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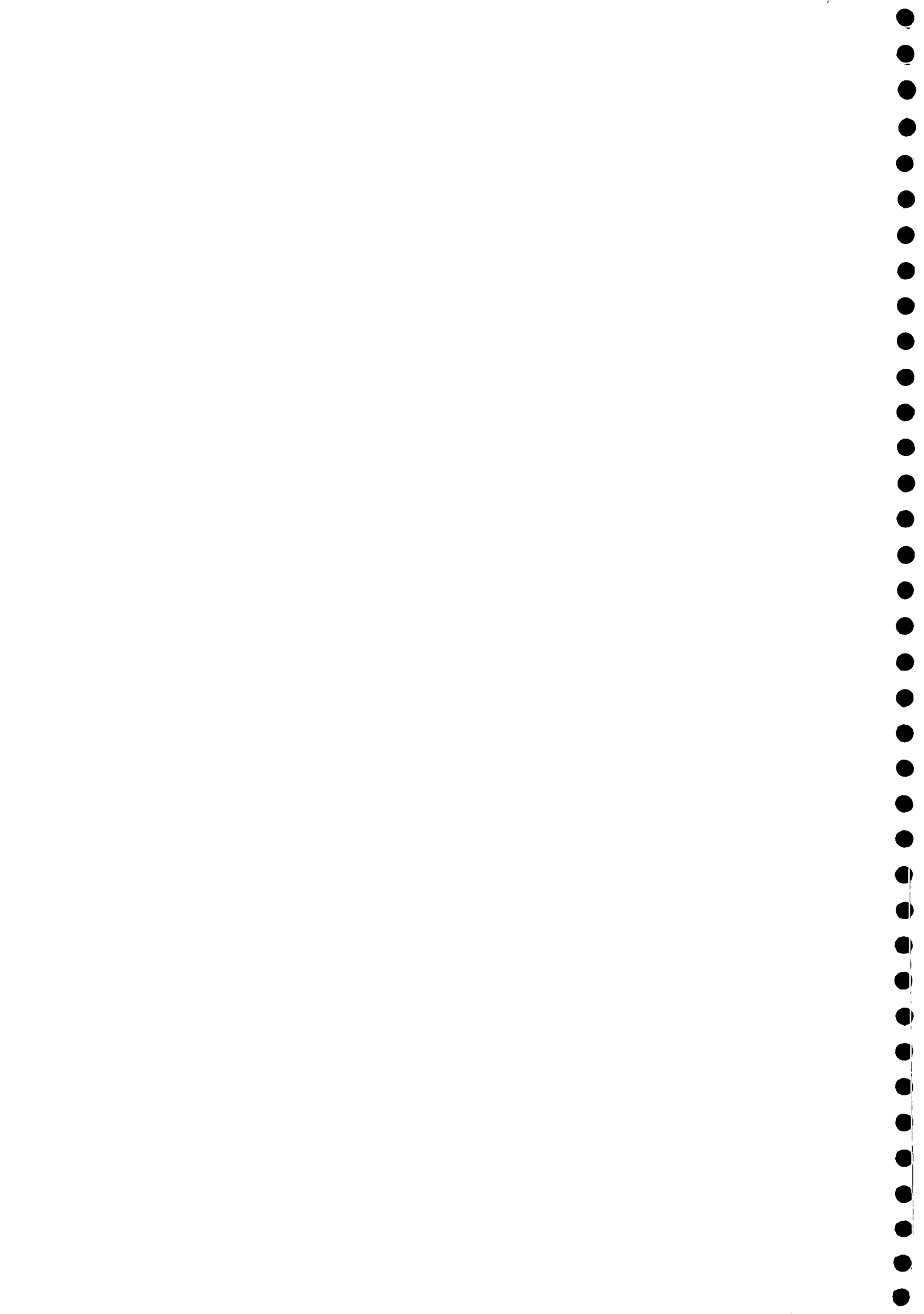
REPORT
ON
MONITORING AND EVALUATION STUDY
OF
RURAL WATER SUPPLY & SANITATION PROGRAMME

TAMIL NADU

JULY 1998

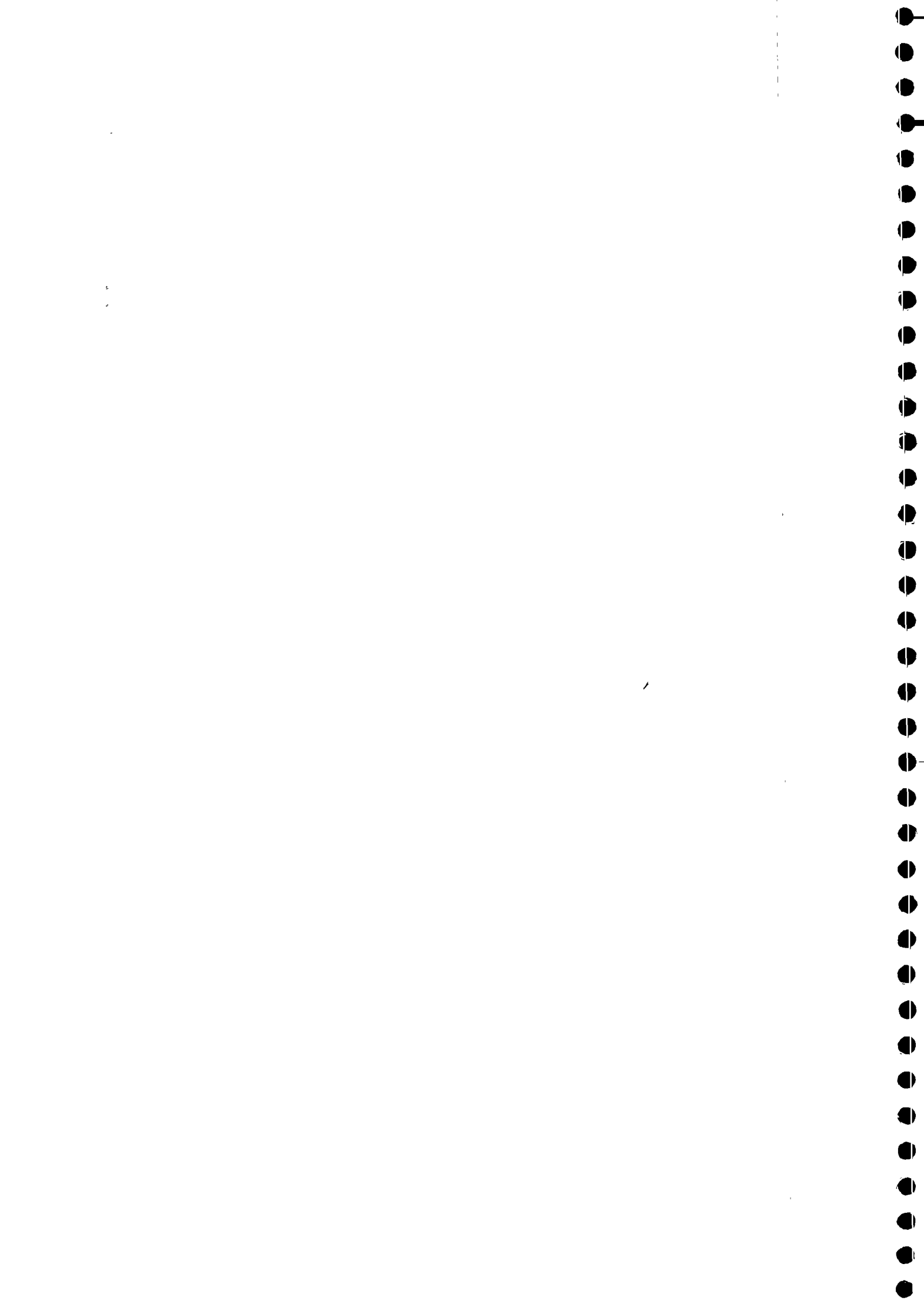
OM CONSULTANTS (INDIA) PVT. LTD.
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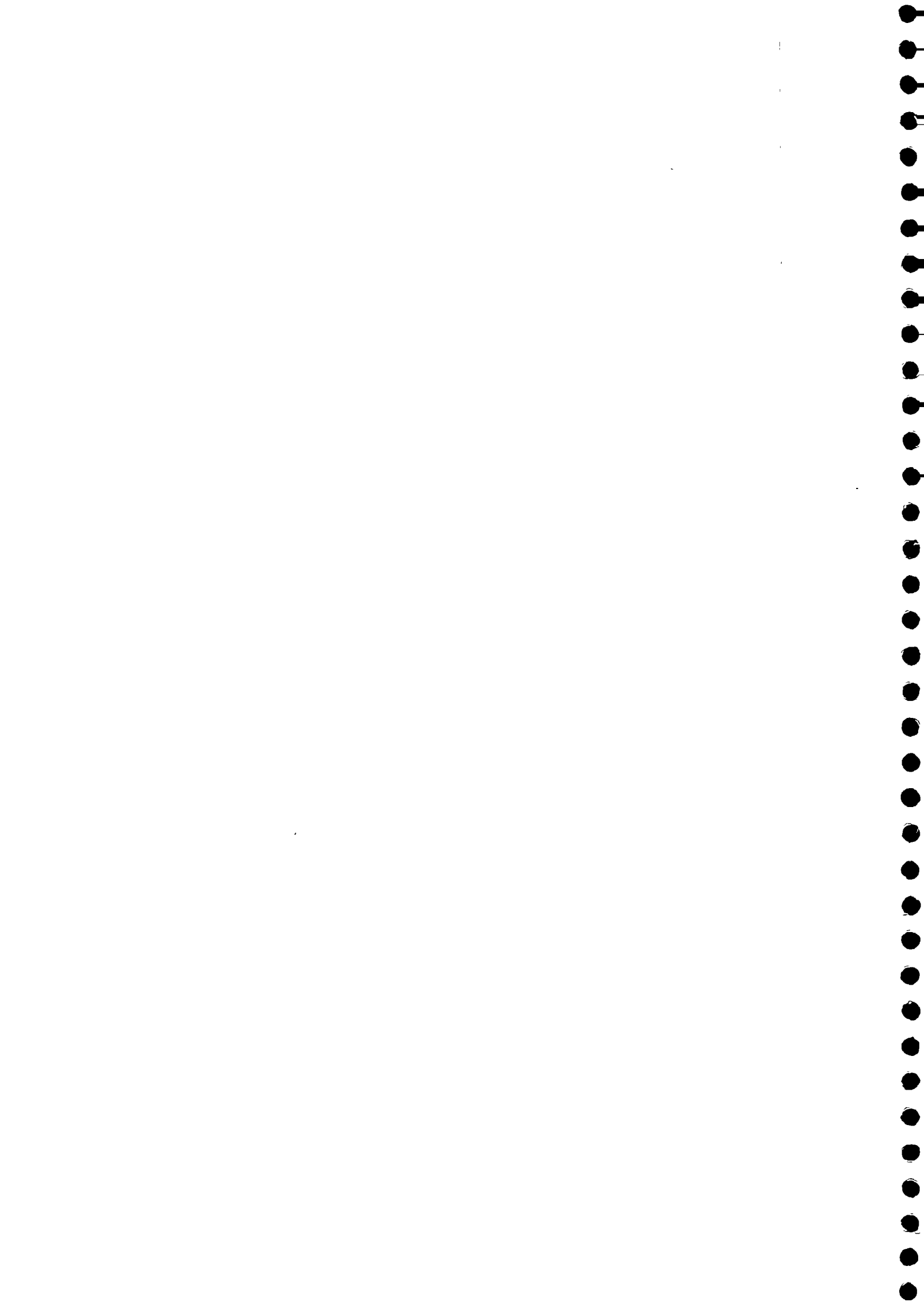


1.0 INTRODUCTION

- 1.01 Rajiv Gandhi National Drinking Water Mission (RGNDWM) was launched in August 1986 to accelerate the progress of drinking water supply in rural areas and to bring in cost effective science and technology inputs to improve the programme implementation. The primary objective of the programme has been to provide safe drinking water free from chemical and biological contamination. In addition, the programme has focussed on health and eradication of water-borne diseases, water quality surveillance, training, research, health education and awareness.
- 1.02 The Mission also launched the Centrally sponsored Rural Sanitation Programme (CRSP) in 1986 with the objective of improving the quality of life of the rural people and to provide privacy and dignity to the women. This programme was intended to supplement the efforts of the States which were implementing the Rural Sanitation Programme with their own resources. The guidelines of the programme were circulated to all the States in 1986.
- 1.03 In the implementation of the programme, much of the monitoring and evaluation of the present systems essentially focus on the quantitative progress of drinking water installations (that too mainly from the supply side of the programme) and achieving the target set for construction of Sanitary Latrines. There has been relatively no emphasis on looking at the systems from the point of view of user satisfaction and sustainability of operation and maintenance.
- 1.04 Also, since much of the reporting is based on reports from implementing agencies, there is little or no participative monitoring or user involvement. There is no measurement of user satisfaction in the present system. These issues were discussed at a workshop on Monitoring and Evaluation held at New Delhi with Secretary, Department of Rural Development (DRD) and Director and Senior Officers of RGNDWM on 29th Dec. 1997. It was felt during the discussions that there is need for a quick study to review of present status with reference to key issues in order to bring in changes in strategy and approaches. The findings from such a study would be useful for Policy Formulation and Development of suitable monitoring systems.



- 1.05 In this connection, M/s. Om Consultants (India) Pvt. Ltd., (OMCI) submitted a proposal in Jan. '98 for undertaking Monitoring and Evaluation Study on a sample basis. After due evaluation and scrutiny of the proposal the Rajiv Gandhi National Drinking Water Mission vide its letter Q-14019/42/97-TM(Stat) dated 18th March 1998 requested OMCI to go ahead with the study in the State of Tamil Nadu. The scope of coverage as per the terms included conducting household survey on a sample basis in 3 sample Districts covering 15 habitations each and 15-25 households in each selected habitation based on the population of the habitation.
- 1.06 This report has been prepared based on extensive field data collected during the study and the discussions with the villagers and the implementing agency.
- 1.07 We wish to thank the Secretary, DRD, Govt. of India (GOI) and Director, RGNDWM for inviting us to carry out the study. We also thank the Principal Secretary, RD&PR, Govt. of Tamil Nadu, the Engineer-in-Chief, Panchayat Raj and his staff for the cooperation extended during our study. We are obliged to the people of the study habitations for patiently answering to the questions of the field staff, without whose cooperation, the study would not have been completed on time.



2.0 CURRENT GOVT. POLICY IN THE WATER & SANITATION SECTOR

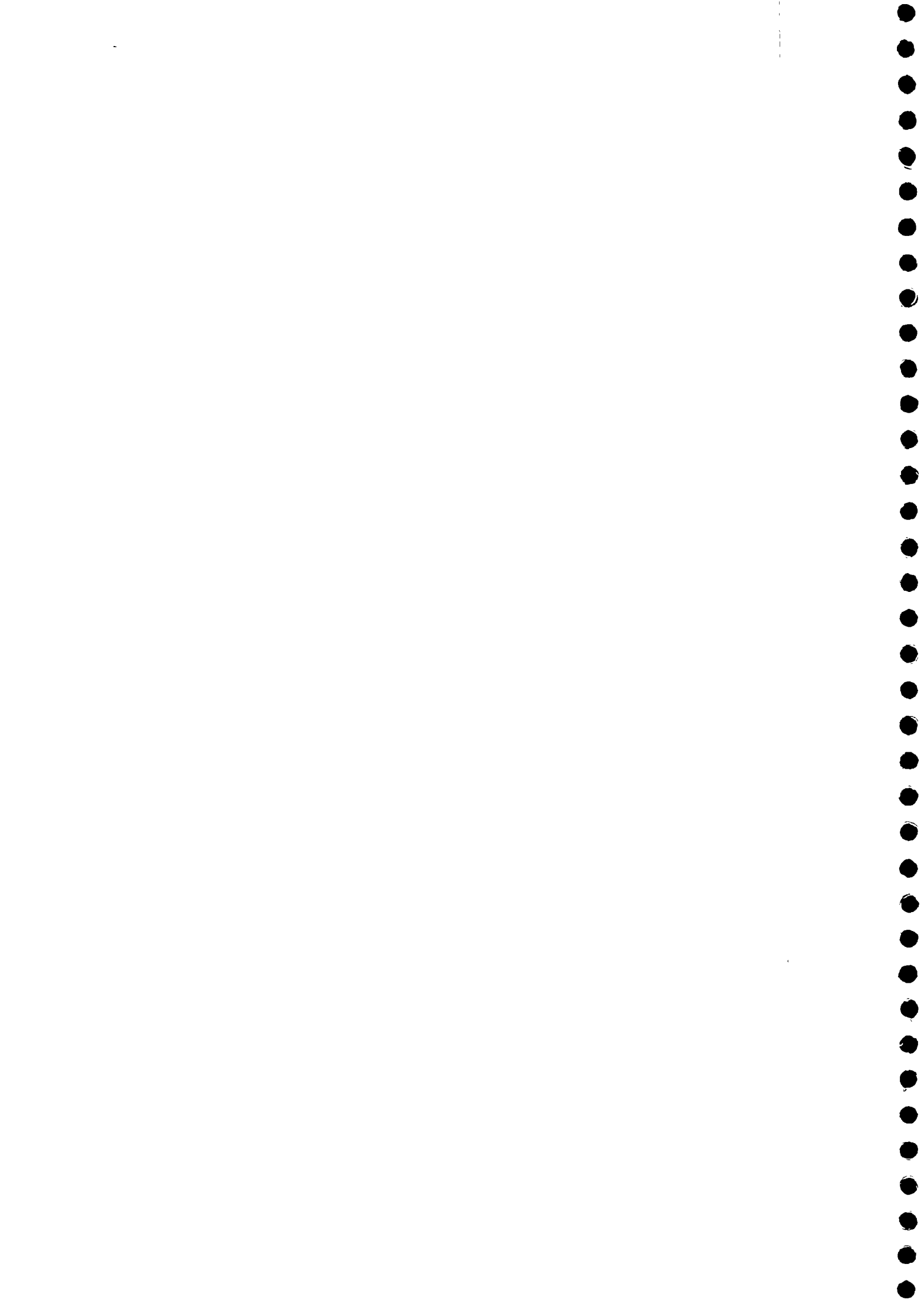
Rural Water Supply

- 2.01 The Govt. of Tamil Nadu (TN) has been giving high priority to both water supply and sanitation sectors. Concerted efforts have been made to provide potable drinking water under the State Sector as well as under the Central Sector programmes.
- 2.02 According to the 1991 census, Tamil Nadu has a population of 558.59 lakh, of which 367.81 lakh account for rural (65.85%). The growth of rural population from 287.34 lakh in 1981 to 367.81 lakh in 1991, has resulted in high demand for water. Besides the traditional sources of water tanks, ponds, open wells, etc., are getting dry annually during the summer months. Rural people are increasingly turning to piped water supply as permanent solution to their water problem. The increased access to the tap in rural areas can be attributed to the various Govt. schemes and other efforts to extend protected water supply to the villages to meet the drinking water needs of the rural inhabitants.
- 2.03 There has been a major change during the last decade, 1981-91 and a large number of households are now able to get water through 'tap' system, which refer generally, to the supply of protected water supply made by the Municipalities, Panchayats or local bodies, etc., in public places and through pipe connections to the houses.

Percentage Distribution of Households by Source of Drinking Water, 1991

State / District	Total / Rural / Urban	All sources	Well	Tap	Hand-pump / Tube well	River / Canal	Tank	Others
Tamil Nadu	T	100.00	27.81	43.96	23.46	1.12	2.00	2.28
	R	100.00	29.91	36.95	27.33	1.41	2.77	1.63
	U	100.00	21.30	59.08	15.13	0.50	0.36	3.66

- 2.04 Therefore there has been a healthy development as provision of protected water supply to the villages gradually resulting in the elimination of the unhealthy practice of using the water by the villagers from all other available sources directly, including unhygienic wells and subjecting themselves to variety of health hazards which includes deadly water-borne diseases.



2.05 As per the guidelines of the Technology Mission, the Govt. of Tamil Nadu has set the norm of 40 LPCD as the basis for all the schemes. There are three types of schemes with the following guidelines for each :

- Piped Water Supply (PWS) schemes (Over Head Tank with distribution lines and Public Stand points) for habitations with populations exceeding 2000.
- Mini Water Supply (MWS) schemes (consisting of Cisterns) for habitations with a population between 1000 and 2000.
- Handpumps for a habitation with population less than 1000.

2.06 The Tamil Nadu Water and Drainage Board (TWAD Board), Government of Tamil Nadu, is the agency implementing all rural and urban water supply schemes and drainage programmes in the State. The 28 districts of the State has been divided into Circles which comprise of two to three districts. Each Circle consists of Divisions (District as a unit), headed by a Superintending Engineer, one or more Executive Engineer, and under each Executive Engineer, implementation staff (Technical like AEE, AE, Administrative) for executing the programme.

2.07 During the last two-three years, TWAD Board, has executed rural water supply by commissioning over head tank, water source being borewell - with a pump house and public distribution pipe line, followed with installation of public stand posts located at different points. This is as per the design approved and norms framed from time to time. In determining the capacity of the reservoir (over head tank), the present total population (as furnished by the Panchayat Union, which is based on Resurvey conducted during 1992) is taken into consideration, and the capacity of the tank is estimated by taking the present population + 40%, and per capita requirement as 40 litres per day. As regards the number of PSP points, the present norm is one point for every hundred persons (Two years back, it was one point for 150 persons). After commissioning and execution of the scheme, they are handed over to the Panchayat (to which the habitation belongs) for operation and maintenance.

Sanitation

2.08 The 1991 Census revealed a very disquieting picture with not even 25% of the population of Tamil Nadu having toilet facilities in their households. Obviously, more than 75% of the population of about 56 million depend on open spaces and probably some public conveniences, as separate toilet facility is not available in their houses in the urban areas (592 per 1000), while it is very low (77 per 1000) in the rural areas. During 1981, when this information was collected in urban areas alone, 51.27% of the urban households had this toilet facility. This percentage in 1991 stood at 57.47.



