7	890
4.0 10.0	1561	243	35	9	1898
10.0 & above	837	54	-	3	894
<b>all classes</b>	<b>3529</b>	<b>569</b>	<b>138</b>	<b>30</b>	<b>4266</b>

HIMACHAL PRADESH

below 0.5	143	110	5	42	300
0.5 1.0	412	268	15	131	826
1.0 2.0	659	482	30	301	1472
2.0 4.0	606	366	30	380	1382
4.0 10.0	236	199	5	285	725
10.0 & above	33	27		92	152
<b>all classes</b>	<b>2089</b>	<b>1452</b>	<b>85</b>	<b>1231</b>	<b>4857</b>

NATIONAL SAMPLE SURVEY, 31ST ROUND, JULY 1976 - JUNE 1977

Table (2) Contd. : Estimates of area in the possession of households possessing only unirrigated land by type of land and size class of holding

GENERAL SAMPLE

size class of holding (hectare)	are (hectares 00) by type of land				total
	irrigation feasible	irrigation not feasible	no need for irrigation	not under agricultural use	
(1)	(2)	(3)	(4)	(5)	(6)
<u>JAMMU &amp; KASHMIR</u>					
below 0.5	26	95	7	33	161
0.5 1.0	78	294	17	117	506
1.0 2.0	263	568	45	259	1135
2.0 4.0	<b>273</b>	419	10	206	916
4.0 - 10.0	113	82	11	66	272
10.0 & above	2			10	12
<b>all classes</b>	<b>755</b>	<b>1458</b>	<b>98</b>	<b>691</b>	<b>3002</b>
<u>KARNATAKA</u>					
below 0.5	291	331	42	42	706
0.5 1.0	905	1197	102	79	2283
1.0 2.0	2676	175	325	196	6372
2.0 4.0	4559	802	423	452	10256
4.0 10.0	7481	6669	777	748	15675
10.0 & above	4747	6247	353	817	12164
<b>all classes</b>	<b>20659</b>	<b>22421</b>	<b>2042</b>	<b>2334</b>	<b>47456</b>
<u>KERALA</u>					
below 0.5	552	446	765	264	2027
0.5 1.0	427	361	595	97	1480
1.0 2.0	453	410	720	103	1686
2.0 4.0	350	409	559	66	1384
4.0 - 10.0	117	198	268	12	595
10.0 & above					
<b>all classes</b>	<b>1899</b>	<b>1824</b>	<b>2907</b>	<b>542</b>	<b>7172</b>

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(2)Contd. : Estimates of area in the possession of households possessing only unirrigated land by type of land and size class of holding

GENERAL SAMPLE

size class of holding (hectare)	area (hectares 00) by type of land				total
	irrigation feasible	irrigation not feasible	no need for irrigation	not under agricultural use	
(1)	(2)	(3)	(4)	(5)	(6)

MADHYA PRADESH

below 0.5	537	652	27	106	1322
0.5 - 1.0	1785	1916	80	80	3861
1.0 - 2.0	5991	6874	193	276	13334
2.0 - 4.0	12830	13665	439	550	27484
4.0 - 10.0	18470	19114	477	1398	39459
10.0 & above	9449	7891	206	1541	19087
all classes	49062	50112	1422	3951	104547

MAHARASHTRA

below 0.5	428	576	12	99	1111
0.5 - 1.0	1353	1491	47	242	3133
1.0 - 2.0	4205	3744	119	746	8811
2.0 - 4.0	9243	6961	215	1435	17861
4.0 - 10.0	16782	11637	548	3196	32163
10.0 & above	9142	8851	128	1795	19916
all classes	41153	33260	1069	7513	82995

MANIPUR

below 0.5	3	36	25	7	61
0.5 - 1.0	46	133	88	18	285
1.0 - 2.0	78	294	130	15	517
2.0 - 4.0	49	153	84	7	293
4.0 - 10.0	-	40	-	6	46
10.0 & above	-	30	-	60	90
all classes	176	676	327	113	1292



NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (2) Contd.: Estimates of area in the possession of households possessing only unirrigated land by type of land and size class of holding