3.0 OBJECTIVES & SCOPE

Objective

- 3.01 The objective of the assignment is to assist RGNDWM in making a quick and independent assessment of the current status with respect to the following aspects :

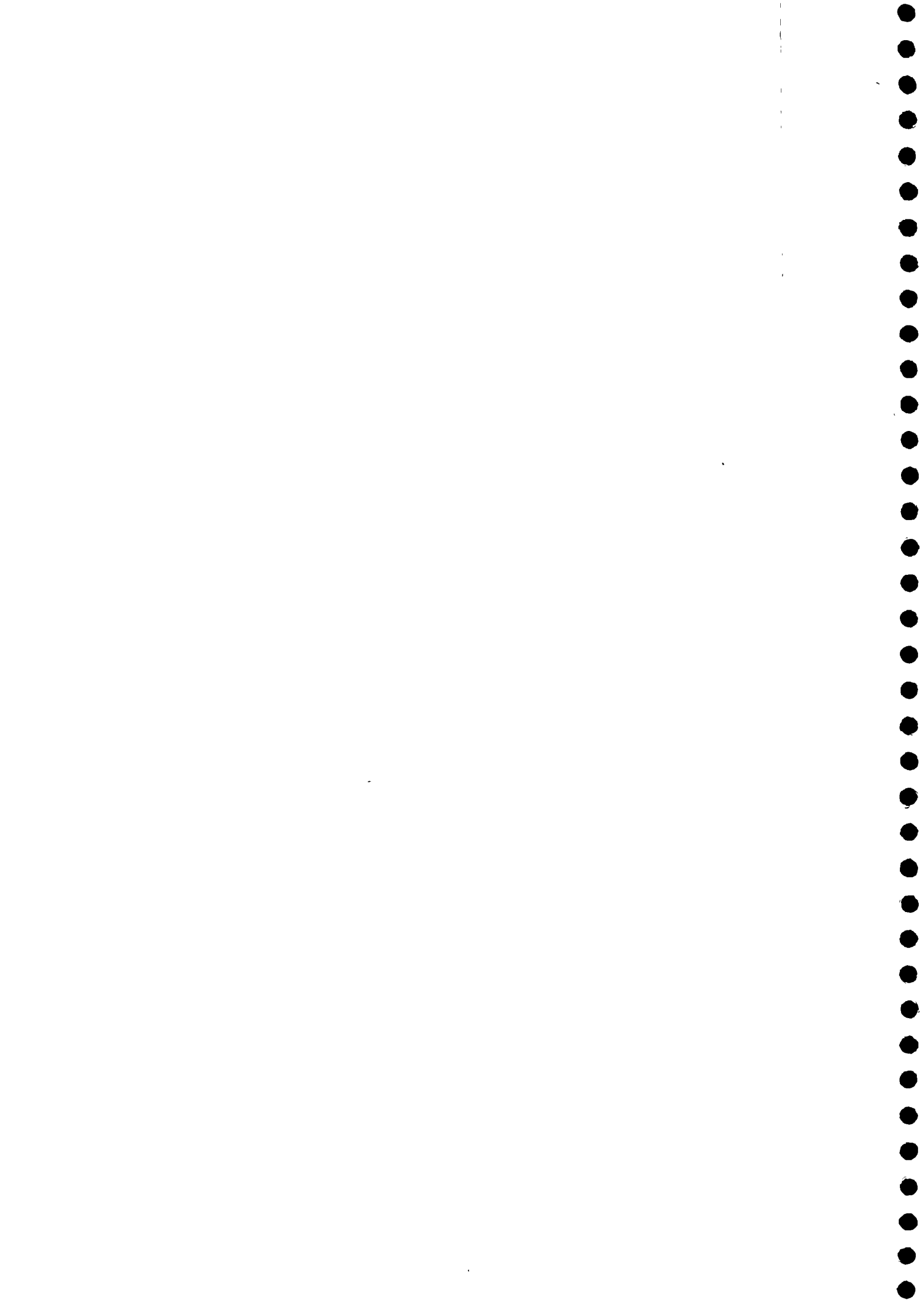
DRINKING WATER

- (i) Present coverage status of the Rural Water Supply with special emphasis on the coverage of backward classes / areas
- (ii) Water quality problems and its coverage
- (iii) People's perception about the coverage
- (iv) Community involvement in the planning and implementation of schemes
- (v) Operation and Maintenance status of the Water Supply Schemes
- (vi) Contribution by the users towards capital and recurring costs.

SANITATION

- (i) Coverage of sanitary latrine
- (ii) Perception about sanitary latrines
- (iii) Usage of sanitary latrines
- (iv) Problems in implementation

- 3.02 The study covered ~~45 habitations in 3 districts~~ (15 habitations per district). The districts were selected based on scarcity, quality and backward area characteristics.



4.0 APPROACH AND METHODOLOGY

4.01 The following phasewise approach and methodology was adopted for the study in a systematic and organised manner.

Planning & Preparatory Phase

- Discussion with concerned nodal agency in the State / District / Taluk and collection of basic data (list of habitations, etc.)
- Detailed Planning
- Finalisation of survey tools (household questionnaire, checklist, habitation profiles, etc.)
- Training and orientation to field staff
- Computerised formatting of household questionnaire
- Finalisation of methodology
- Selection of sample habitations

Data Collection Phase

- Primary data collection through household questionnaire (Annex - I)
- Secondary data collection through habitation profile (Annex - II)
- Group discussions
- Participant observations

Data Analysis Phase

- Computerisation of household survey data
- Collation and analysis of data collected
- Summarizing of information

Report preparation Phase

- Finalisation of report and submission to RGNDWM

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Selection of Sample Districts

- 4.02 Discussions were held with the Managing Director, Joint Chief Engineer (Programme Management) and others at TWAD Board, Headquarters, Chennai. Based on the terms of reference, it was decided to select the three districts namely, Salem, Vellore and Kanyakumari for carrying out the present study.

Selection of Sample Habitation and Sample Households

- 4.03 From each of the selected districts, 15 habitations were selected randomly (from the list provided by the Executive Engineer at the District level). From each of these selected habitations, households were selected to include a minimum of 15 and a maximum of 25 households from each habitation based on the population. (less than 1000 population = 15 households, 1000-2000 = 20 households and above 2000 = 25 households). While selecting the households, care was taken, so as to include backward classes as well as minorities. Thus, the sample selected for the study is as follows:

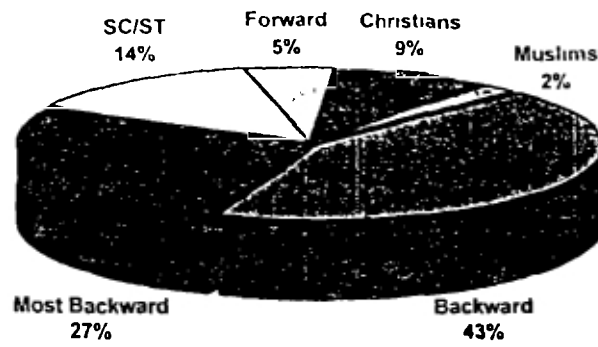
Table 4.1 : Distribution of Sample Households

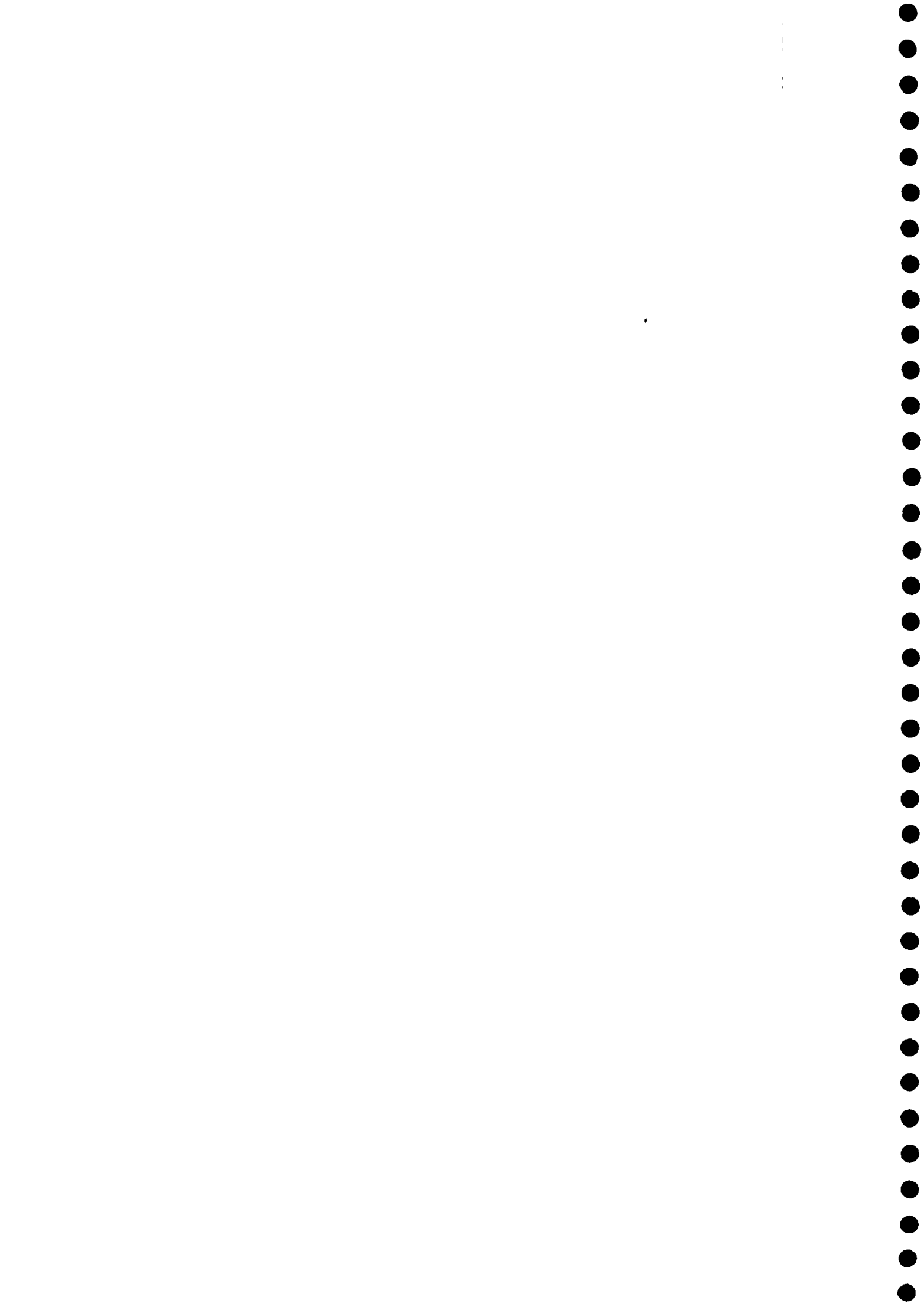
1.	Districts	Salem	Vellore	Kanyakumari
2.	No. of Habitations	15	15	15
3.	Problem areas / Habitations in Coastal areas covered	01	02	02
4.	No. of Households	295	255	270

[The list of habitations covered under the study is given in Annex - III).



Table 5.1 - Distribution of Sample Households by Caste (%)





5.0 SOCIO-ECONOMIC PROFILE OF THE SELECTED HOUSEHOLDS

5.01 The socio-economic profile included data collected from selected households on caste, population, household size, occupation, income, which are presented below in this Section.

Community Composition

5.02 The distribution of selected households according to community in the three selected districts is presented in Table 5.1 below.

Table 5.1: Districtwise percentage distribution of sample households by Caste Group

Caste Group	Salem	Vellore	Kanyakumari	Overall
Forward	5.1	5.1	5.2	5.1
Backward	37.3	53.4	39.2	42.3
Most Backward	43.7	27.0	8.9	27.1
SC/ST	13.9	14.5	13.7	14.0
Muslims	0.0	0.0	5.6	2.8
Christians	0.0	0.0	27.4	8.7
Total	100.0	100.0	100.0	100.0
No. of Households	295	255	270	820

A pictorial illustration appears in the opposite page.

5.03 The caste composition as seen from Table 5.1 shows that, 43 per cent of households represented the backward class group, 27 per cent belonged to the most backward caste group. Fourteen per cent of households represented the SC/ST group. Among non-Hindus, Muslims and Christians constituted 12 per cent and 9 per cent respectively.

Gender of Respondents

5.04 The gender distribution of respondents of the sample households is given below (Table 5.2).

Table 5.2 - Gender Distribution of Respondents

	Male	Female	Total
Salem	193 (65.4)	102 (34.6)	295 (100.0)
Vellore	168 (65.9)	87 (34.1)	255 (100.0)
Kanyakumari	177	93	270

735

212

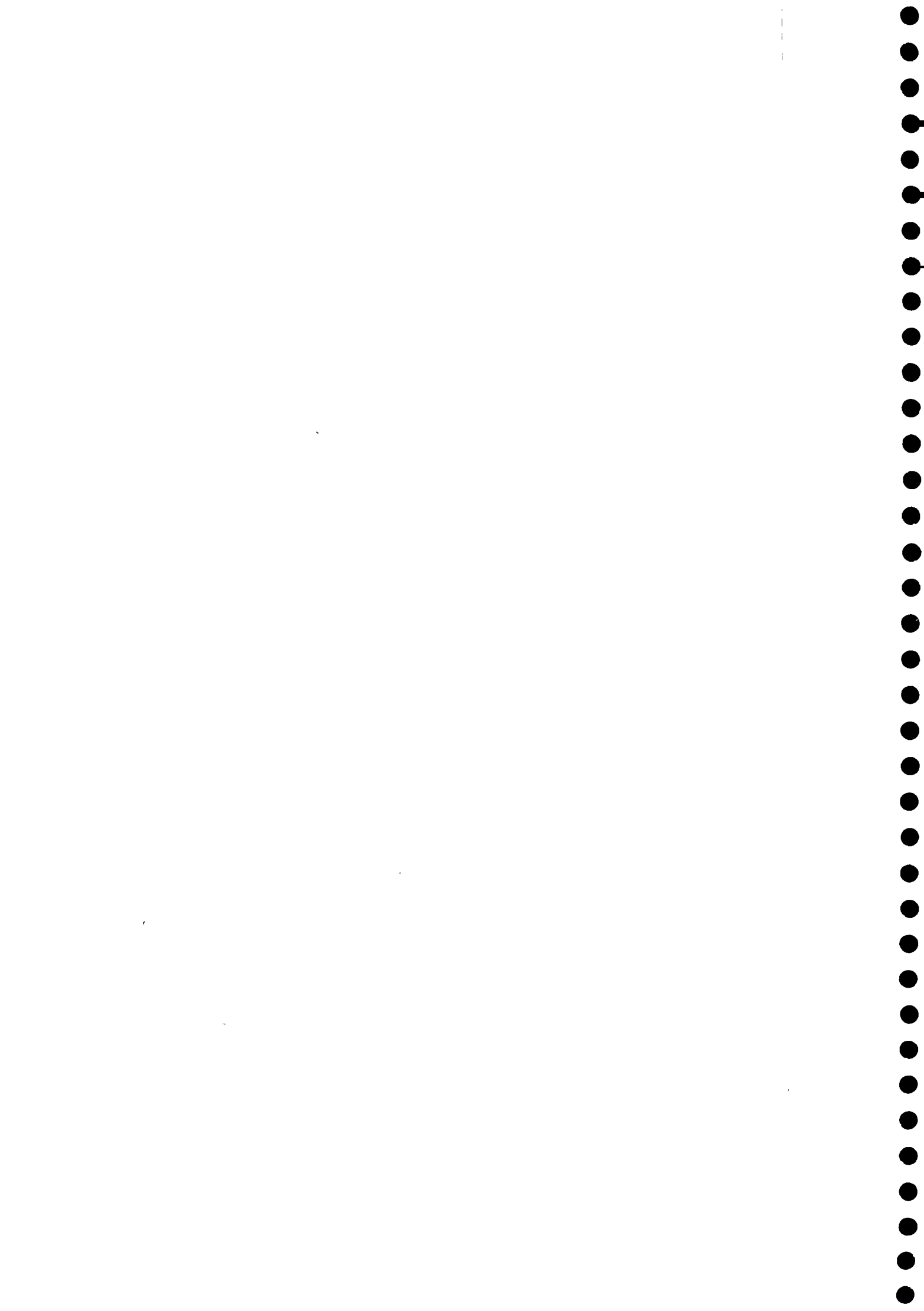


Table 5.3 - Average Household Size

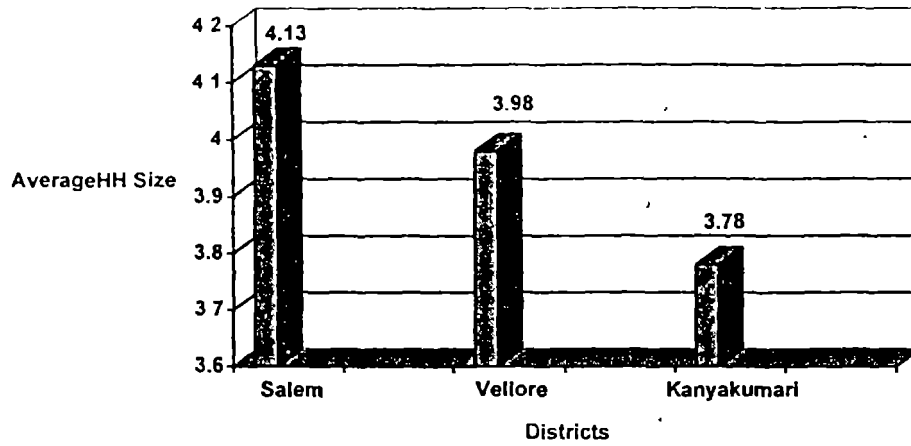
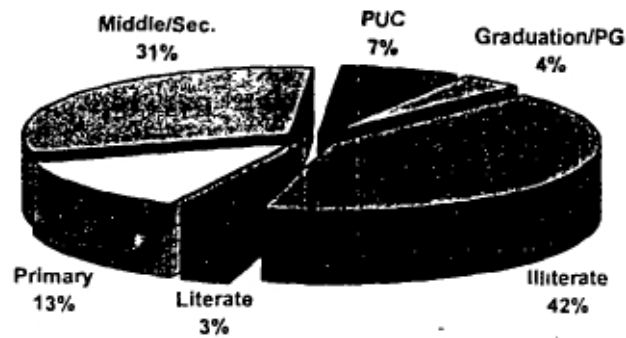
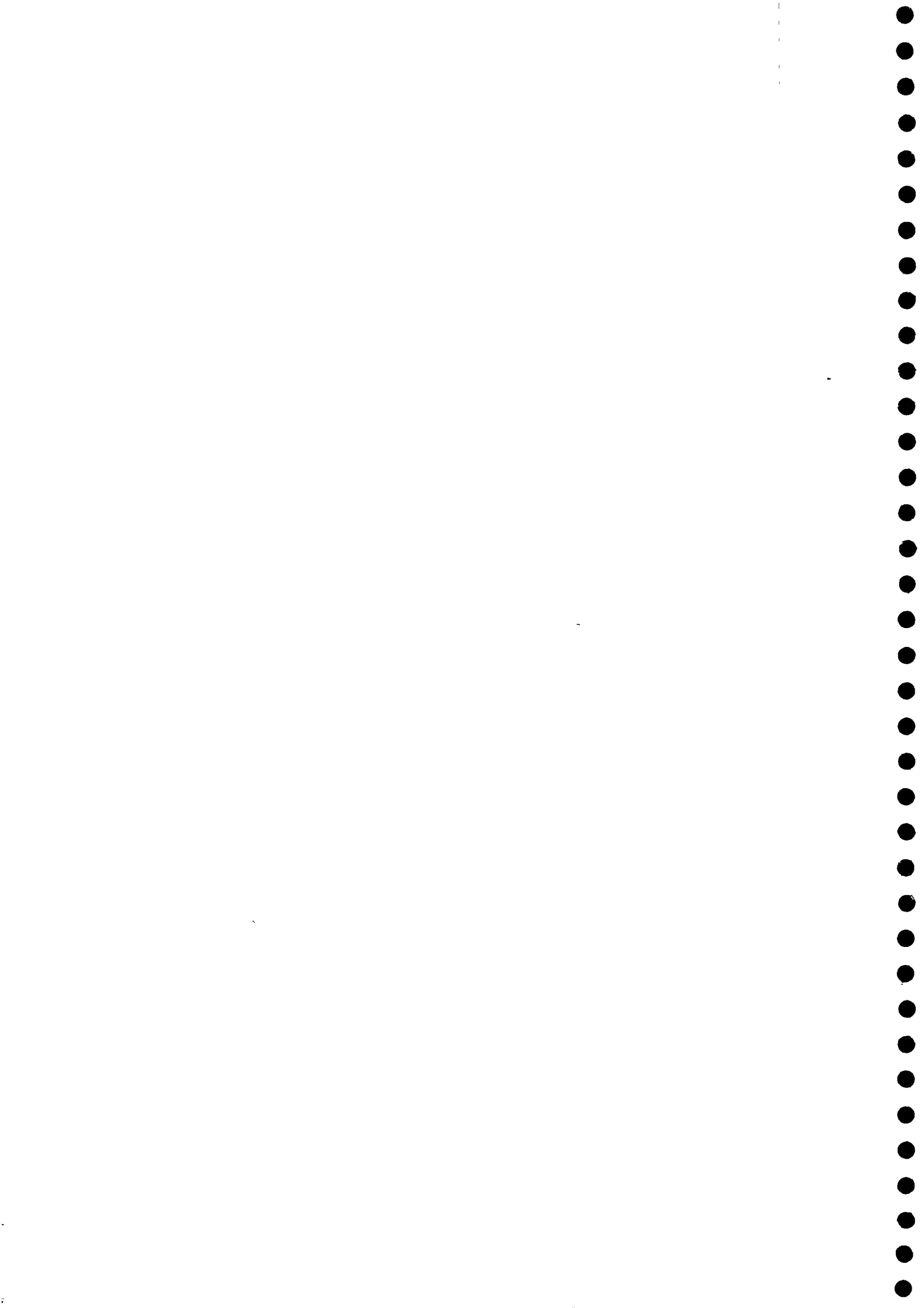


Table 5.4 - Distribution of sample population by Literacy Level





Population and Family Size

5.05 The total population in the sample households surveyed is 3253 (1218 - Salem, 1015 - Vellore, 1020 - Kanyakumari). The family size is high in Salem district being 4.13 persons and 3.78 persons per household in Vellore and Kanyakumari districts respectively as can be seen from Table 5.3.

Table 5.3: Number of Selected households and population, Selected Districts

Particulars	Salem	Vellore	Kanyakumari	Total
Habitations (No.)	15	15	15	45
Households (No.)	295	255	270	820
Population (No.)				
Total	1218 (37.40)	1015 (31.20)	1020 (31.40)	3253 (100.0)
Male	667	528	491	1686
Female	551	487	529	1567
Avg no of persons per Household	4.13	3.98	3.78	3.97

Note : Figures in brackets denote percent to Total.

A graphical illustration appears in the opposite page.

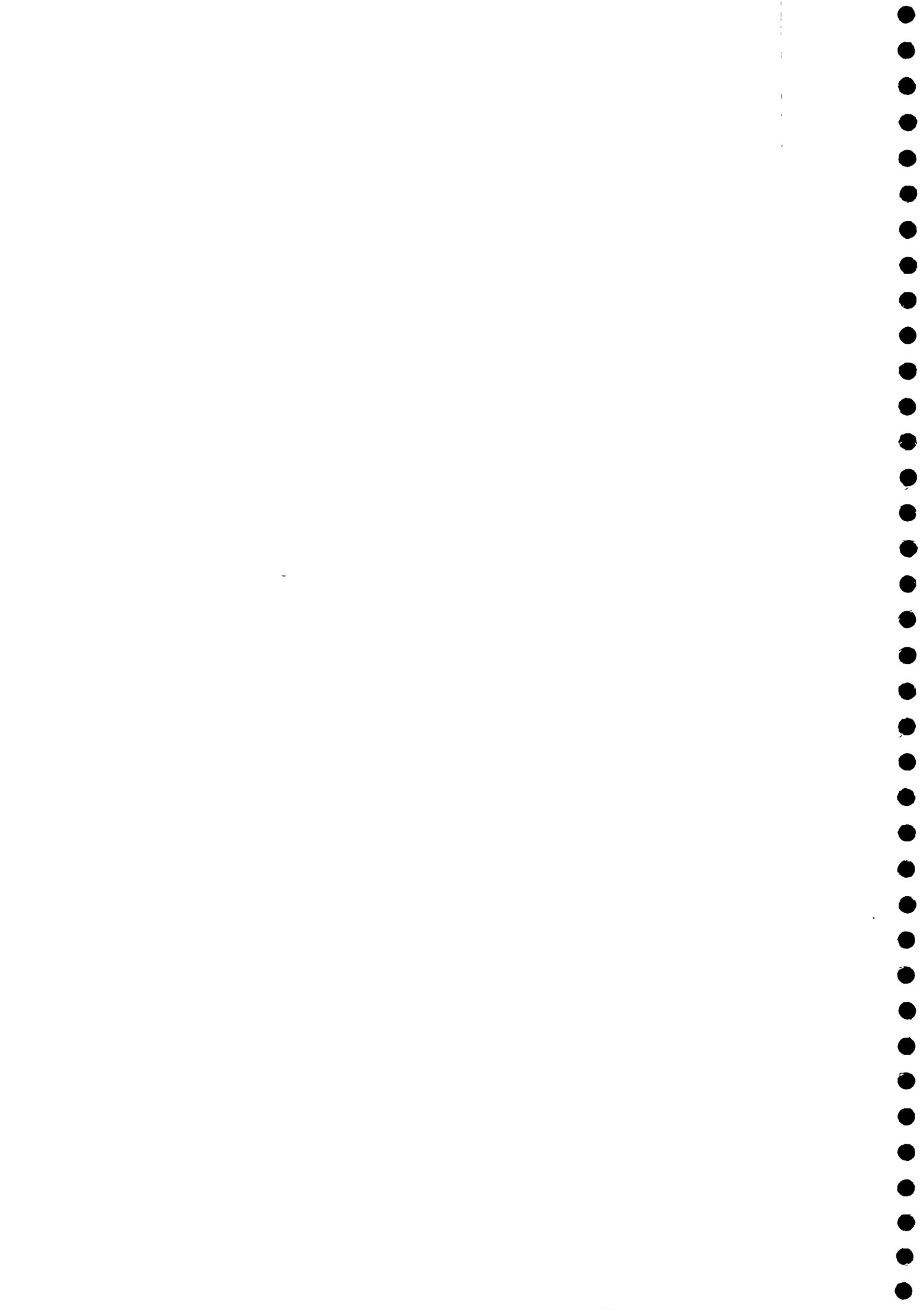
Educational Level

5.06 The educational level of sample population of the sample households surveyed is given in Table 5.4 below.

Table 5.4: Education Level of persons among selected households, Selected Districts

Education Level	(% to Total persons)			
	Salem	Vellore	Kanyakumari	Total
Illiterate	46.3	47.6	38.2	42.5
Literate	5.6	1.6	2.4	3.3
Primary	15.9	10.6	11.5	12.9
Middle / Secondary	26.0	32.7	34.4	30.8
PUC	5.1	5.5	10.3	6.8
Graduation / Post-Graduation	1.0	2.5	3.2	3.7
Vocational	0.1	0	0	0
Total	100	100.5	100.0	100.0
No. of Persons	1218	1015	1020	3253

A pictorial illustration appears in the opposite page.



5.07 The percentage of illiterates in Vellore district is 47.6 per cent, while it is 46.3 per cent in Salem district, and is lowest in the district of Kanyakumari (33.2%). Persons whose level of education being middle/secondary and above is highest (47.9%) in Kanyakumari district. Next in order is Vellore district, being 41% and in Salem district, it is 32%.

Marital Status

5.08 The marital status of persons surveyed were recorded among the selected households. The data shows that on an average as many 54% are married in the selected households. (Table 5.5).

Table 5.5: Marital Status (among persons) in the selected households, Selected Districts

Status	Salem	Vellore	Kanyakumari	Total
Married	57.3	52.3	53.3	54.5
Single	36.9	43.3	43	40.8
Widow	3.8	3	2.2	3.1
Widower	1.8	1.3	1.4	1.5
Separated	0.2	0	0.1	0.1
%	100.0	99.9	100.0	100.0
Persons: Total	1218	1015	1020	3253

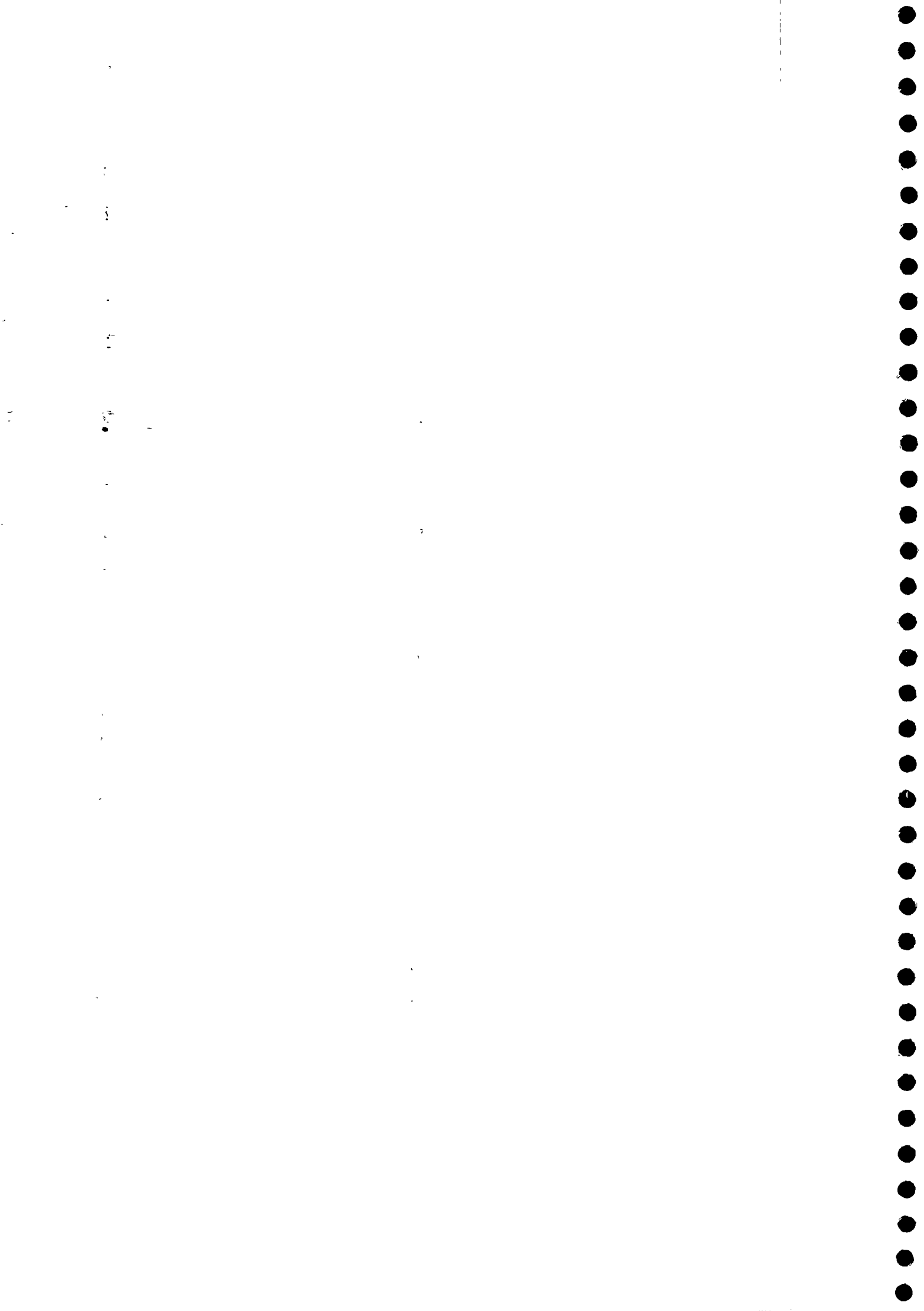
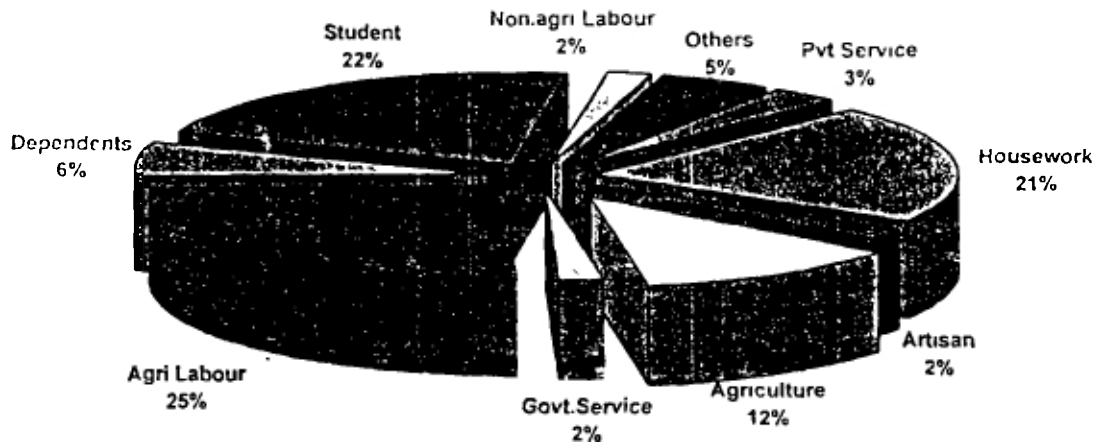


Table 5.6 - Distribution of Sample Population by Main Occupation





Occupation

5.09 The occupational distribution of the sample population is given in Table 5.6. It is seen that the primary sector i.e., agriculture and agricultural labour is the main occupation of more than 37% of population. The percentage of population depending on agriculture is 15.2% in Vellore, 13.5% in Salem and in Kanyakumari it is 8.0%. The percentage of population depending on other occupations like artisan, private service, government service, formed a small proportion in all selected districts.

Table 5.6: Distribution of Sample Population by Main Occupation

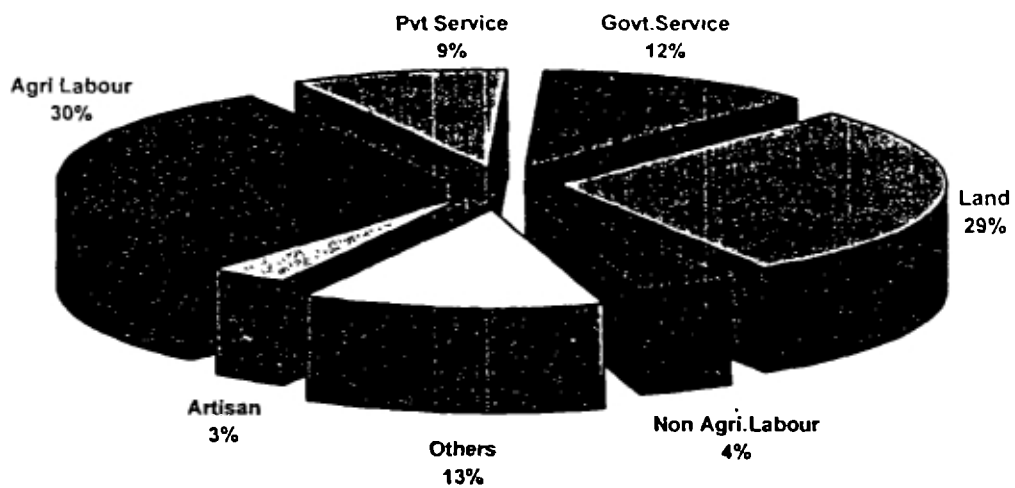
Category	Salem	Vellore	Kanyakumari	Total
Agriculture	13.5	15.2	8.0	12.3
Agri.Labour	27.3	25.9	21.2	25.0
Non-Agri. Labour	4.4	0.6	0.8	2.1
Rearing of Sheep	0.6	0.3	0.1	-
Goat, Cattle	-	-	-	-
Artisan	1.1	4.1	0.8	1.9
Private Service	4.2	1.9	4.2	3.4
Govt. Service	0.5	2.4	3.6	2.0
Housework	19.8	18.9	22.5	20.5
Others	3.4	3.5	8.6	5.1
Students	19.9	21.3	23.7	21.5
Dependents	5.3	5.9	6.5	5.9
%	100	100	100	99.7
Persons : Total	1218	1015	1020	3253

Note : % do not add to 100 due to rounding off.

A pictorial illustration appears in the opposite page.



Table 5.7 - Percentage distribution of Income by Different Sources





Sources of Income

5.10 Agriculture and agriculture labour constituted major source of income, which accounted for 58.9% of household income (Table 5.7). Income from government service accounted for 12% of household and as much 9.2% of household income is from private service. Non-agricultural labour, as source of income, contributed 4.2% of household income.

Table 5.7 : Income by Source among Selected Households

Category	Salem	Vellore	Kanyakumari	Total
Land	21.9	40.1	22.9	28.7
Livestock	0.1	0.1	0	0.3
Agri. Labour	28.0	32.1	29.9	30.2
Non-Agri. Labour	9.8	1.5	3.5	4.2
Artisan	1.0	6.6	1.5	3.4
Private Service	12.4	4	12.2	9.2
Govt. Service	9.0	9	15.6	11.6
Other Sources	17.4	6.6	15.4	12.6
%	99.6	100	101	100.2
Average Annual Income (Rs.)	11423	22118	22972	18590
Per-Capital Income (Rs.)	2767	5557	6081	4686

Note : % do not add to 100 due to rounding off.

A pictorial illustration appears in the opposite page.

5.11 The average household annual income for all the selected households is Rs.18590. The annual income per household in Kanyakumari district is Rs.22942 and in Salem it is Rs.11423 per household. While in Vellore district it is Rs.22118 per annum.

5.12 The overall per-capita income of the sample households is Rs.4686. The districtwise variations in percapita income being Rs.2767 in Salem District, Rs.5557 in Vellore District and Rs.6081 in Kanyakumari District.



Table 5.8A - Distribution of Sample Households by Income level - Salem District

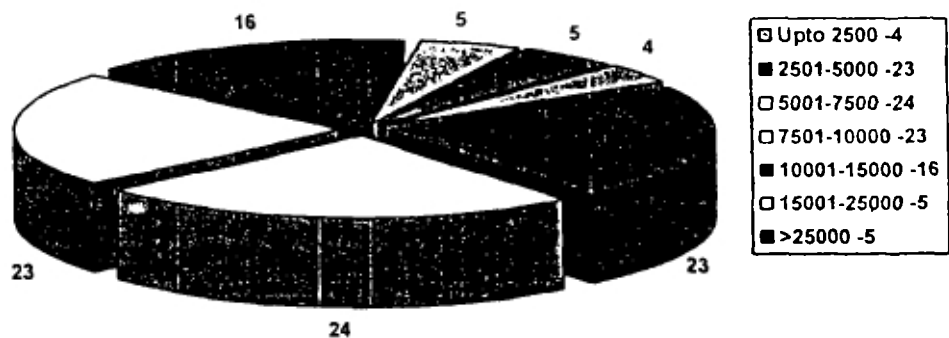


Table 5.8B - Distribution of Sample Households by Income level - Vellore District

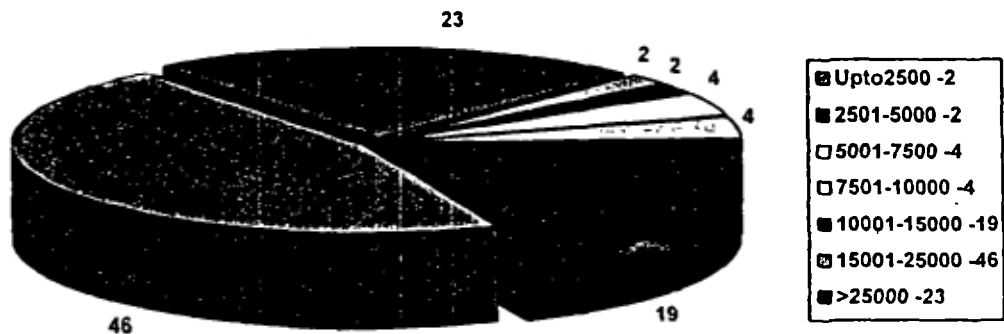
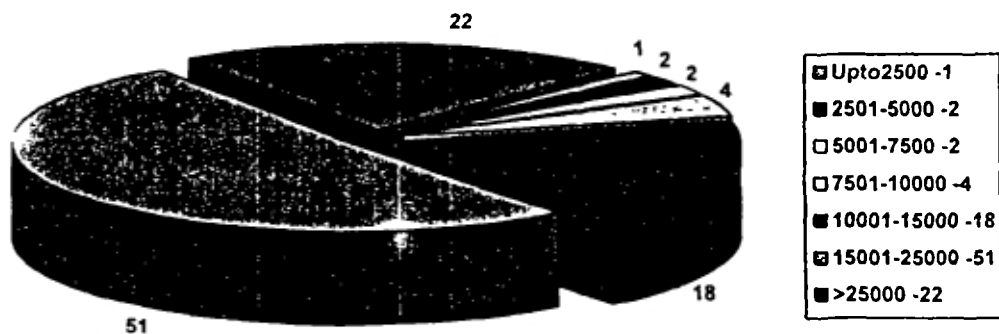


Table 5.8C - Distribution of Sample Households by Income level - Kanyakumari District





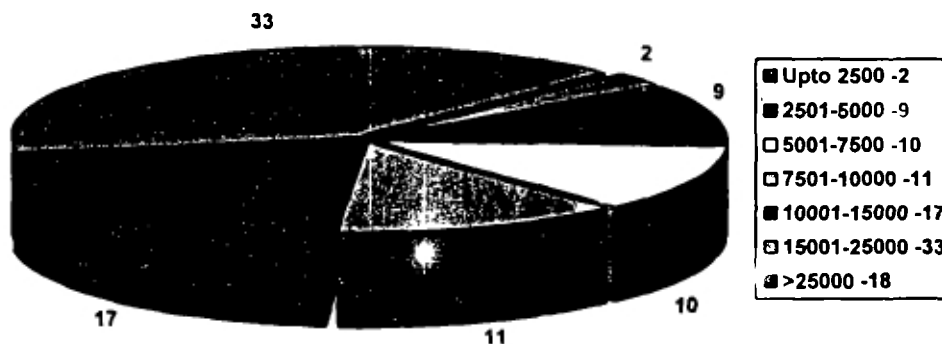
Income Level

5.13 The distribution of sample households by different income groups is presented in Table 5.8 below. It is observed from the table that there is a wide variation across the three districts. In Salem District, nearly three fourth of the sample households have annual income upto Rs.10,000/- only. Whereas, in Vellore and Kanyakumari Districts, nearly half of the sample households have income in the range of Rs.15,000/- to Rs.25,000/- and nearly one fifth of the sample households have income in the range of Rs.25,000 - Rs.50,000.

Table 5.8: Distribution of Households by Level of Income

Income Group (Rs.)	Salem	Vellore	Kanyakumari	Total
Upto 2500	11 (3.7)	4 (1.6)	2 (0.8)	17 (2.1)
2501 to 5000	68 (23.0)	6 (2.3)	4 (1.5)	78 (9.5)
5001 to 7500	72 (24.5)	10 (3.9)	4 (1.5)	86 (10.5)
7501 to 10,000	67 (22.7)	11 (4.3)	11 (4.1)	89 (10.8)
10,001 to 15,000	46 (15.6)	48 (18.8)	49 (18.1)	143 (17.5)
15,001 to 25,000	14 (4.7)	118 (46.3)	138 (51.1)	270 (32.9)
25,001 to 50,000	6 (2.0)	54 (21.2)	53 (19.6)	113 (13.8)
50,000 & above	11 (3.7)	4 (1.6)	9 (3.3)	24 (2.9)
Total	295	255	270	820
	100.0	100.0	100.0	100.0

Table 5.8D - Distribution of Sample Households by Income level - Overall





6.0 STATUS OF PUBLIC WATER DISTRIBUTION IN THE SELECTED HABITATIONS

6.01 This section deals with the status of public water distribution in the 45 selected habitations, covered in the three selected districts of the State. The most common available water resources in the selected habitations is groundwater. Besides, in two of the habitations (both in Vellore and Kanyakumari) reported surface water (river/canal) as additional water sources. The data collected through the habitation schedules have been compiled and presented in Table 6.1.

Household Size

6.02 The average number of households per selected village is 228 (242 in Salem, 217 in Vellore, 226 in Kanyakumari). The total population for all the 45 villages is 50375 and the average population per selected habitation is 1119. The average household size for the selected villages is 4.90 persons (5.1 in Salem, 4.3 in Vellore and 5.3 in Kanyakumari districts). (Table 6.1).

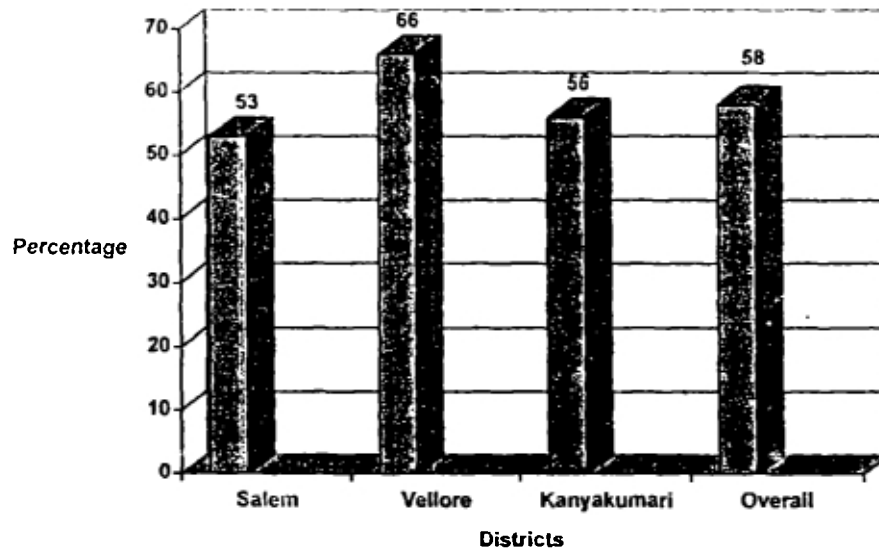
Table 6.1: Number of Households and Population in the Selected Villages

Particulars	Salem	Vellore	Kanyakumari	Total
1. No. of Habitations covered	15	15	15	45
No. of Coastal Habitations	0	0	2	2
2. Total Households (1991 Census)	3630	3260	3389	10279
3. Total Population (1991 Census)	18485	14027	17863	50375
4. Average persons (No.)/HH	5.1	4.3	5.3	4.9

6.03 In Salem (Namakkal division), one of the fifteen habitations covered, was reported with fluoride, which is now free from this problem. Two habitations faced with the problem of salinity and pollution in Vellore district is now free from this problem. The two coastal habitations in Kanyakumari district, is free from salinity problem, during the course of last two years Rural Water Scheme implemented by the TWAD Board.



Table 6.2 - Percentage of HP working in Sample Habitations





Types of Water Sources and Water Distribution

Public Stand Posts

6.04 The most common means of public water distribution is through Public Stand Posts in all the 45 habitations covered. Hand pumps are the next alternate source of water for the use of households. In one of the selected habitation, mini water supply scheme, accounted for another source of water. Table 6.2 illustrates the water source and water distribution points and their status.

6.05 In all there are 462 Public Stand Post points (163 in Salem, 132 in Vellore and 167 in Kanyakumari districts) and the water quality is good in all the habitations. The installation is as per the design but the main problem is stagnation of water around the PSPs. We could see, stagnation of water around as many as 87 points, 29 in Salem, 23 in Vellore and 35 in Kanyakumari.