GENERAL SAMPLE

size class of holding (hectare)	area (hectares 00) by type of land				total
	irrigation feasible	irrigation not feasible	no need for irrigation	not under agricultural use	
(1)	(2)	(3)	(4)	(5)	(6)
<u>ORISSA</u>					
below 0.5	890	522	17	101	1530
0.5 1.0	2203	1054	35	116	3408
1.0 2.0	4972	2371	45	209	7597
2.0 4.0	4918	3003	86	172	8179
4.0 - 10.0	3016	1825	13	107	4981
10.0 & above	669	531		12	1212
<b>all classes</b>	<b>16668</b>	<b>9326</b>	<b>196</b>	<b>717</b>	<b>26907</b>
<u>PUNJAB</u>					
below 0.5	5	11	1	2	19
0.5 1.0	41	20		4	65
1.0 2.0	128	29	3	13	173
2.0 4.0	271	97	11	11	390
4.0 - 10.0	321	64		6	391
10.0 & above	105			15	120
<b>all classes</b>	<b>871</b>	<b>221</b>	<b>15</b>	<b>51</b>	<b>1158</b>
<u>RAJASTHAN</u>					
below 0.5	300	127	26	36	489
0.5 1.0	1129	440	52	21	1642
1.0 2.0	2926	1187	63	200	4376
2.0 4.0	5863	2572	130	279	8844
4.0 - 10.0	17341	9630	86	532	27639
10.0 & above	32661	13790	50	3431	49932
<b>all classes</b>	<b>60220</b>	<b>27796</b>	<b>407</b>	<b>4499</b>	<b>92922</b>

NATIONAL SAMPLE SURVEY, 31ST ROUND : 1976 - JULY 1977

Table (2) Contd. : Estimates of area in the possession of households possessing only unirrigated land by type of land and size class of holding

GENERAL SAMPLE

size class of holding (hectare)	area (hectares 00) by type of land				total
	irrigation feasible	irrigation not feasible	no need for irrigation	not under agricultural use	
(1)	(2)	(3)	(4)	(5)	(6)
<u>RAJASTHAN</u>					
below 0.5	782	365	91	61	1299
0.5 1.0	1225	610	98	44	1977
1.0 2.0	2113	967	176	54	3310
2.0 4.0	1509	623	161	38	2337
4.0 - 10.0	642	290	201	17	1230
10.0 & above	110	29		113	252
<b>all classes</b>	<b>6381</b>	<b>2890</b>	<b>807</b>	<b>327</b>	<b>10405</b>
<u>TRIPURA</u>					
below 0.5	25	86		34	168
0.5 1.0	73	196		46	347
1.0 2.0	94	301		57	501
2.0 4.0	50	178		22	283
4.0 - 10.0	7		1	2	23
10.0 & above					
<b>all classes</b>	<b>219</b>	<b>774</b>	<b>138</b>	<b>161</b>	<b>1322</b>
<u>UTTAR PRADESH</u>					
below 0.5	1279	274	69	85	1707
0.5 1.0	2775	555	149	115	3594
1.0 2.0	5210	1211	215	165	6801
2.0 4.0	5358	972	201	91	6622
4.0 - 10.0	5649	915	155	134	6853
10.0 & above	2163	565	209	380	3317
<b>all classes</b>	<b>22434</b>	<b>4492</b>	<b>998</b>	<b>970</b>	<b>28894</b>

## NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (2) Contd. : Estimates of area in the possession of households possessing only unirrigated land by type of land and size class of holding

## GENERAL SAMPLE

size class of holding (hectare)	area (hectares. 00) by type of land				total
	irrigation feasible	irrigation not feasible	no need for irrigation	not under agricul- tural use	
(1)	(2)	(3)	(4)	(5)	(6)
<u>WEST BENGAL</u>					
below 0.5	1733	242	156	336	2467
0.5 - 1.0	2941	257	269	246	3713
1.0 - 2.0	4619	341	270	320	5550
2.0 - 4.0	3107	365	208	213	3893
4.0 - 10.0	1018	109	77	124	1328
10.0 & above	46	-	-	1	47
<b>all classes</b>	<b>13464</b>	<b>1514</b>	<b>908</b>	<b>1240</b>	<b>17006</b>
<u>DELHI</u>					
below 0.5	8	1	-	-	9
0.5 - 1.0	6	3	-	1	10
1.0 - 2.0	6	2	-	-	8
2.0 - 4.0	21	5	-	-	26
4.0 - 10.0	4	5	7	-	16
<b>all classes</b>	<b>45</b>	<b>16</b>	<b>7</b>	<b>1</b>	<b>69</b>

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (2) Conti. : Estimates of area in the possession of households possessing only unirrigated land by type of land and size class of holding