Table 6.2: Water Source and Water Distribution Points and Status

Particulars	Salem	Vellore	Kanyakumari
Water Source			
1. Surface	0	0	0
2. Groundwater	15	13	13
3 Both	0	2 (Seasonal)	2
Type of Water Distribution (No. of Habitations)			
4. Public Stand Post	15	15	15
5 Mini Water Supply System	1	-	-
6 Handpump	14	15	15
7. Open Wells	Nil	Nil	Nil
8. Surface	Nil	Nil	Nil
Distribution Points & Status			
9 Public Stand Posts			
a. Number	163	132	167
b Water Quality	Good	Good	Good
c Installation	Good	Good	Good
d Surroundings	Good-134 Bad-29	Good-109 Bad-23	Good-132 Bad-32
10. Hand Pump			
a. Number installed	32	27	34
b. Working	17	18	19
c Not Working	7	5	6
d. Dried up	8	4	9
e. Bad maintenance	6	6	5
f. Water Quality	Saltish Smell 5 Muddy	Saline Polluted 8	Iron Saltish 9 Saline
11. Extension of distribution points by Panchayats			
a HH connections (Taps)	0	0	270
b PSP	35	9	14
c. Status of installation of PSPs	No Platform, Stone slab with a Pipe and Tap		
d Surroundings	Bad	Bad	Bad

462

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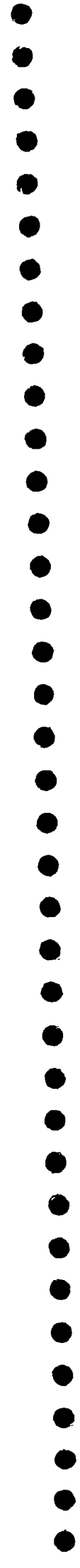
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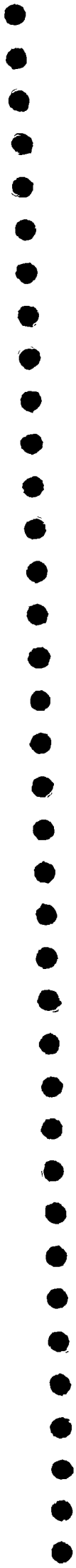
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- 6.06 The number of PSPs are installed according to the norms specified by the Board. After it has been handed over to the Panchayats, Panchayat bodies have extended water distribution points. We learn that such Panchayats have not taken permission for extension of distribution points in any form. There are two types of extensions, executed by the Panchayat - the most common is installing additional stand posts and the next being, allowing individual household connections. Among the habitations covered in our study, individual household extensions are not reported in the Districts of Salem and Vellore, where as in the Kanyakumari district, as many as 270 households report to have tap connections. People from these habitations, who do not have household connections, complain of such connections. According to them, this has resulted from their getting required quantity of water. Further, they report, such tap connections, should also to be extended to their houses, for which, they are ready to pay the required deposit and the monthly charges. As on now, the Panchayats are not ready to extend such facility to all the households, as they now say; it is against rules. In Kanyakumari district, though many household connections have been given, one of the Panchayat president was emphatic in informing us that he will not violate the rules of the Board, whatever may be the demand of the users.
- 6.07 As regards the public stand posts, though the Board had fixed "waste not" type taps in most of the cases, it has been replaced. Users express it is time consuming and one has to hold it continuously till the pot/bucket is filled with water. They are reluctant for such a manual exercise, and has replaced such taps by \pm type of taps (in this case one need not hold it continuously).
- 6.08 In the habitations where extension points have been given by Panchayats, one can see two distinctly different type of installations. The public stand posts installed by the Panchayat are not according to any prescribed design. PSPs installed by the Board, consist of cemented platform (with a raised basin), pre-fabricated stand post, as against the one installed by the Panchayat, which is a stone slab fixed to the ground, a pipe going through the slab with a tap. It has no platform, and the location of such points are haphazard. Around such points, stagnation of water is more common.



Distribution of Water

Status of Hand Pumps

6.09 Under the rural water supply scheme, hand pumps have been installed in all the habitations in the past. During our field visit, we could account 93 hand pumps in the 45 habitations covered under the study (the number may be still more, as our accounting has taken only after physical verification of such points). Of this total, as many as 54 (58%) are working, the remaining 39 are either not working or dried up. Again among the working hand pumps, as many as 22 (41%) reported not fit for drinking (Saltish, muddy, saline, iron...etc).

~~In view of the above situation in the habitations covered, public stand posts alone happen to be the main source of drinking water supply.~~

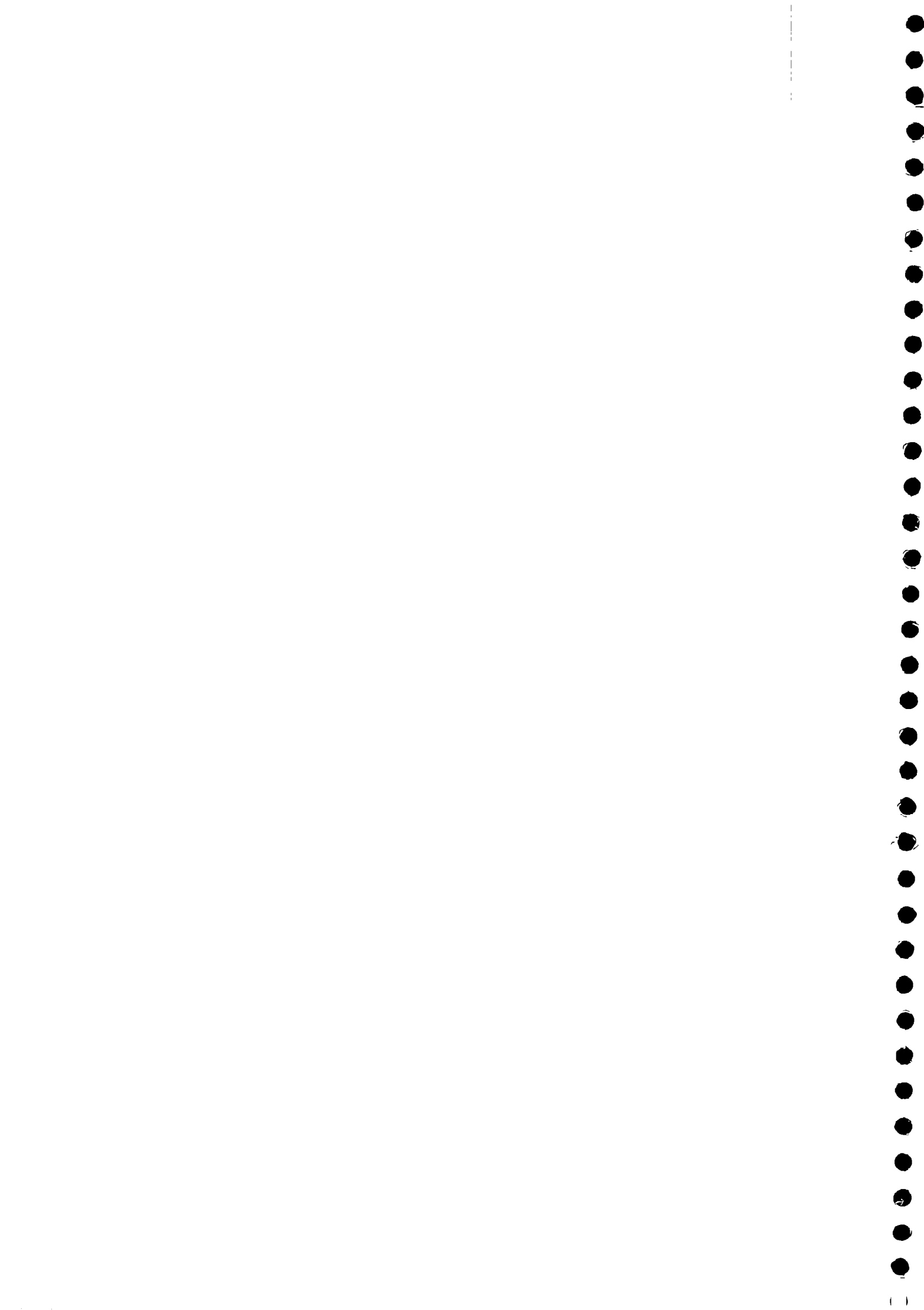
Operation and Maintenance

6.10 As regards the daily distribution of water through PSPs, there is an operator, who is required to look after the pump house as well as water distribution. In Salem and Vellore districts, one operator is incharge of one habitation, where as, in Kanyakumari a single operator is incharge of more than one habitation (2 to 3 habitations).

The operation and maintenance of PSPs is given in Table 6.3.

Table 6.3: Operation and Maintenance of PSPs

Particulars	Salem	Vellore	Kanyakumari			
A. O& M						
(i) Agency	Panchayat	Panchayat	Panchayat			
(ii) Pump Operator	One for each Habitation	One for each Habitation	One Operator would look after more than one Habitation			
(iii) Cleaning Overhead Tank	Done. Douzing with bleaching powder once in 2-3 months					
(iv) Others			Iron ladder to the main OHT & the main pipes are rusted in coastal villages and need maintenance			
B. People's Contribution						
(i) Capital Cost	Nil	Nil	Nil			
(ii) Recurring Cost for PSP	Nil	Nil	Nil			
(iii) Recurring Cost for tap connection	Rs.500 initial deposit and Rs.15/- per month					
(iv) Perceptions	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">Need more PSP & HH connections</td> <td style="width:33%;">Need more PSP, HH connections</td> <td style="width:33%;">Need more PSPs</td> </tr> </table> <p>No acceptance of "waste not" type taps Not willing to contribute towards capital cost Willing to pay deposit and monthly charges, in case HH connections are provided</p>			Need more PSP & HH connections	Need more PSP, HH connections	Need more PSPs
Need more PSP & HH connections	Need more PSP, HH connections	Need more PSPs				

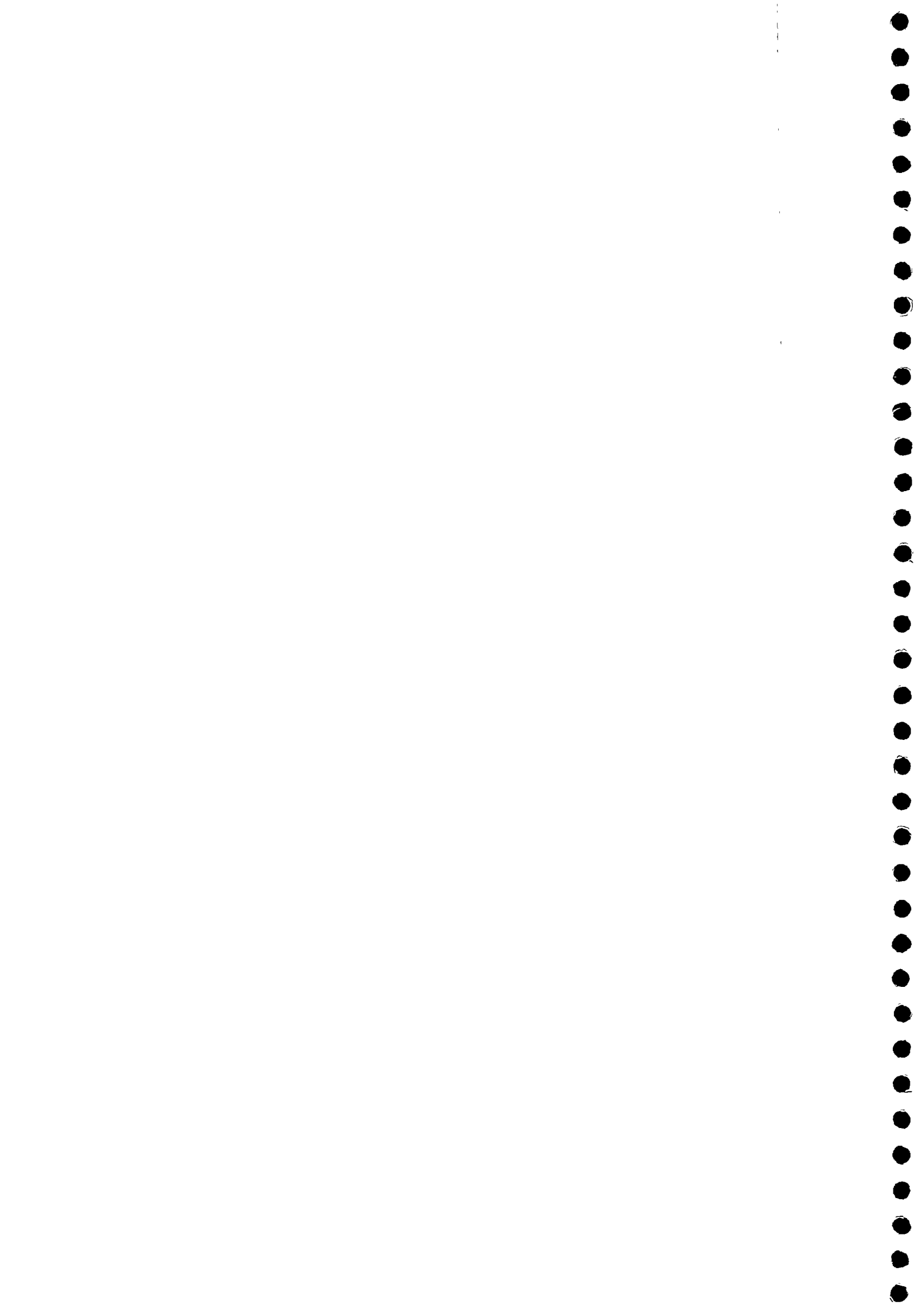


- 6.11 In such cases, the operator has his own timings for distribution of water for the habitations to be covered by him. People are not happy about this arrangement (more often blame the operator, that he is partisan to a particular village in giving water). The operators in Salem and Vellore are being paid a honorarium per month (which varies from Rs.150-250), in case of operators in Kanyakumari district, are paid a sum of Rs.53/- per day. The payments are made by the respective Panchayat.
- 6.12 When there is a problem in the operational part of the system, the operator gives a written complaint to the President. There are electricians, fitters and helpers, in the Panchayat union office, who are required to attend all problems regarding the maintenance of pump house or hand pumps in the villages covered under the union. It was learnt that, normally it takes 2-3 days for the technicians to visit such villages for finding out the problem and its correction. Major problems like burning of motor, panel board defects, etc., will take longer period for rectifying the problem to restore back the normal distribution of water for public use. We could not get the authentic information on funds required by the Panchayats for maintenance. What we could gather was, no such funds are earmarked separately for maintenance of rural water supply. Apart from this, in each Panchayat Union Office, the number of electricians/fitter/mechanics available are not able to cope with the repair work, when more localities face problem at the same time. There will be delay in such instances, and to this extent users have to be content with no water through PSPs. On such occasions, already erected hand pumps comes in handy in fulfilling the requirements of water.
- 6.13 The households who are having house connections have paid an initial deposit at the time of installing the water connections. In addition, those households are levied monthly charges for water consumption. people express that they are not prepared to contribute towards capital cost, but express their readiness for payment of initial deposit and monthly charges, in case household tap connections are given.
- 6.14 In general, people express their happiness after they have started getting water through PSPs. One of the villages in Salem (Namakkal division) district, happens to be a "Flouride Free Village". In two villages of Vellore districts, which were getting water (which was saline and polluted) now are relieved of this problem, after the installation PSPs for water distribution. The two coastal villages of Kanyakumari district, were getting water through hand pump which was saline and not fit for drinking. After the installation of PSPs, the users express their happiness for they are getting 'good' water for consumption.



Sanitation

- 6.15 Owning private latrines and its use is not a common practice among the households in the Salem and Vellore, whereas in the district of Kanyakumari, as many as 511 households (15%) are having latrines. (0.60% in Salem, 5% in Vellore and 15% in Kanyakumari districts).
- 6.16 During our visit, we could see in our habitation, a community latrine, but not under use. We were told that in the beginning it was under use. Later on, the users did not care to keep it clean, using water for flushing, as it was reported that there was shortage of water, and thus now it is an abandoned one.
- 6.17 It was reported that, some of the households have built these latrines after getting subsidy (88 out of 730 or 12%). One of the Presidents in Kanyakumari reported that in a year he covers a target of 10 beneficiaries, and there is a great demand for private latrines.



7.0 WATER SOURCES USED BY SELECTED HOUSEHOLDS

Salem District

Cooking/Drinking

7.01 In Salem District, a high percentage of households as many as depend on PSP (86% during summer, 63% during other seasons). During other seasons households also make use of hand pump (22%) for meeting their requirements, as compared to a figure of 6% of households during summer. Wells (own or community) article still used as a primary source by 9% and 12% of households in the district during summer and other seasons respectively.

Table - 7.1 : Dependency (%) of Sample Households using Different Water Sources for different purposes - Salem District

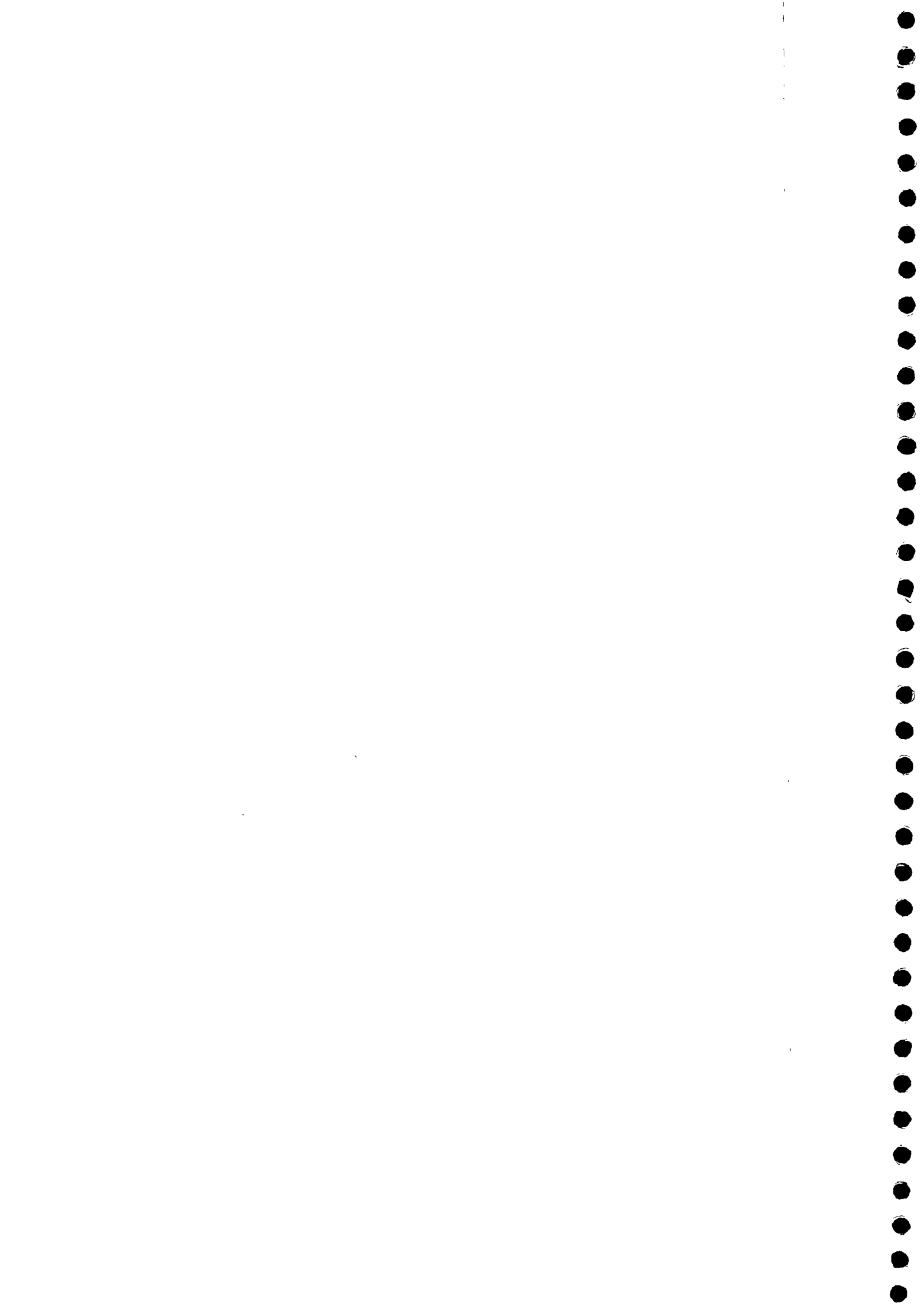
Source	Cooking / Drinking		Other Domestic Purposes		Livestock	
	S	OS	S	OS	S	OS
1 Tap	-	-	-	-	-	-
2 PSP	86.1	62.7	48.8	42.0	3.4	36.6
3. MWS	3.7	3.7	-	4.4	-	12.2
4. HP	5.8	22.0	26.8	31.5	26.8	23.0
5. Comm. Well	2.7	4.4	11.9	12.9	15.9	17.1
6. Own Well	6.4	7.8	6.8	8.5	2.4	3.6
7. Other Well	-	0.3	5.1	0.7	-	-
8 Canal	0.7	0.7	-	-	8.5	6.1
9. Irrign. Well	0.3	-	5.1	0.7	39.0	52.4
No. of HHS	295		255		82	

Note: (1) S : Summer, OS : Other Seasons

(2) Since multiple sources are used, % do not add to 100.

Other Domestic Purpose

7.02 It can be seen that a large proportion of households report PSP as one of the main source of water for consumption for other domestic purpose needs. Next comes in HP (31% during other season, 27% during summer). This is followed by community wells, own wells and irrigation wells.



Livestock Requirements

7.03 In the District, nearly 28% of the households own livestock. Irrigation well formed major source of water for meeting the requirements of water used for livestock (39% in summer, 52% during other seasons). This is followed by PSP (27 to 28%). In summer for the requirements for cooking/drinking and other purposes, selected households main source is PSPs. As regards requirements for livestock, HPs and wells forms major source of water.

Vellore District

7.04 In Table 7.2 the distribution of households reporting different sources of water used for cooking/drinking, other purposes and livestock requirements are presented.

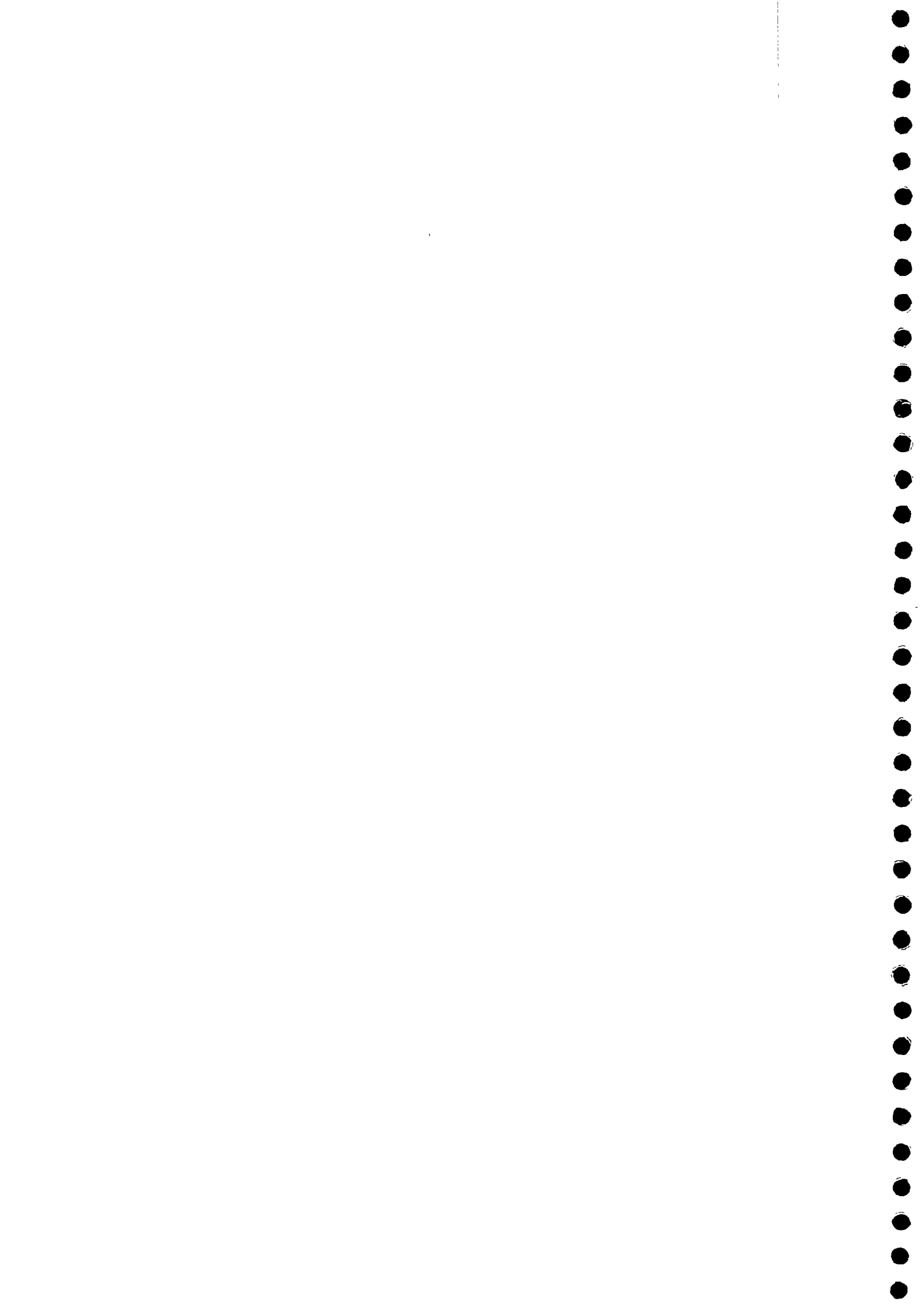
Table - 7.2 : Dependency (%) of Sample Households using Different water sources for different purpose - Vellore District

Source	Cooking / Drinking		Other Domestic Purposes		Livestock	
	S	OS	S	OS	S	OS
1 Tap	1.6	1.6	1.6	1.6	-	-
2 PSP	94.1	86.7	76.9	74.1	31.3	24.1
3 MWS	-	-	-	-	-	-
4 HP	0.8	3.1	9.0	40.6	-	1.2
5 Comm Well	3.1	7.0	11.8	11.8	-	-
6 Own Well	4.3	4.3	4.7	4.7	27.7	28.9
7. Other Well	-	-	-	-	13.2	18.1
8 Canal	-	-	-	-	-	-
9. Irrign Well	-	-	-	-	-	-
No. of HHS	255		255		83	

Note: (1) S : Summer, OS : Other Seasons

(2) Since multiple sources are used, % do not add to 100.

7.05 The data reveals that a large number of households depends on PSP (94% in summer, 87% during other seasons) for meeting their requirements of cooking and drinking. Next in order comes, the unprotected sources like wells (reporting a figure of 7% and 4.3% during other seasons). The dependency on HP whether in summer/other seasons is negligible. This is due to the fact that 67% of HPs, are in working condition. Again, of this as many as 44% reported as saline and polluted.



Other Domestic Purposes

7.06 In case of water requirements for other domestic purposes, nearly 77% of households, use PSP, for meeting the requirements. However, use of HP as a source of water for domestic purposes is reported by 10% of households.

Water for Livestock

7.07 Nearly 32 per cent of households reported owning of livestock in the district. Though, as many as 28 per cent of households reported, use of water from wells owned by them, still the water from PSP, have been used by as many as 31% of households. On the whole, the selected households water requirements are met by the PSPs, whether for cooking/drinking, or for other domestic and livestock requirements.

Kanyakumari District

Cooking/Drinking

7.08 From Table 7.3 given below, it is seen that about 14 per cent of selected households report to depend on Tap water (house connections). However, more than 80% of the households, reported that PSPs as the major source of meeting the requirements. A small percentage of households (8%) reported wells as another source of water.

Table - 7.3 : Dependency (%) of Households using different sources of water for different purposes - Kanyakumari District

Source	Cooking / Drinking		Other Domestic Purposes		Livestock	
	S	OS	S	OS	S	OS
1. Tap	14.4	14.1	14.1	13.77	-	-
2. PSP	79.6	81.5	57.2	57.8	53.1	46.9
3. MWS	-	-	-	-	-	-
4 HP	-	-	5.9	5.6	-	-
5 Comm. Well	2.2	2.2	17.8	40.8	37.5	40.6
6 Own Well	6.7	6.3	14.1	13.7	71.9	68.7
7. Other Well	-	-	-	-	-	-
8. Canal	-	-	4.1	4.4	6.2	6.2
9. Irrign. Well	-	-	-	-	9.4	9.4
No. of HHS	270		270		32	

Note: (1) S : Summer, OS : Other Seasons

(2) Since multiple sources are used, % do not add to 100.



Other Domestic Purpose

- 7.09 Households who are reported to have house connections, also make use of the water available for other domestic purpose (14%). PSPs are major source of water, reported by the selected households (82% during summer, in other seasons 57%). Well water formed another source of water, reported by households for their domestic purposes.

Livestock

- 7.10 Owning livestock is reported by 32 selected households (32%). Wells formed the main source of water for meeting the needs of livestock animals reported by the selected households. It varied from 38% to 72% during summer and during other seasons it was 41% to 69%. Irrigation wells formed another source of water reported by the selected households.
- 7.11 As compared to other two selected districts, public distribution of water is through PSPs and household tap connections for cooking/drinking purposes as well as other domestic purposes. For the requirements of livestock animals, wells formed major source of water source.

Distance

- 7.12 In Tables 7.4 to 7.6 we have presented data on distance travelled by selected households for meeting their water needs.

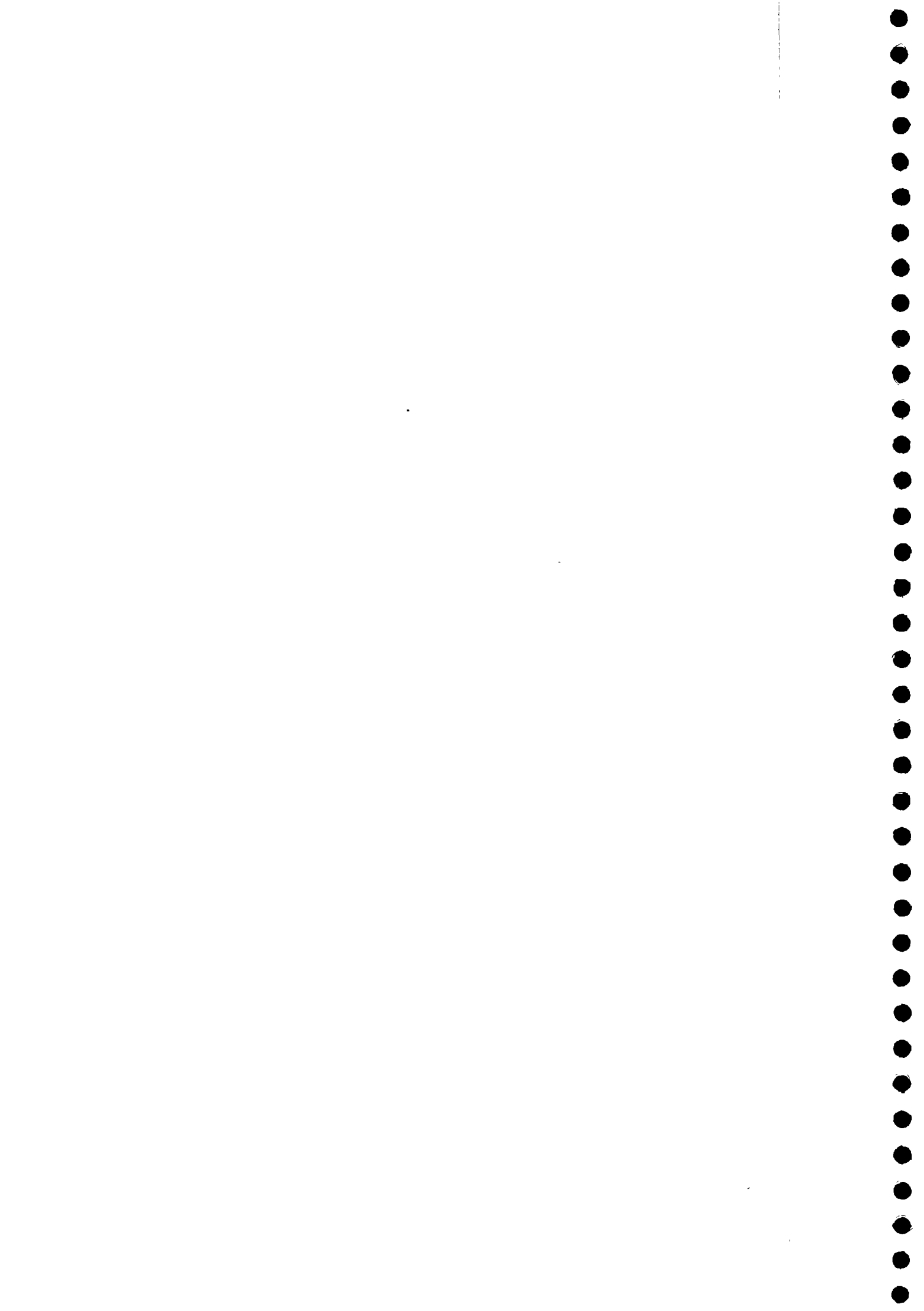
Source wise distance travelled - Salem District

Cooking / Drinking

- 7.13 In Salem District, nearly 65 per cent of households travelled less than 50 metres. By and large, this is mostly for PSP in the selected habitations. In case of hand pumps about 9% of selected household could collect water within a reach 50 metres and below (Table - 7.4).

Other Domestic Purposes

- 7.14 In the case of water for other domestic purposes, PSPs and HP being the main sources of water. The distance travelled by selected households was within a reach of 50 meters.



Livestock

- 7.15 Many of the households reported that, they travel more than 100 metres - for the requirements of water for the livestock - the water source being irrigation well. However, PSPs and HPs continue to serve the livestock requirements, which the households can reach within a distance of 50 metres.

Source wise distance travelled - Vellore District

Cooking and Drinking

- 7.16 In case of selected households from the Vellore district, most of them (as many 64.5 per cent) travel a distance within 50 metres to PSPs, which is the main source of water for cooking and drinking (Table 7.5).

Other Domestic Purpose

- 7.17 The main source of water in meeting the needs for other domestic purposes being PSP and is within a reach of 50 metres. About 21 per cent of households reported travelling beyond 50 metres.

Livestock

- 7.18 Main source of water for livestock requirements among the selected households, reported own well (28 per cent) within a reach of less than 50 metres. Others well, as a source could be reached at ore than 50 metres, by 16 per cent of households.

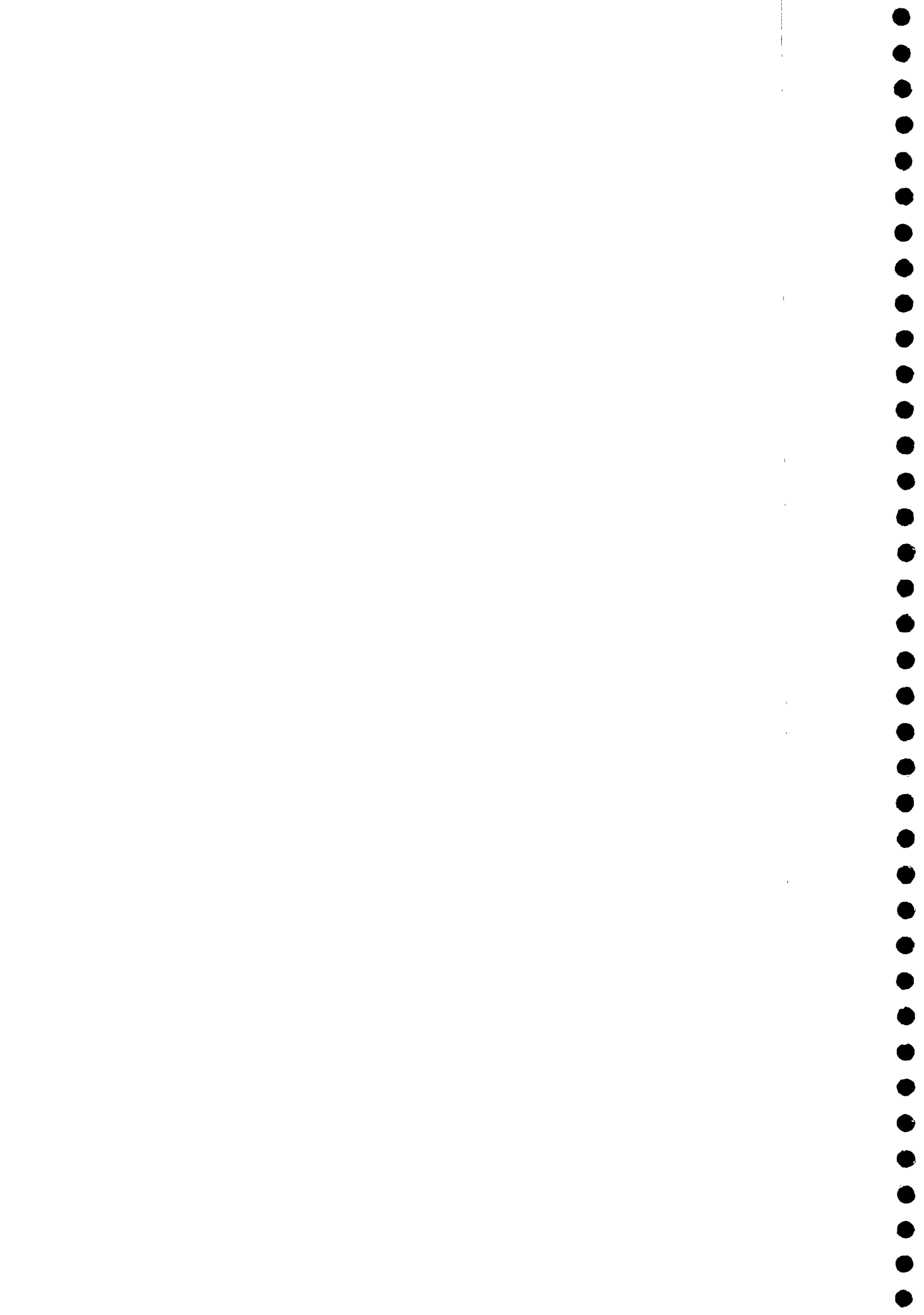
Source of Water and Distance travelled - Kanyakumari district

Cooking / Drinking

- 7.19 In case of households requirements for cooking and drinking as many as 13 per cent reported to have household connections. This is followed with 62% households reporting to reach PSPs, within a distance of 50 metres.

Other Domestic Purpose

- 7.20 In case of water requirements for other domestic purposes, as many as 13 per cent use tap water and no need for them to travel any distance. Other source of water, which the selected house use, falls within a reach of less than 50 metres. Other sources of water reported by the households are wells (community wells, own wells) also falls within a reach of less than 50 metres.



Livestock

7.21 Own well forms major source of water, which is also within a reach of upto 50 metres distance, on which 40% of selected households are making the use of water for livestock requirements.

The above analysis reveals that across the districts, households have access to PSPs, the main source of water is within a distance of 50 metres meeting the requirements of water for cooking/drinking and other domestic purposes.

Table - 7.4 : Percentage Distribution of sample households according to distance travelled for collecting water - Salem District

Source	C/D				ODP				LS			
	A	B	C	D	A	B	C	D	A	B	C	D
1	-	-	-	-	-	-	-	-	-	-	-	-
2	18.3	47.2	4.3	3.1	9.1	29.6	2.6	3.0	3.5	25.8	0.4	2.3
3	-	1.7	1.3	0.7	-	0.8	1.1	0.2	-	1.6	1.9	0.4
4	1.7	7.6	1.2	3.2	3.3	20.2	1.8	3.1	1.9	12.5	1.2	1.9
5	0.5	1.2	-	0.8	6.9	4.3	-	0.8	5.1	5.5	-	-
6	4.6	2.0	0.3	-	5.8	1.1	0.3	0.2	-	0.4	-	1.6
7	-	-	-	0.2	-	-	-	2.8	-	-	-	-
8	-	0.2	0.5	-	-	-	-	-	-	-	2.7	1.9
9	-	-	0.2	-	-	-	-	2.8	-	1.6	-	27.7

Note: A. Water Source:

1: Tap, 2: PSP, 3: MWS, 4: HP, 5: Comm. Well, 6: Own Well, 7: Others Well, 8: Canal, 9: Irrigation Well

B. Purpose :

C/D: Cooking/Drinking, ODP: Other Domestic Purpose, LS: Livestock

C. Distance travelled (in meters):

A: 0 mtrs, B: More than 100 Mtrs, C: 50 to 100 Mtrs, D: More than 100 Mtrs.

Table - 7.5 : Percentage Distribution of Distance travelled for Water Source - Vellore District

Source	C/D				ODP				LS			
	A	B	C	D	A	B	C	D	A	B	C	D
1	1.5	-	-	-	1.5	-	-	-	-	-	-	-
2	1.9	64.5	19.0	2.1	-	52.2	20.1	0.7	-	23.5	2.3	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	0.2	1.7	-	-	3.8	5.3	0.4	-	0.6	-	-
5	-	2.6	2.3	-	0.4	4.4	6.6	-	-	-	-	-
6	3.8	0.1	-	-	-	0.9	-	3.6	13.8	14.4	-	-
7	-	-	-	-	-	-	-	-	-	-	6.0	-
8	-	-	-	-	-	-	-	-	-	-	-	3.6
9	-	-	-	-	-	-	-	-	-	-	-	5.4

Note: (1) S : Summer, OS : Other Seasons

(2) Since multiple sources are used, % do not add to 100

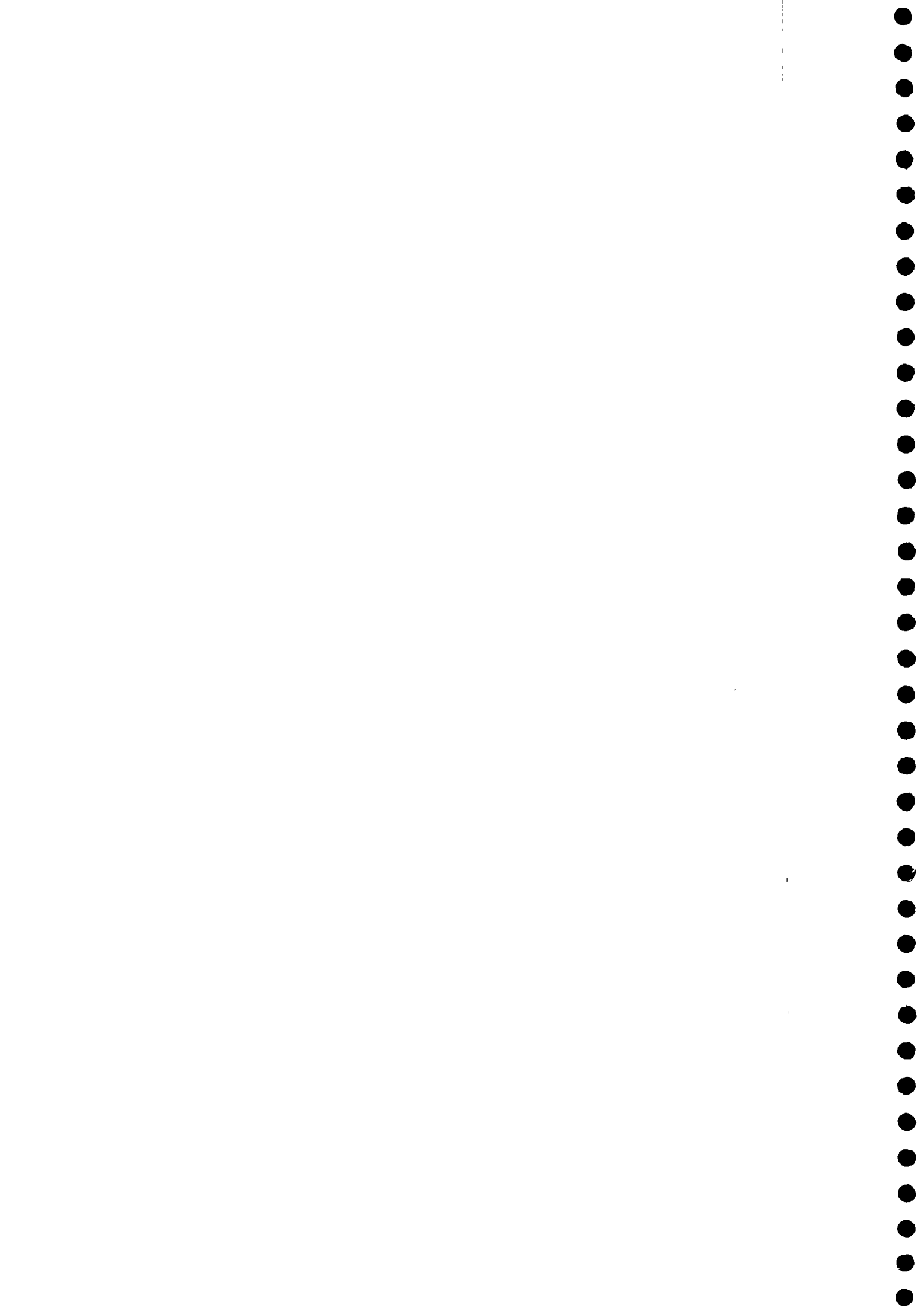


Table - 7.6 : Percentage Distribution of households according to distance travelled for collecting water - Kanyakumari District

Source	C/D				ODP				LS			
	A	B	C	D	A	B	C	D	A	B	C	D
1	13.3	-	-	-	12.9	41.2	0.2	-	-	-	-	-
2	0.3	61.8	12.9	-	0.3	41.2	-	-	12.5	14.3	1.8	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	0.7	4.3	0.3	-	-	-	-	-
5	-	2.1	-	-	-	6.3	10.	0.7	-	13.4	8.9	-
6	5.9	0.2	-	-	8.3	4.5	0.2	-	20.5	19.6	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	4.0	-	-	-	-	3.6
9	-	-	-	-	-	-	-	-	-	-	-	5.4

Note: (1) S : Summer, OS : Other Seasons

(2) Since multiple sources are used, % do not add to 100.

Perception about Water Quality and Colour

7.22 In Salem district, all sources were perceived as 'good' (sweet). However, about 13 percent of households reported Saltish for the well water and about 7 percent of households attributed the quality of water HP as Saltish. As regards colour, all reported that the water colour is clear, irrespective of the source of water.

Table - 7.7 : Percentage Distribution of Sourcewise Perception about Water Quality - Salem District

	Water Quality			Water Colour	
	Good	Saltish	Smell/ Others	Clear	Muddy/ Brown
1. Tap	-	-	-	-	-
2. PSP	218 (73.9)	-	-	276 (93.6)	-
3. MWS	10 (3.3)	-	-	-	-
4. HP	93 (31.5)	20 (6.8)	-	9 (3.0)	-
5. Community Well	-	19 (6.4)	-	3 (12.9)	1 (0.3)
6. Own Well	16 (5.4)	7 (2.4)	-	23 (7.8)	-
7. Others Well	12 (4.1)	-	-	12 (4.1)	-
8. Canal	-	-	-	-	-
9. Irrign Well	11 (3.7)	11 (3.7)	-	27 (9.1)	-

Note: (1) Multiple responses.

(2) Figures in bracket denote percentage of responses



7.23 In Vellore district, as many as 8 percent of households reported the water from HP as Saltish. Majority of the households reported that water quality is good in all other cases. As regards the colour of water, about 5 percent of households reported water HP is muddy/brown.