GENERAL SAMPLE

size class of holding (hectare)	area (hectares 00) by type of land				total
	irrigation feasible	irrigation not feasible	no need for irrigation	not under agricultural use	
(1)	(2)	(3)	(4)	(5)	(6)
<u>GOA, DALIAN AND DIU</u>					
below 0.5	31	26	3	3	63
0.5 - 1.0	38	33	5	3	79
1.0 - 2.0	19	16	3	1	39
2.0 - 4.0	2	3	6	-	11
4.0 - 10.0	3	1	6	-	10
10.0 & above	-	-	-	-	-
<b>all classes</b>	<b>93</b>	<b>79</b>	<b>23</b>	<b>7</b>	<b>202</b>
<u>PONDICHERRY</u>					
below 0.5	5	1	3	1	10
0.5 - 1.0	3	-	-	-	3
1.0 - 2.0	4	3	-	-	7
2.0 - 4.0	-	-	-	-	-
4.0 - 10.0	-	-	-	-	-
10.0 & above	-	-	-	-	-
<b>all classes</b>	<b>12</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>20</b>

NATIONAL SAMPLE SURVEY, 31ST ROUND, JULY 1976-JUNE 1977

Table (2) : Estimates of area in the possession of households possessing only unirrigated land by type of land and size class of holding

GENERAL SAMPLE

size class of holding (hectare)	area (hectares 00) by type of land				
	irrigation feasible	irrigation not feasible	no need for irrigation	not under agricultural use	total
(1)	(2)	(3)	(4)	(5)	(6)
		<u>ALL INDIA</u>			
below 0.5	11393	5287	1861	1821	20362
0.5 - 1.0	24590	11769	2806	2125	41370
1.0 - 2.0	50698	27918	4675	4087	87378
2.0 - 4.0	66763	44520	4675	4982	120940
4.0 - 10.0	90155	65584	4489	7762	167990
10.0 & above	68191	47165	1873	8916	126145
<b>all classes</b>	<b>311790</b>	<b>202243</b>	<b>20459</b>	<b>29693</b>	<b>564185</b>

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table (3) : Estimates of area under crop for un-irrigated household holdings by crop

GENERAL SAMPLE

s t a t e	estimates of area under crop (hectares 000)											
	paddy	jowar	bajra	maize	ragi	wheat	barley	other cereals	gram	tur	other pulses	sugar cane
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Andhra Pradesh	106	1000	179	23	78	2	-	343	25	73	186	-0
Assam	2452	2	0	60	0	29	0	4	3	6	35	15
Bihar	2085	7	27	449	85	532	65	143	134	29	70	15
Gujarat	291	560	625	171	116	157	3	229	32	94	174	- 27
Haryana	4	10	171	7	-	41	17	0	160	-	30	1
Himachal Pradesh	33	0	0	203	0	225	34	21	14	-	25	3
Jammu & Kashmir	22	-	12	128	-	92	4	3	1	-	15	0
Karnataka	225	1247	320	7	536	114	0	295	89	150	330	45
Kerala	95	4	-	0	1	-	-	1	0	0	6	1
Madhya Pradesh	2615	1065	110	394	13	1875	124	1110	854	236	927	1

NATIONAL SAMPLE SURVEY, 31ST ROUND : JULY 1976 - JUNE 1977

Table(3)Contd.: Estimates of area under crop for unirrigated household holdings by crop

GENERAL SAMPLE

State	estimates of area under crop (hectares 000)										
	cotton	jute	other fibres	rape & mustard	ground nut	soasam	other oil seeds	tobacco	spices & condiments	other crop commodity	all crops
(1)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Andhra Pradesh	194	6	7	0	316	30	92	91	42	46	2842
Assam	0	84	2	45	1	3	6	2	5	109	2809
Bihar	-	107	1	45	1	2	41	2	3	87	4331
Gujarat	713	0	0	5	637	20	32	31	0	145	4035
Haryana	0	-	-	15	0	-	-	-	1	70	527
Himachal Pradesh	0	0	0	5	1	3	0	0	1	38	611
Jammu & Kashmir	0	0	0	5	0	3	0	0	0	5	290
Karnataka	349	0	9	0	362	17	85	15	64	200	4456
Kerala	2	-	-	-	4	0	-	-	54	604	772
Madhya Pradesh	261	0	9	142	135	106	468	1	19	167	10632

NATIONAL SAMPLE SURVEY X, 31ST ROUND : JULY 1976 - JUNE 1977

Table (3) Contd.: Estimates of area under crop for C. unirrigated household holdings by crop

GENERAL SAMPLE

s t a t e	estimates of area under crop (hectares 000)											
	paddy	jowar	bajra	maize	ragi	wheat	barley	other cereals	gram	tur	other pulses	sugar cane
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Maharashtra	612	2602	560	7	125	283	4	149	133	327	615	-
Manipur	117	-	0	5	-	0	-	0	0	-	1	0
Orissa	2013	0	1	66	121	0	-	130	11	1	216	1
Punjab	8	-	1	37	-	35	4	0	36	-	2	3
Rajasthan	43	304	3524	138	-	361	62	28	503	9	1508	1
Goa, Daman & Diu	64	208	425	3	91	0	-	117	15	6	68	0
Tripura	132	-	-	0	-	0	-	-	0	-	0	0
Uttar Pradesh	511	197	122	194	63	780	220	117	357	207	159	122
West Bengal	1505	-	0	49	-	17	5	31	26	4	156	2
Delhi	-	1	3	0	-	5	0	-	1	-	0	-
Goa, Daman & Diu	17	0	0	-	0	0	-	-	-	0	1	-
Pondicherry	0	-	0	-	0	-	-	0	-	-	0	-
All India	12986	7207	5800	1887	1229	7545	542	2754	2394	1142	4924	210



NATIONAL SAMPLE SURVEY, 1ST ROUND : JULY 1976 - JUNE 1977

Table (3) Contd. : Estimates of area under crop for unirrigated household holdings by crop

GENERAL SAMPLE

state	estimates of area under crop (hectares 000)										
	cotton	jute	other fibres	rape & mustard	ground nut	sesame	other oil seeds	tobacco	spices & condiments	other crop commodity	all crops
(1)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Madharashtra	1019	0	23	0	374	51	314	3	51	24	7276
Manipur	0	-	-	0	-	0	0	0	0	3	126
Orissa	0	4	0	5	17	15	36	1	3	40	2711
Punjab	1	-	0	1	2	1	0	-	0	30	151
Rajasthan	7	-	1	84	38	204	61	0	47	1023	8546
Tamil Nadu	39	-	-	0	150	19	4	0	20	101	1030
Uttar Pradesh	0	0	2	35	22	6	70	0	10	78	3374
West Bengal	0	107	9	16	0	0	8	3	4	65	2090
Delhi	-	-	0	0	-	-	-	-	-	0	10
Goa, Daman & Diu	-	-	-	-	0	-	-	-	0	2	20
Pondicherry	-	-	-	-	0	-	0	-	0	1	1
All India	2585	311	70	404	2110	480	1223	152	321	3454	56730

APPENDIX II

Concepts & Definitions

2.1 Some of the important concepts and definitions adopted in the survey are given below.

2.2 Household : A household was defined as a group of persons normally living together and taking food from a common kitchen. Thus a household was considered as constituted by normally resident members including temporary stay aways but excluding temporary visitors.

2.3 Household holding : A holding was defined as constituted by all land possessed by the household. Land possessed was taken as the sum of land owned but not leased out and land taken on lease. In case of joint ownership or joint leasing in by the sample household with other households, only the sample household's share of such land was taken as the part of the household holding.

2.4 Land owned : A plot of land was considered to be owned by the household if the right of permanent heritable possession with or without right to transfer title was vested in a member of members of the household. Land owned included also land held directly from Government under a grant, lease or assignment. Land owned by a household might be leased out to another household without losing ownership right.

2.5 Irrigation : Irrigation was considered to denote the practice of purposely providing land with water by artificial means for crop production.

2.6 Net area sown : When a plot of land was sown more than once in the same or different seasons of an agricultural year, its area was considered only once for obtaining net area sown.

2.7 Gross crop area : When a plot of land was cropped more than once in an agricultural year, the area of the land was counted as many times as it was cropped in obtaining the gross cropped area for the plot.

## Appendix - III

## Sample Design and Estimation Procedure

1. For the household survey on irrigation in the 31st round, there was a general sample of villages distributed all over the country. Also, there was a special sample of villages from the command areas of (i) major irrigation projects commissioned after 1947 and (ii) medium irrigation projects commissioned after 1964. The sample design and estimation procedure for the survey carried out in the general sample of villages is discussed in the following paragraphs.