Table - 7.8 : Percentage Distribution of sourcewise perception of Water Quality - Vellore District

Source	Water Quality			Water Colour	
	Good	Saltish	Smell/ Others	Clear	Muddy/ Brown
1. Tap	4 (1.6)	-	-	4 (1.6)	-
2 PSP	243 (95.3)	-	-	250 (98.0)	-
3 MWS	-	-	-	-	-
4. HP	31 (12.1)	20 (7.8)	-	29 (11.4)	12 (4.7)
5 Comm.Well	19 (7.4)	12 (4.7)	-	32 12.5	-
6. Own Well	21 (8.2)	4 (1.6)	-	22 (8.6)	3 (1.2)
7 Others Well	1 (0.4)	-	-	1 (0.4)	-
8. Canal	-	-	-	-	-
9 Irrign Well	1 (0.4)	2 (0.8)	-	-	-

Note: (1) Multiple responses.

(2) Figures in bracket denote percentage of responses.

7.24 In Kanyakumari district, the water from HP as a source, is Saltish (3% of households reporting) another 6 percent of households reported as Saltish when the source of water was from well. The households while reporting the colour of water, about 3 percent of households perceived that the water from HP is muddy, brown and another 5 percent of households expressed that the canal water is muddy.

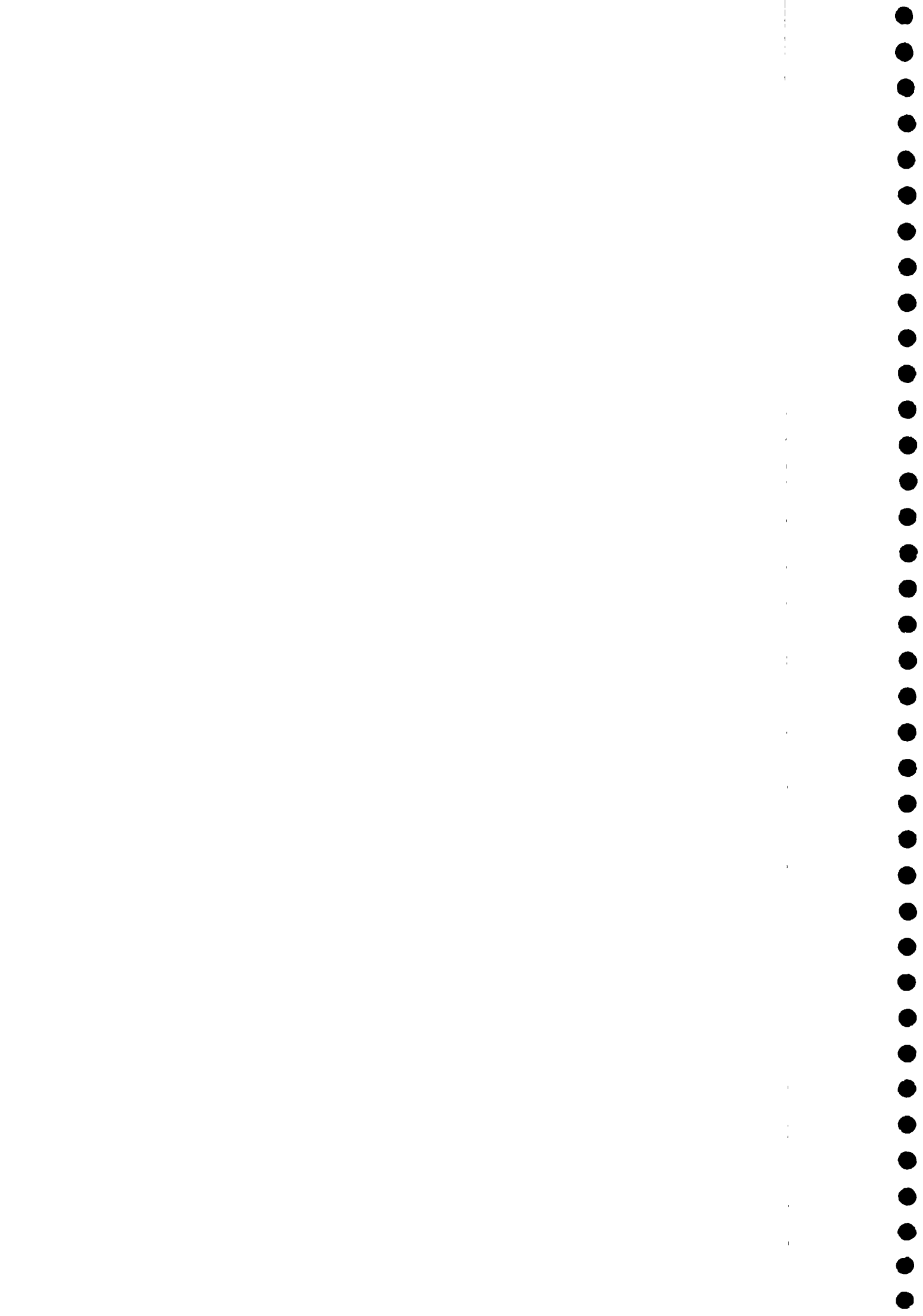


Table - 7.9 : Percentage Distribution of sourcewise perception of Water Quality - Kanyakumari District

Source	Water Quality			Water Colour	
	Good	Saltish	Smell/ Others	Clear	Muddy/ Brown
1 Tap	43 (15.9)	-	-	44 (16.3)	-
2 PSP	205 (75.9)	-	-	214 (79.2)	-
3. MWS	-	-	-	-	-
4. HP	14 (31.5)	8 (3.0)	-	14 (5.2)	8 (3.0)
5. Comm. Well	36 (13.3)	15 (5.6)	-	42 (15.6)	8 (3.0)
6 Own Well	38 (14.1)	1 (0.4)	-	33 (12.2)	4 (1.5)
7. Others Well	-	-	-	-	-
8. Canal	-	-	-	-	-
9. Irrign Well	-	-	-	-	-

Note: (1) Multiple responses.

(2) Figures in bracket denote percentage of responses.

Water Consumption by Households (per capita per day)

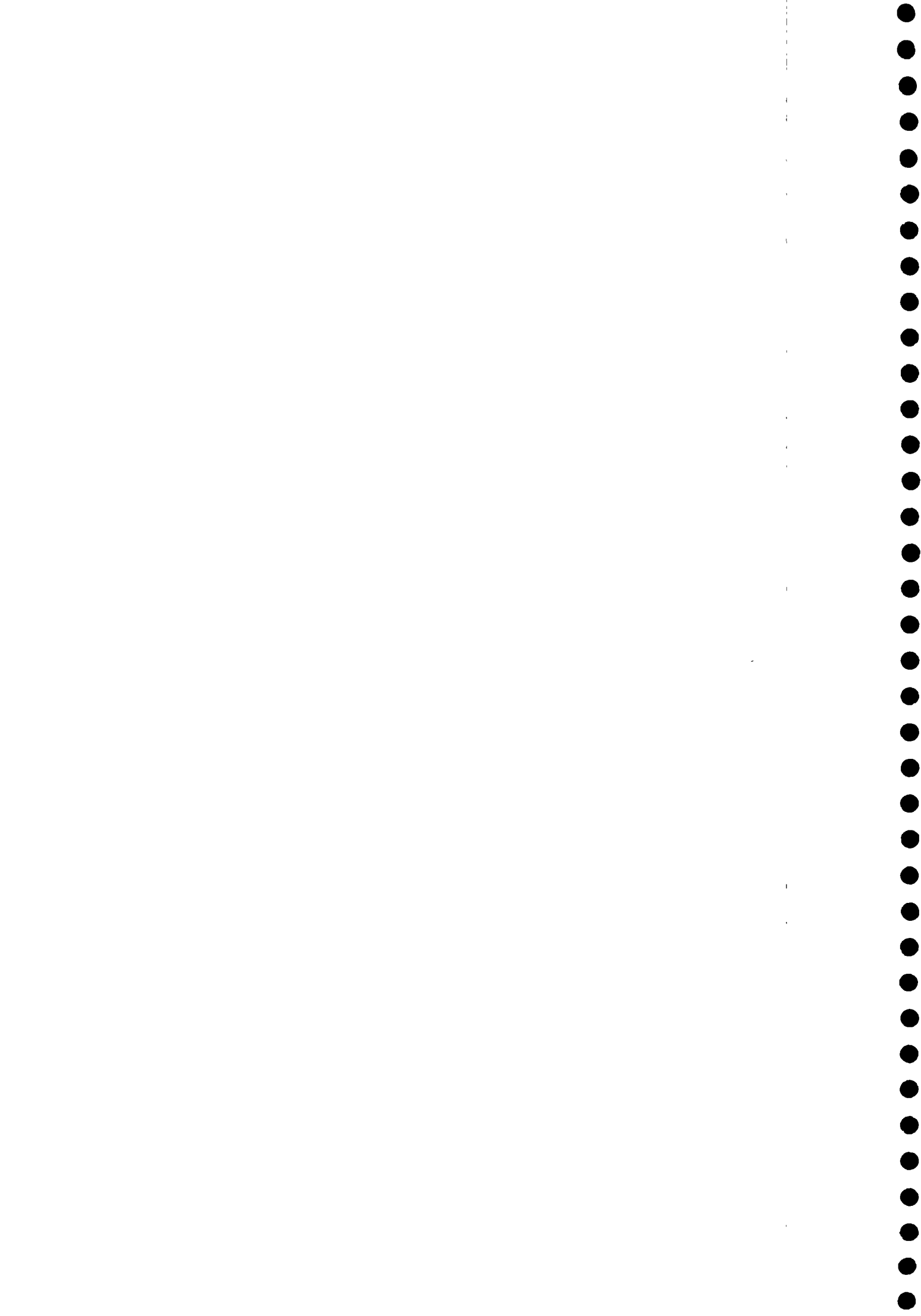
7.25 The per capita water consumption per clay for the selected households in the three selected districts have been worked out as follows:

We have collected data on the number of trips made by selected households during morning, afternoon and evening of a day for collection of water for household use. The quantity of water collected from such trips made have been recorded. These figures have been recorded for separately for summer and other seasons. We have worked out the average number of persons for household. On the basis of these data the per capita consumption per day has been arrived at.

- I. Number of Trips (Total No.): Morning + Afternoon + Evening)
- II. Quantity of water (litres fetched per time)
- III. Average household size (no. of persons)

Per capita water consumption per day (litres) is given by

$$\frac{\text{Total Quantity of water}}{\text{Average no. of persons per household}}$$



Salem District

- 7.26 In Salem district, the average number of persons per household works out to 4.13. The total number of trips made by all the 295 selected households is 3760 and 3254 during summer and other seasons respectively. The average quantity of water collected is about 10 litres per trip. The average water consumption (per capita per day) works out to 30.87 litres during summer and during other seasons it is 26.72 litres.

Vellore District

- 7.27 The total number of trips made by all the selected households is 4150 during other season, the number of trips works out to 3812. The average number of persons per household is 3.98. On the basis of these figures, the water consumption per day per person works to 40.88 litres. On the other hand, the figure for other seasons is 37.56 litres.

Kanyakumari District:

- 7.28 The total population of all the selected households (270) is 1020 and the average number of persons per household works out to 3.78. In summer, the number of trips made by all the selected households is 2639 and in other seasons it is 2709. On the basis of these figures, the per capita water consumption during summer is 25.87 litres per day and 26.56 litres per day in other seasons.
- 7.29 On the basis of the household data collected during field survey of selected habitations, we have projected the consumption of water per day, per person. We are not relating the consumption to the availability of water from different sources. Such an exercise needs data on the potential yield of each water source, status of water availability in different seasons etc. Therefore, our analysis attempted here is only to give the magnitude of water consumption by households during summer and other seasons.
- 7.30 Again, it should be noted that the water sources and water available vary with habitations. For example, in the case of distribution of water through PSPs, the time and water distribution during the course of a day, vary. In the selected villages of Salem district, the water distribution is by and large during all three sessions in a day, whereas in the villages of Vellore district it is only two times (morning, evening), and in the selected villages of Kanyakumari district the distribution is done only once in the morning. On an average the number of hours, for any one session is two hours. In all the selected habitations in the three selected districts, majority of households have reported that the main source of water is PSPs. In other words, this shows the thrust on PSPs, for meeting the water requirements of the selected households in the habitations covered.

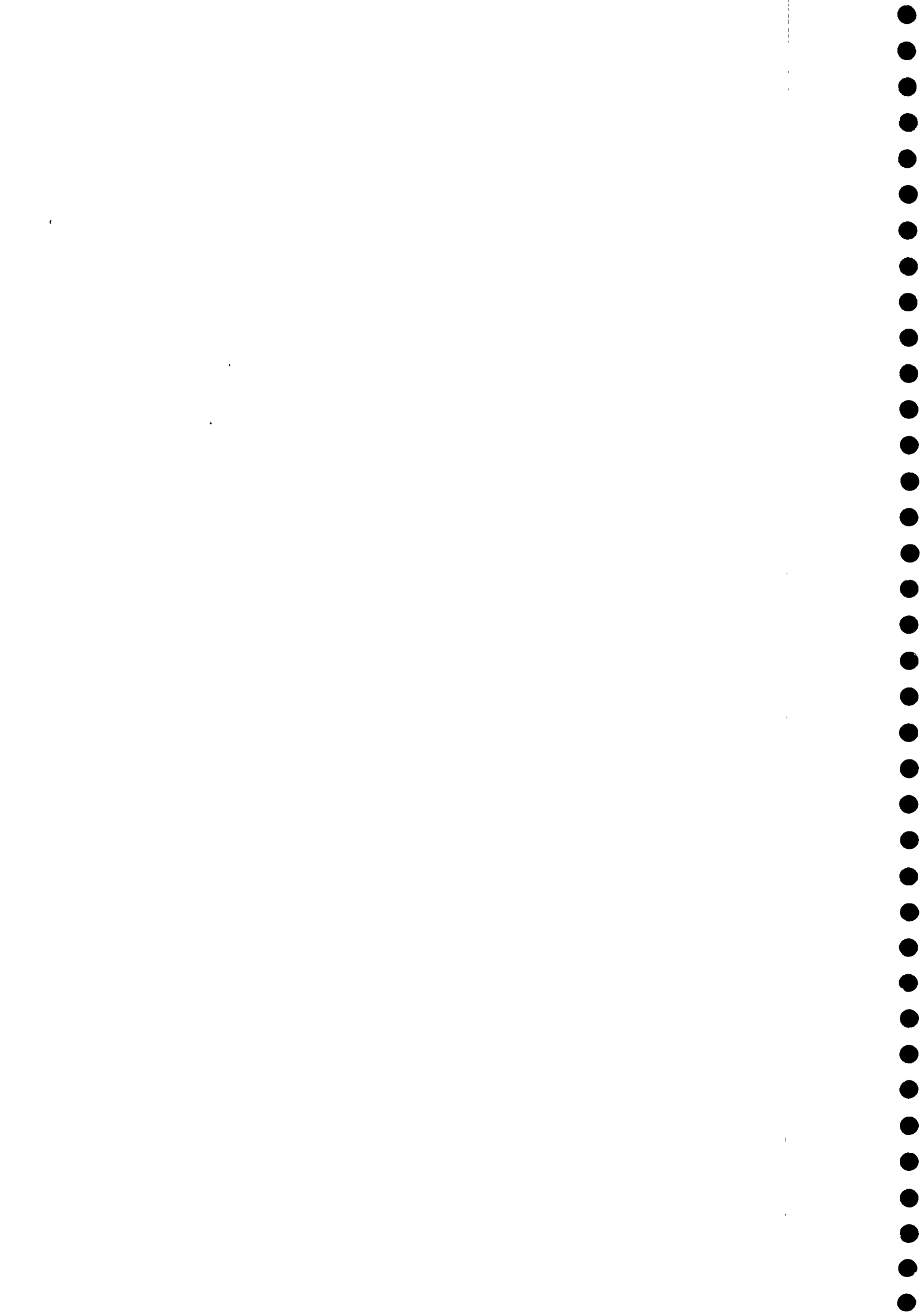
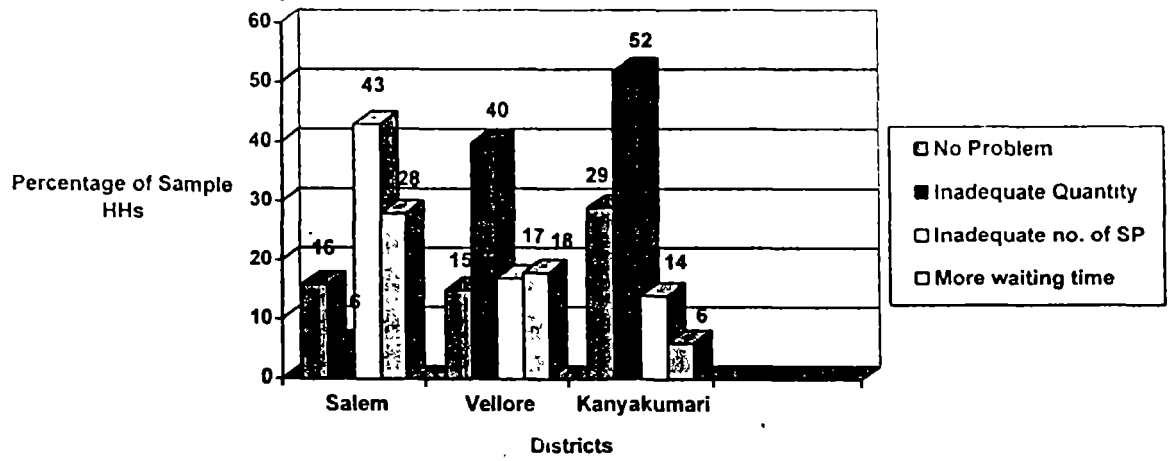
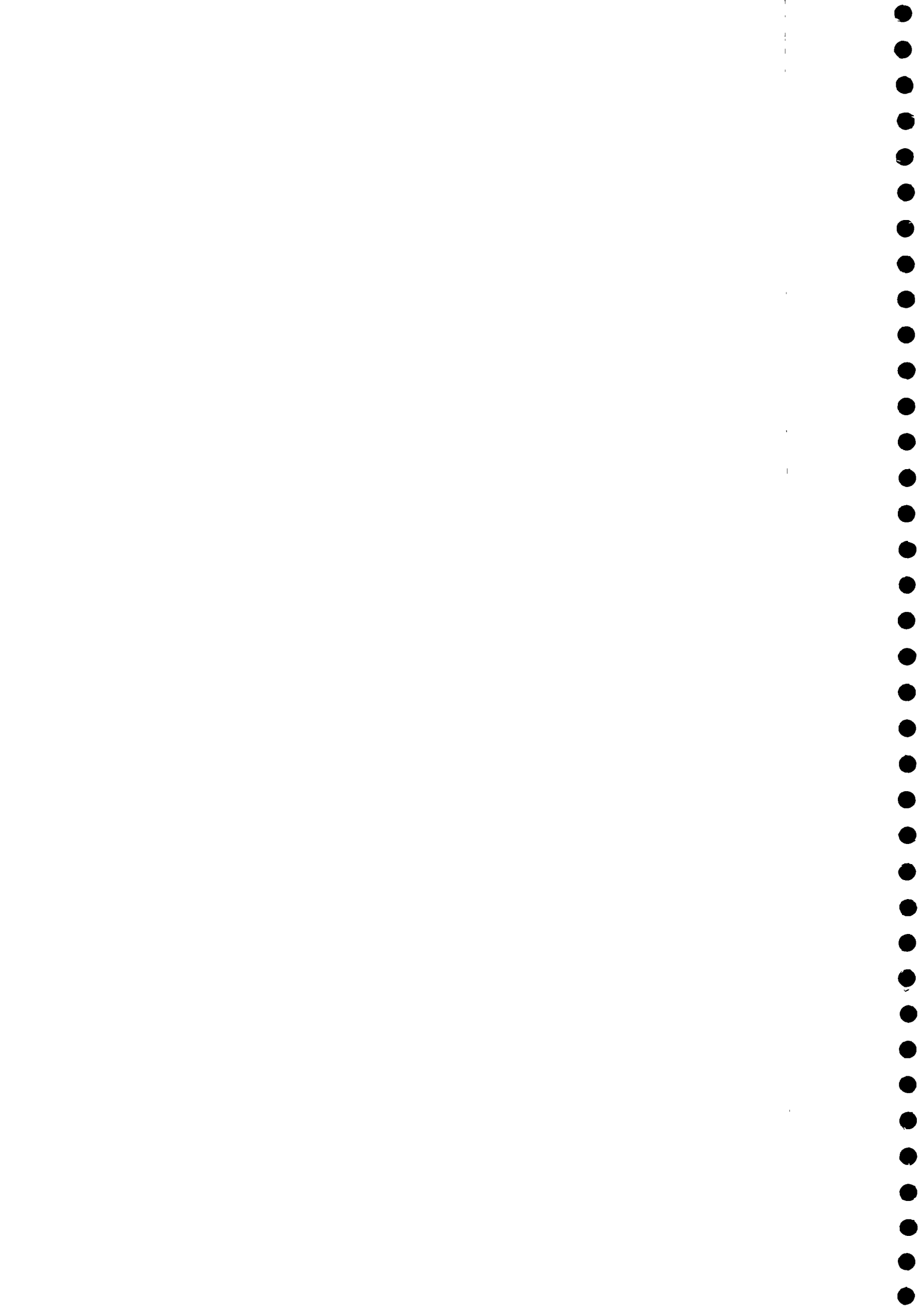


Table 7.10 - Views on problems in present Water Supply





People's views on present Water Supply

7.31 While conducting the survey in the selected habitations, we have recorded the information on the problems faced, suggestions if any for improvements, willingness to contribute towards cost of water supply scheme, sanitation views on better sanitation, etc. On the basis of the analysis of these data, the following results emerge which are presented here

Views on Problems in the Present Water Supply

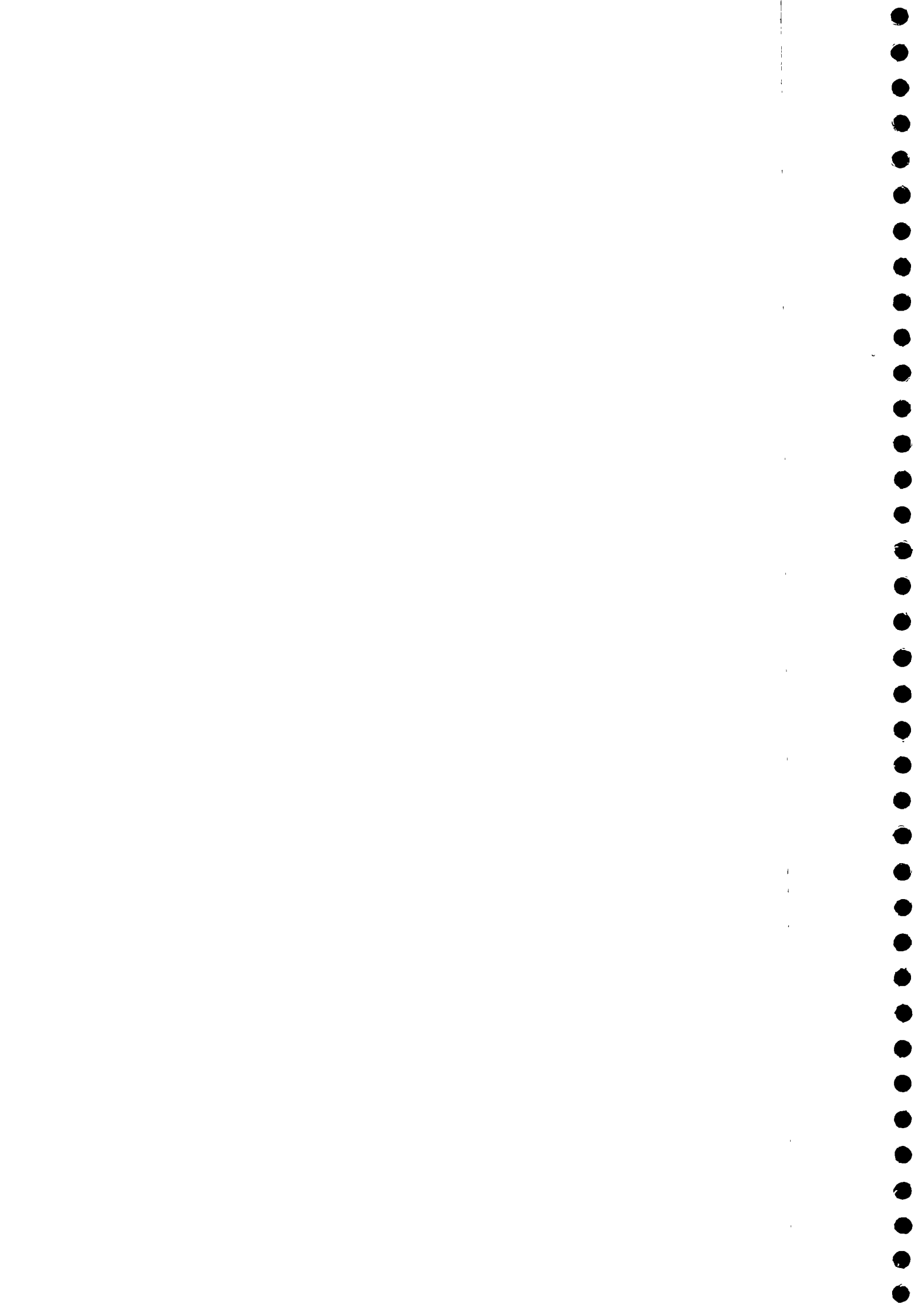
7.32 As seen earlier the main source of water in all the selected habitations (from the three districts) covered in the study is Public Stand Posts. It is also seen that this is the one which has been supplying clean water for the use of household requirements in all the districts covered.

7.33 In Table 7.10, we have presented the views expressed by the selected households as regards the present water supply.

Table - 7.10 : Percentage distribution of sample households views on problems in present water supply system

	Salem n = 295	Vellore n = 255	Kanyakumari n = 270
1. No Problem	15.9	14.9	28.5
2. Scarcity (Inadequate Quantity)	6.1	40.4	51.8
3 Inadequate No. of Stand Posts	42.7	16.9	13.7
4. More waiting time	27.8	18.4	5.9
5 No response	7.5	9.4	0.1
	100.0	100.0	100.0

7.34 In Salem District, as many as 43 per cent of respondents expressed the inadequate number of Public Stand Posts (PSP) and about 28 per cent expressed they have to wait for longer time for collection of water. About 6 per cent of households expressed that at present quantity of water they are getting is inadequate. Nearly 16% of households reported that there is no problem with the present system.



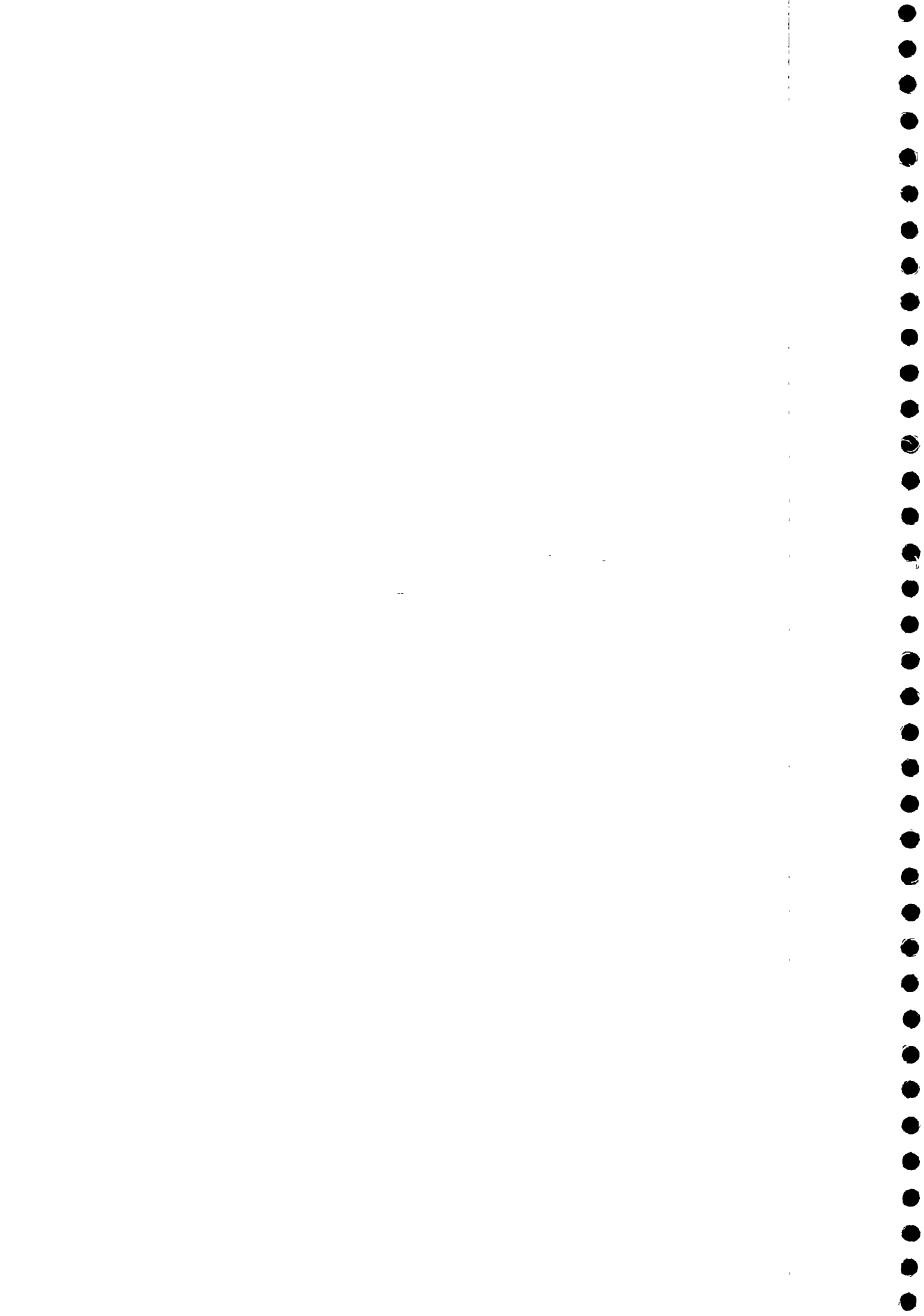
- 7.35 In Vellore District, as many as 15 per cent stated that no problem exists with the present supply system, where as another 85 per cent had different views on the present system. As much as 40 per cent expressed that they are not getting sufficient quantity of water, another 17 per cent on the inadequate number of stand posts points, 18 per cent wait more time for getting their turn.
- 7.36 The views expressed by the selected households from the habitations covered in Kanyakumari district are, 28 per cent of households expressed having no problem with the present system, 52 per cent expressed insufficient quantity of water. About 45 per cent of households expressed that they have to wait for long for getting their turn (at present, the water distribution is only once during morning in the habitations covered). Selected households (17 per cent) reported regarding the inadequate number of PSPs.

Concept of Improved Water Supply System

- 7.37 In all three districts covered, Public Stand Posts is seen overall as a better system by both men and women. In Kanyakumari District, private tap connections have been given, in addition to Public Stand Posts. In general, people's concept of an improved system is dependent on the existing facility available to them. Majority of the households covered express their satisfaction and viewed PSPs as an improved system. While expressing this view, they had also some suggestions to offer. The views expressed by the respondent households in the three selected districts is given in Table 7.11.

Table - 7.11 : Concept on Improved Water Supply System

	(% to Total)		
	Salem n = 295	Vellore n = 255	Kanyakumari n = 270
1 Satisfied with the present system	15.2	12.5	14.8
2. More number of times	10.8	16.1	33.0
3. Need more PSPs	7.8	16.9	14.1
4. Needs Cauvery water	30.8	0	0
5. HH connections, as a better system	27.8	45.1	30.7
6. No response	7.4	9.4	7.4
	99.8	100.0	100.0



- 7.38 As regards the distribution of water (number of times during a day), the 11 per cent of respondents from Salem district, 16 per cent of households from Vellore district and as much as 33 per cent in Kanyakumari expressed that the water distribution times should be more. Respondents expressed for installing more stand posts varied from 8 per cent in Salem district, 17 per cent in Vellore District, and about 14 per cent from the respondents of Kanyakumari District. Respondents from few habitations of Salem District (31%), expressed the need for Cauvery water scheme. Respondents from these habitations are aware that there is a scheme under Commission for which the source of water as Cauvery river. And also they are aware that the scheme will not cover their villages, hence this view, meaning that their villages should also be covered under the scheme. As regards individual tap connections, 45 per cent of respondents from Vellore District, 31 per cent from Kanyakumari and 28 per cent of respondents of Salem District, thought it as an improved and a better system.
- 7.39 As regards their views on contribution towards capital cost, most of them have expressed their unwillingness for such contribution. This is uniform in all the three districts. However, if improvements over the system such as household tap connections are given, they expressed their willingness to pay the initial deposit and also their readiness for paying monthly consumption charges. For the installation of additional PSPs, they expressed that it should be done by the Government.

Sanitation

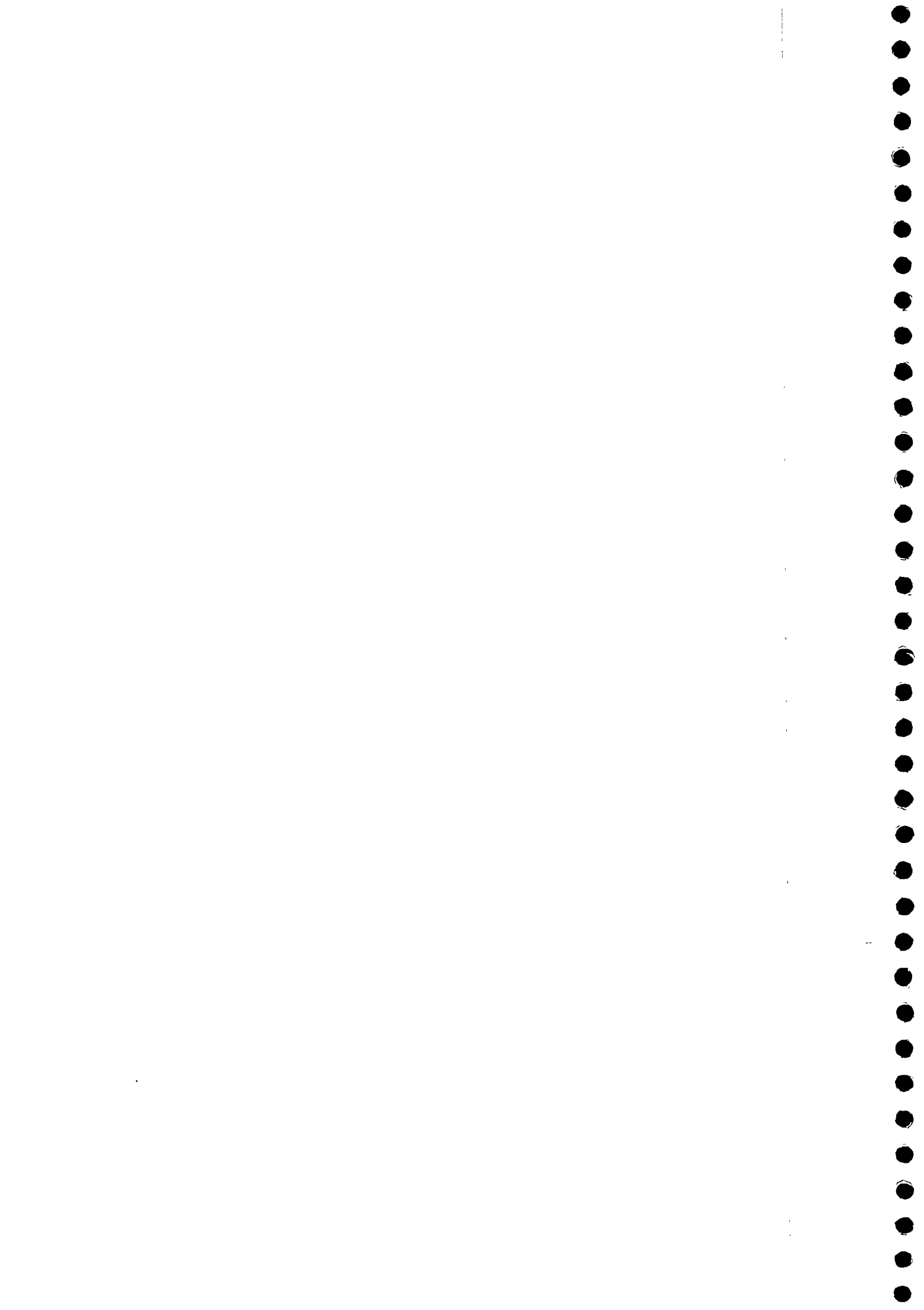
Ownership of Latrines

- 7.40 There are 32 sample households in Salem District reported owning private latrines (10.9% of total). All of them have received subsidy. Both types of latrines (22 septic tank, 10 pit latrines) have been constructed by these 32 selected households.
- 7.41 In Vellore District, number of households having private latrines is 30 (11.8%). All of them have adopted pit system and twenty have availed subsidy. As many as 107 households, in Kanyakumari District, reported owning private latrines. This formed 39 per cent of all sample households. Most common type of latrines followed is soak pit system (96 per cent). As many as 70 reported as having received subsidy.



Views on having private latrines

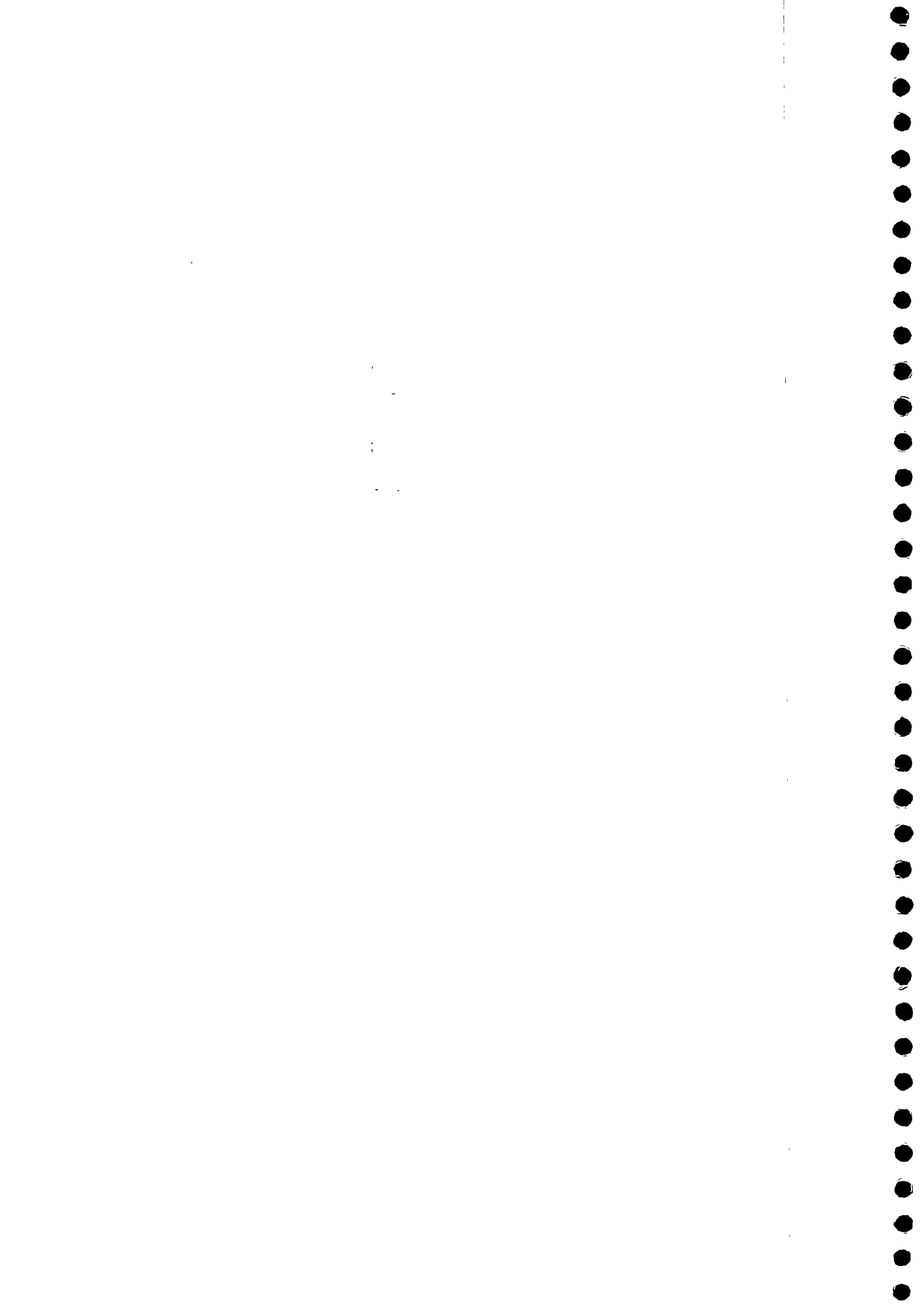
- 7.42 Views expressed by the selected households as regards having private latrines varied from district to district. Respondents view 'privacy' as the main benefit of having private latrine, but express the problems associated in the maintenance of such units.
- 7.43 In Salem District, as many as 41 per cent of households expressed availability of water as a constraint in maintaining, 31 per cent expressed lack of finance, and about 30 per cent expressed lack of space as constraints in having latrines. As many as 25 per cent expressed that there is no need for such units.
- 7.44 Among the respondents from Vellore District, 32 per cent of them expressed 'no need', 33 per cent reported lack of finance and space as constraint, and about 11 per cent mentioned the non-availability of water for maintenance.
- 7.45 The views expressed by the respondents from Kanyakumari district was as follows: lack of space was reported by 32 per cent of respondents, followed by 31 per cent needing financial assistance. The constraint in maintenance of such units was stated by 26 per cent of households (lack of adequate quantity of water). However, there were 13 per cent of respondents felt that there is no need for such units.



8.0 CONCLUSIONS

8.01 Based on the sample study in the three sample districts, the following observations were made :

- The total population of all the 45 habitations is 50375 and households covered is 10279. The average household size is 4.90 persons.
- Of the 45 habitations covered, two habitations were facing the problem of Saltish and pollution of water and in the other two habitations covered are the Coastal areas of Kanyakumari district, which was facing the problem of salinity. These habitations are "free" from such problems after the implementation of RWS.
- The most common means of water distribution is through Public Stand posts in all the selected habitations. Hand pumps are the next alternate source of water. Mini Water Supply was another source in one of the selected village.
- All the Public Stand Posts (PSP) installed is in good condition and quality of water is also good in all the habitations. However, stagnation of water was noticed around the PSP points (18% of the total).
- The distribution of water in the selected districts is as follows : Salem-morning, afternoon and evening of the day; Vellore - morning and evening and only in the morning in Kanyakumari district.
- Of the total hand pump installed, as much as 58 per cent are working. The remaining are either dried up (22%) and not working (20%). Again among the working units, as much as 41% reported not fit for drinking purpose (being Saltish, muddy, saline, etc.).
- While the Rural Water Supply schemes are being implemented by the TWAD Board (the agency for the State, with its offices at the Districts, sub-divisional levels), the operation and maintenance of rural water schemes has been vested with Panchayat.
- There exists one operator in each of the habitation studied in Salem and Vellore districts, where as in Kanyakumari district a single operator is in charge of more than one village for water distribution. This has not ensured *the timing*, frequency of water distribution in some of the villages.



- Douzing with chemical agents (bleaching powder), cleaning has been done in all the habitations (once in 2-3 months) by the Panchayats. Under the management of rural water systems by the Panchayat, one intervention has been the extension of PSP points by the Panchayats. Such instances were more in Salem district, followed by Kanyakumari district and Vellore district. TWAD Board has installed the total PSPs based on the norm which was earlier one point for every 150 persons, now revised to one for every 100 persons according to the prescribed design. In the case of points installed by Panchayats, they are not according to any design, and these installations have resulted in accumulation of water around such points which are the common scene in the selected habitations.
- The other intervention caused by the Panchayat is giving household connections (tap). This has been done by the Panchayat, as there is a demand from the people and also the Panchayat gets some revenue (monthly fee) which is a major source of income for meeting the electricity charges. However, such extensions cover only a part of the population and others who are not having this facility complain about inadequacy of water. According to them this has affected their share of water.
- Owning private latrines and its use is not a common practice among the household in Salem (0.60%) and Vellore (5%), whereas in Kanyakumari district about 15% accounted for owning latrines and its use. The construction of some of the latrines has been subsidised under the village sanitation programme of Panchayat.
- The main source of water for the households is Public Stand Posts and next in order comes hand pumps. Households have also reported community well, own well, irrigation well, as other sources of water, which are being made use of for other domestic purposes and livestock maintenance.
- Nearly 65% of households in Salem district, 65% of households in Vellore and 62% of households in Kanyakumari, reported that they travel less than 50 mtrs. to reach PSPs, the main source of water used for cooking and drinking. In case of requirements for livestock, majority reported that they travel 50 mtrs. and beyond in all the 3 districts.
- The perception of households as regards the water quality is "good" in case of PSPs and taps whereas the water from sources like hand pump (3%), community well (6%) reported saltish. With regard to colour of water, majority reported that water from PSP as "clear" whereas water from hand pump as "muddy".

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for ensuring the integrity of the financial statements and for providing a clear audit trail. The text also mentions that proper record-keeping is essential for identifying and correcting errors in a timely manner.