2. Sample design and sample size : The design was a stratified two stage with district (or portion of district) as stratum, village as the first stage unit and household as the second stage unit. In the central sample, number of villages planned to be surveyed was 8304.

3. Stratification : There were 63 regions all over India coming under the geographical coverage of the present survey. These regions were formed during 1965 in such a way that they did not cut across the State/Union Territory boundaries. Also excepting a few regions in some States, none of the regions cut across district boundaries. Each district, contained within a region with 1971 district census rural population less than 1.5 million, formed one basic stratum by itself. Districts with more than 1.5 million 1971 census rural population were divided into two or more basic strata by grouping contiguous tehsils (or sub-divisions in the States of Bihar, Orissa and West Bengal) on consideration of homogeneity, density of rural population, crop pattern etc. so that the rural population of each basic stratum, so formed, was less than 1.5 million.

4. Determination of sample size : The sample size of the general sample in each State/Union Territory was decided taking into consideration available strength of the field staff in the State/Union Territory, resources required for special samples from the command areas of irrigation projects and other subjects of enquiry of the round.

5. Allocation of sample size : Total number of sample villages for a State was first allocated to different regions roughly in proportion to the total irrigated area in them. The regional allocation was then distributed among the constituent strata in proportion to population.

6. Selection of villages : With each stratum, allotted number of villages was selected with probability proportional to 1971 population and with replacement. The list of 1971 census villages was used as the sampling frame.

7. Revenue village : Unit of selection was ~~the~~ census village. But in cases where census village did not coincide with revenue village or census village could not be uniquely identified, the revenue village corresponding to the selected census villages was surveyed.

8. Hamlet group ; Sample villages with large population were divided into a number of hamlet groups having nearly equal population content. One of such hamlet groups was selected at random and the survey was confined to the selected hamlet group only.

9. Selection of a household ; From each sample village, a fixed number of households determined at the regional level was initially selected circularly systematically after arranging the households in a specified order. The sample households selected from each sample village were divided into three mutually exclusive categories. Category 1 consisted of households which had cultivated land during the agricultural year 1975-76 with irrigation (or which usually used irrigation), category 2 consisted of remaining households which had cultivated land during the 1975-76 without irrigation and category 3 consisted of households which had not cultivated any land during 1975-76. For the households of category 1, particulars of irrigation etc. were collected in schedule 22.1, for the households of category 2, particulars of unirrigated household holding were collected in schedule 22.2 and for the households belonging to category 3, no schedule was canvassed.

10. Estimation procedure ; The following notation are used in the formulae for obtaining various estimates ;

- r : subscript for r-th region of a State/Union Territory
- s : subscript for s-th stratum
- i : subscript for i-th surveyed village/hamlet group
- j : subscript for j-th sample household
- f : adjustment factor for the survey of revenue village
- p : village population
- m : number of surveyed villages
- h : number of sample households initially selected
- P : total rural population (Used for selection)
- D : number of hamlet groups actually formed
- y : value of the characteristic
- Y : total value of the characteristic in the population

Estimates of state totals : Estimate for a State/Union Territory is obtained as the sum of the estimates of the constituent regions. Estimate of the regional total  $Y_r$  the characteristic  $y$  is given by

$$\hat{Y}_r = M_r \sum_{s,i,j} y_{rsij} \quad \text{where } \sum_j \text{ extends over households surveyed for}$$

for schedule 22.2 and  $M = \frac{\hat{H}}{\sum_i h_{rsi}}$  where  $H$  is the estimate of

the total rural households in the  $r$ -th region and is given by

$$\hat{H}_r = \sum (P_{rs}/m_{rs}) \sum_i \frac{D_{rsi} H_{rsi}}{f_{rsi} P_{rsi}}$$

where  $H_{rsi}$  is total households in the sample hamlet group/village.

State level estimate  $\hat{Y}$  is obtained as  $\hat{Y} = \sum_r \hat{Y}_r$ , where the summation extends over all the regions.

Estimates of ratios : Let  $\hat{Y}$  and  $\hat{X}_s$  be the estimates of the aggregates at the State/U.T. level of the two characteristics  $y$  and  $x$  respectively. The ratio of the aggregates of the two characteristics

$R_s = \frac{Y}{X_s}$  is estimated by the ratio of the estimates of  $Y$  and  $X_s$

and is given by  $R_s = \frac{\hat{Y}}{\hat{X}_s}$ .