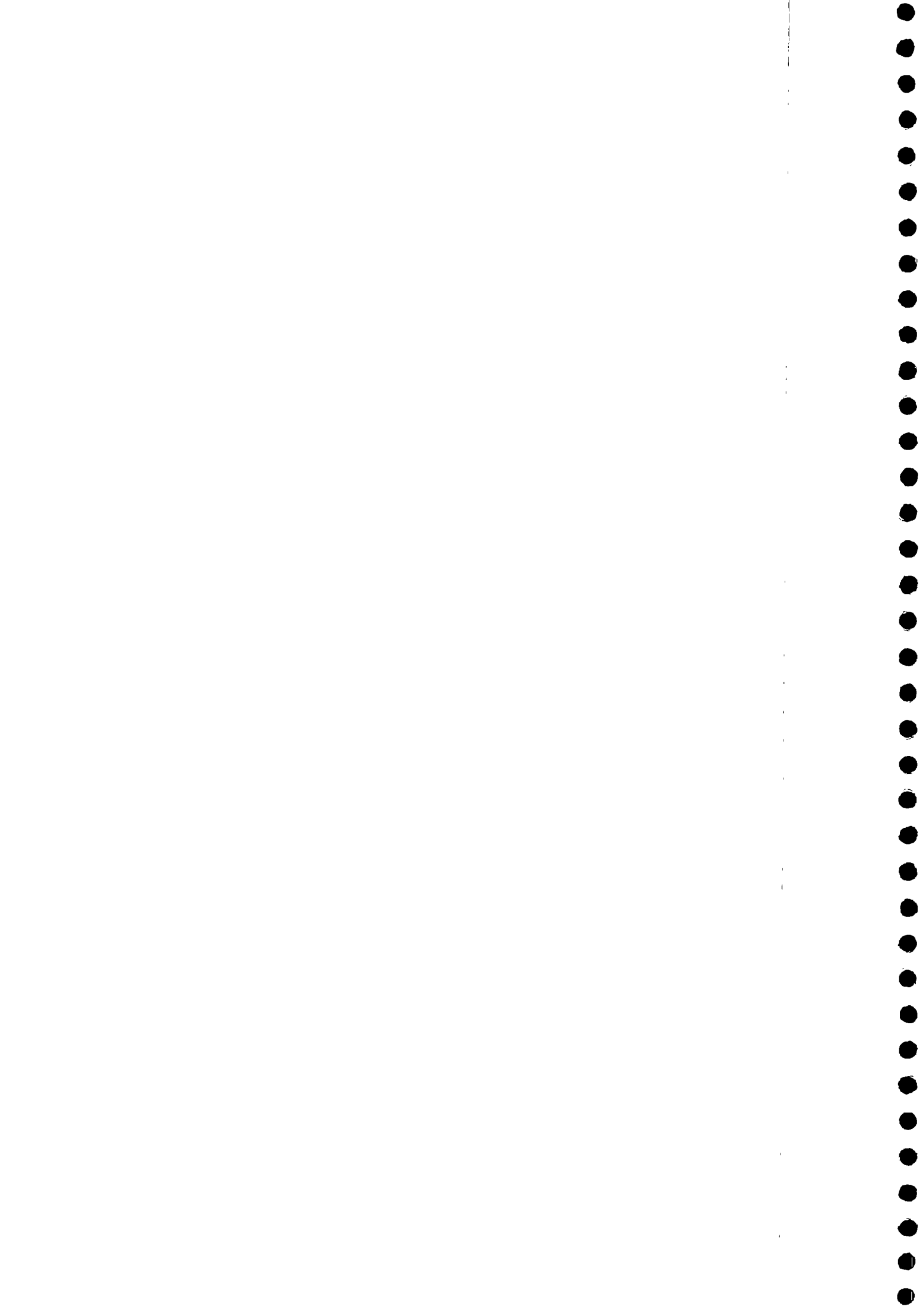
2. The second part of the document focuses on the role of internal controls in preventing fraud and misstatements. It highlights that a strong internal control system is necessary to ensure that all transactions are properly authorized, recorded, and classified. The text also notes that internal controls should be designed to provide reasonable assurance of the reliability of the financial reporting process.



- Water consumption by households - The average quantity of water consumption per capita per day in Salem is 30.87 litres during summer and other seasons it is 26.72 litres. In Vellore, it is 41 litres during summer and in other seasons it is 37.56 litres. In case of households from Kanyakumari district, it is 26 litres per capita per day in summer, in other seasons the figure is 27 litres.
- It should be noted here that the major thrust for all households in all the selected districts is PSPs. The distribution timings also is different across the habitations. In case of Kanyakumari district, the distribution is only once a day during morning only as compared to morning and evening in the other two districts.
- Views expressed by households is more often on scarcity of water (quantity of water being inadequate), inadequate number of standposts and the wait for long duration for collecting water.
- Households have expressed their unwillingness for contribution of any kind to capital cost. However, they reported their readiness for paying the initial deposit and the monthly charge, in case, household connections are given.
- Majority of the households expressed maintenance of private latrines as the major problem, availability of water being a major constraint. Other views expressed by households are : lack of finance (31%), lack of space (30%). As many as 25% expressed that there is no need for such latrines.

8.02 Following are some of the suggestions :

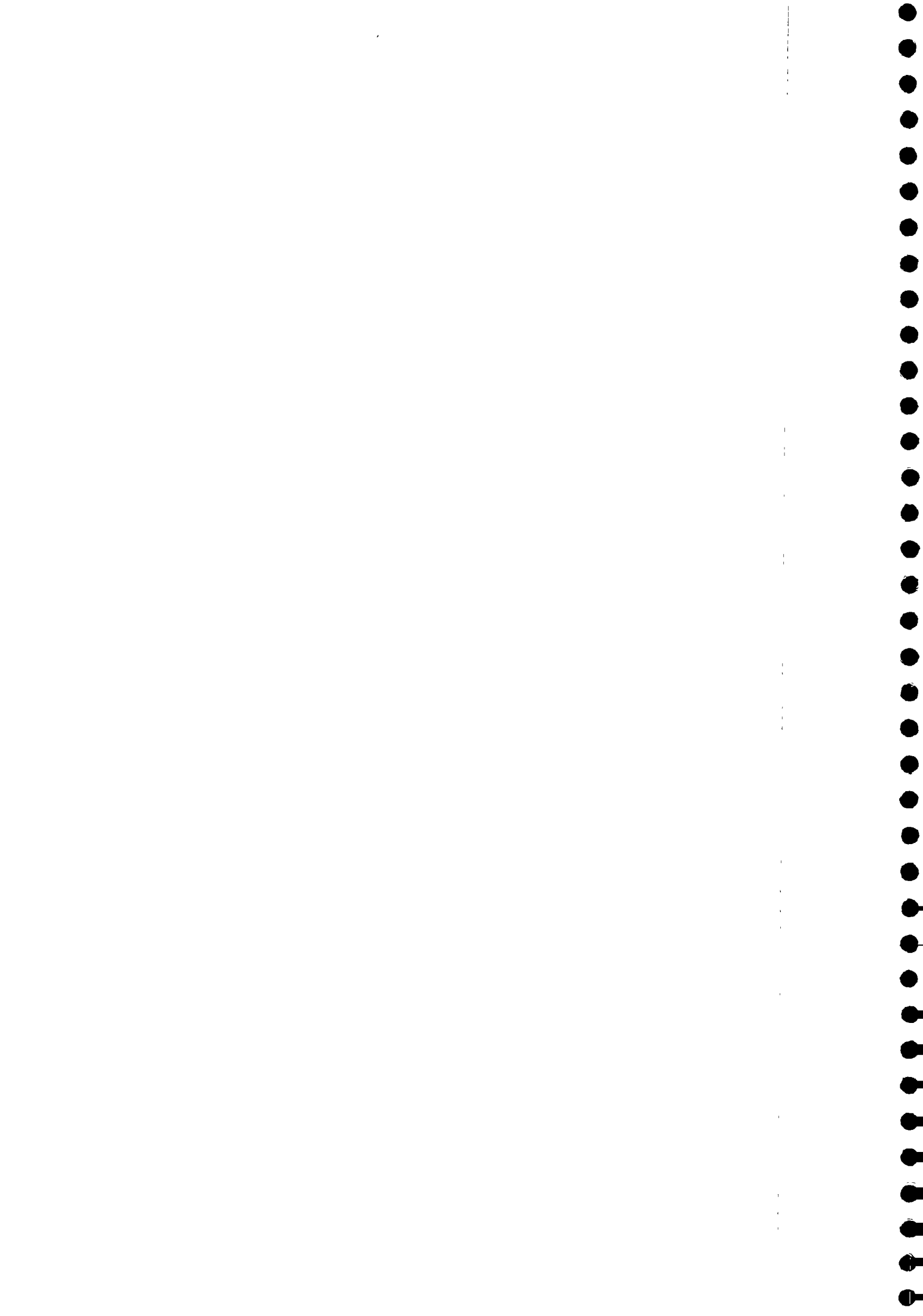
- Extension of household tap connections and / or installation of public stand posts by the Panchayat should be avoided. However, they should consult the TWAD technical staff, before executing such installations. In all such cases, they should strictly follow the same designs adopted by the TWAD Board.
- Construction of soak pits near the platform where the PSPs are installed, seems to be a feasible solution to avoid water stagnation. This should form part of the design included in the financial cost.
- Separate funds to be allocated atleast in the initial years to the Panchayats for maintenance of rural water supply schemes.

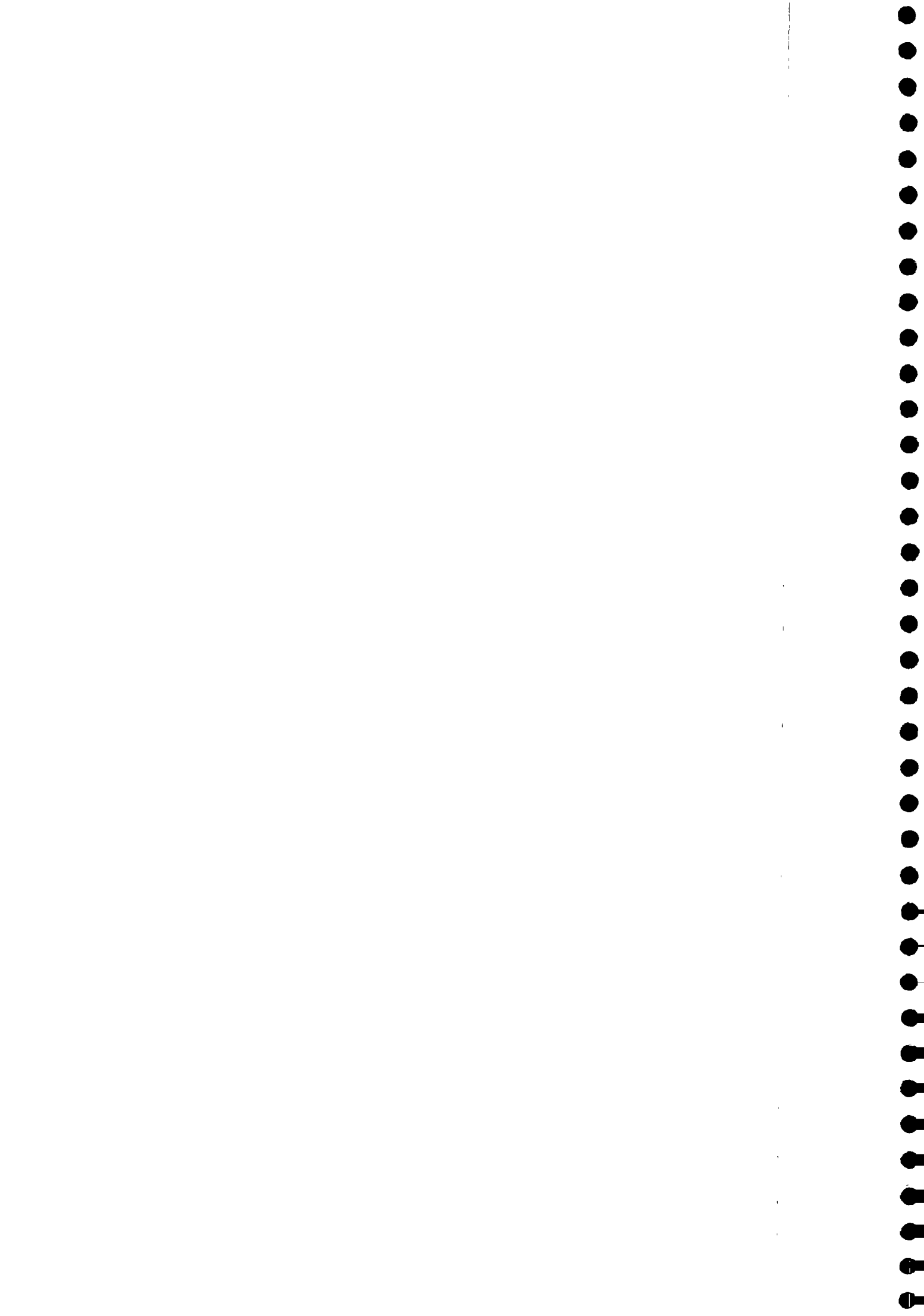


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- Water user's committee or maintenance committee's should be formed and legitimised. It may be a good idea to elect office bearers of these committees at the time of Panchayat elections so that they acquire legitimacy. Women should be encouraged to contest for elections for the positions in these committees.

- Short term orientation courses to the user's community regarding awareness on sanitation and other related activities may help in enhancing the efficiency of basic infrastructure created in the rural areas in the long run.





3.0 WATER SOURCES, DISTRIBUTION AND STATUS

3.1	Type of Water Sources in the Village (Surface Water - 1 ; Ground Water - 2 ; Both - 3)	
3.2	Type of Water Distribution (Piped Water Supply - 1 ; Mini Water Supply - 2, Hand Pump - 3 ; Open Wells - 4 ; Surface Water - 5)	

3.3 Distributing Points and Status

Type of Point	No of Points	No of Working Points	Discriminated groups	Quality perception	Condition of Installation	Condition of Surroundings
A	B	C	D	E	F	G
Standpost						
Cistern						
Hand Pump						
Open Well						
Others						

Note : *D : Specify Groups;*
E : Good - 1; Brackish - 2; Fluoride - 3; Smell - 4; Muddy - 5; Others(specify) - 6;
F : Good - 1; Mal-construction - 2; lack of Maintenance - 3; Both (2&3) - 4;
G : Good - 1; Human Activities - 2; Cattle - 3; Both (2&3) - 4;

3.4 What are the reasons for not working ?

4.0 Present Collection System

4.1	No. of Private House Connections (PHC)	
4.2	Present water charge collection for PHC (Monthly - 1; Bimonthly - 2; Half Yearly - 3; Yearly - 4)	
4.3	Amount of Tariff fixed for PHC (Rs.)	
4.4	When was this amount revised (Year)	
4.5	Collection for Public Standposts, Mini Water Supply (MWS) and Hand Pump (HP) - (Yes - 1 /No - 2)	
4.6	If Yes, collection pattern (Monthly - 1; Bimonthly - 2, Half Yearly - 3; Yearly - 4)	
4.7	Amount (Rs) of Tariff fixed for	Public Standpost
		MWS
		HP
		ALL
4.8	When was this amount revised (Year)	
4.9	Who collects Tariff	
4.10	Is collection of Tariff regular (Yes - 1 / No - 2)	
4.11	If No, Give reasons	

5.0 Operation and Maintenance of Water Supply

5.1	Who is responsible for Maintenance and Repair of the System ?		
5.2	Are there caretakers/pump operators at the habitation level (Yes -1/No -2)		
	HP		
	MWS		
5.3	If Yes, No. of caretakers/pump operators	Male	Female
	HP		
	MWS		
	PWS		
5.4	Do people know caretakers/pump operators (Yes-1/No-2)		
5.5	Who maintains water installations in the absence of caretakers/pump operators		
5.6	Does community take action in repair and maintenance of the system (Yes - 1/No - 2)		
5.7	How frequently Mechanics & Engineers from sub-division visit the village ? (Once a Week - 1; Once a Month - 2; Once in 6 Months - 3; Rarely - 4; Never - 5)		
5.8	Is water testing being done at regular intervals ? (Yes - 1/No - 2)		

5.9 Frequency of water releases in case of PWS/MWS

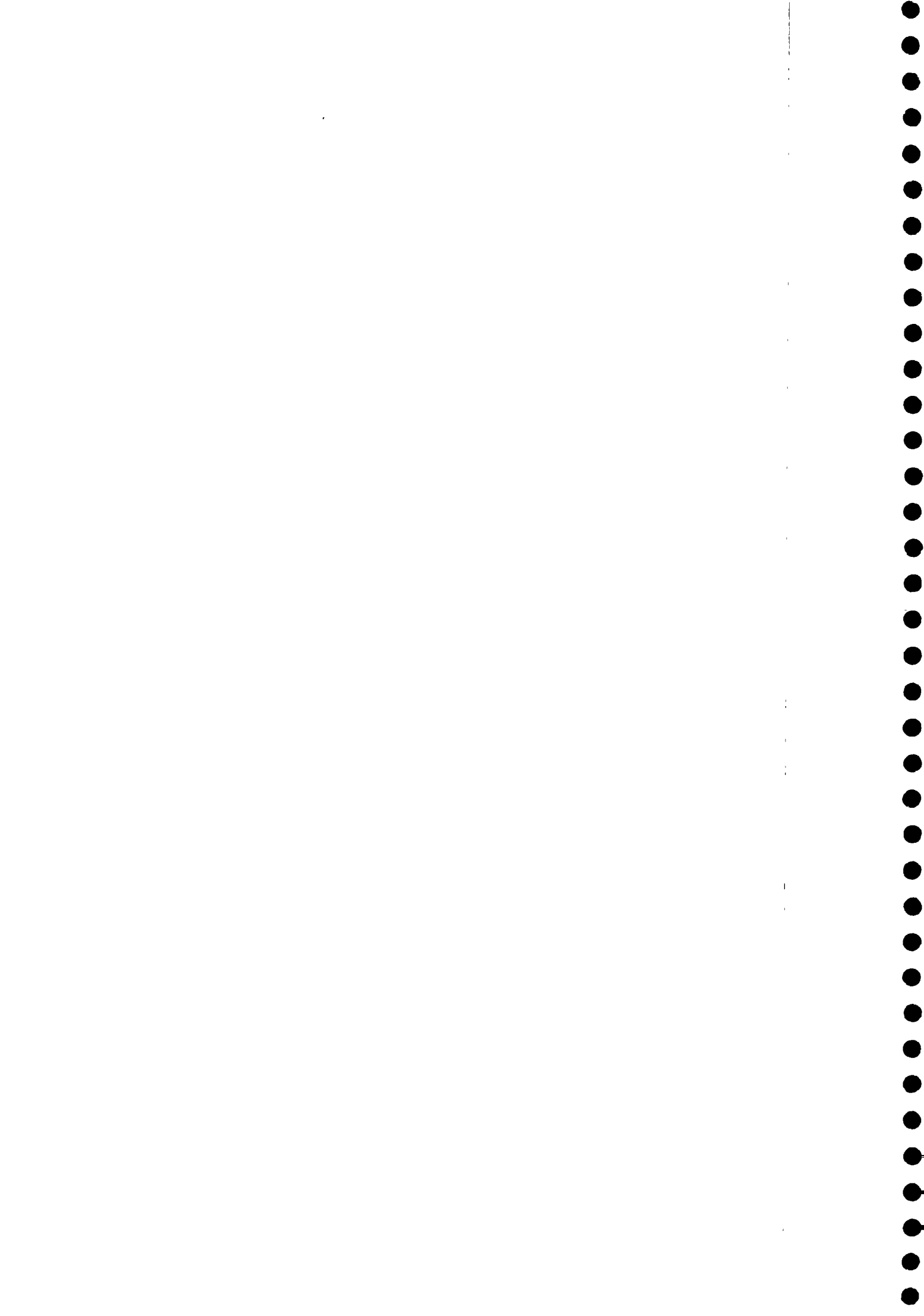
Time	Number of hours water release	
	Summer	Other Seasons
Morning		
Evening		

6.0 SANITATION

6.1	Caste / Religion	No. of households having latrines

6.2	No of households given subsidy	
	Central Scheme	
	State Scheme	
	Others	
6.3	Demand for individual latrines	
6.4	Are there community latrines in the habitation (Yes-1/No-2)	
6.5	If Yes, No of community latrines	
6.6	Is it being used regularly (Yes - 1/No - 2)	
6.7	If No, Why ? (Not Clean - 1; Dilapidation - 2; Water not Available - 3; No Privacy - 4; Not Accessible - 5)	
6.8	What are the popular places for defecation ? (Near Water Points - 1; Elsewhere in the settlement - 2; Outside the settlement -3)	

6.9 What are the problems associated with the above ?



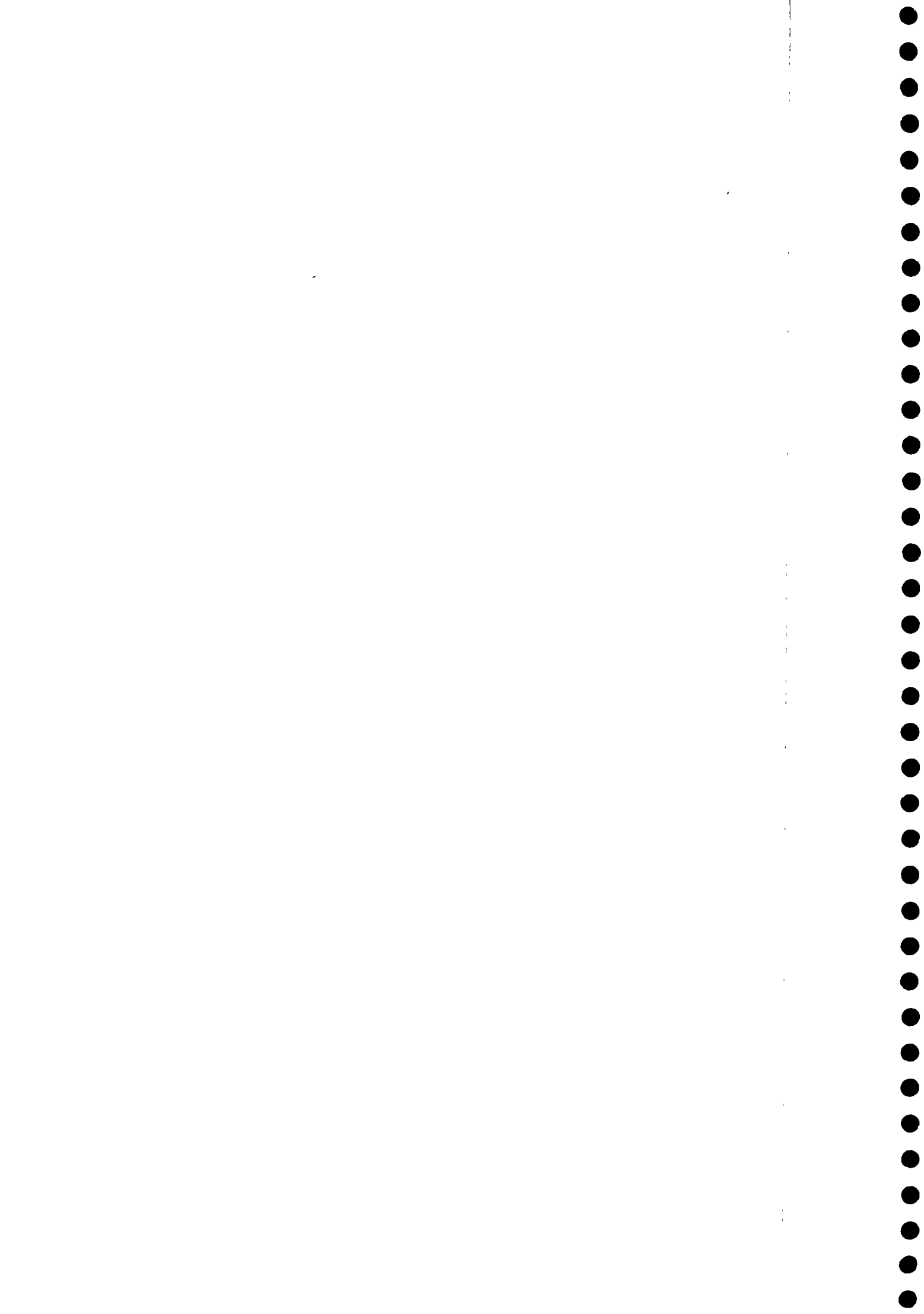
**STATUS OF
CENTRALLY SPONSORED RURAL WATER SUPPLY
AND SANITATION PROGRAMME
IN TAMIL NADU**

A SAMPLE STUDY

HOUSEHOLD QUESTIONNAIRE

RAJIV GANDHI NATIONAL DRINKING WATER MISSION

**OM CONSULTANTS (INDIA) PVT. LTD.
BANGALORE**



CONFIDENTIAL

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RAJIV GANDHI NATIONAL DRINKING WATER MISSION

STATUS OF CENTRALLY SPONSORED RURAL WATER SUPPLY AND SANITATION
PROGRAMME IN TAMIL NADU - SAMPLE STUDY

HOUSEHOLD QUESTIONNAIRE

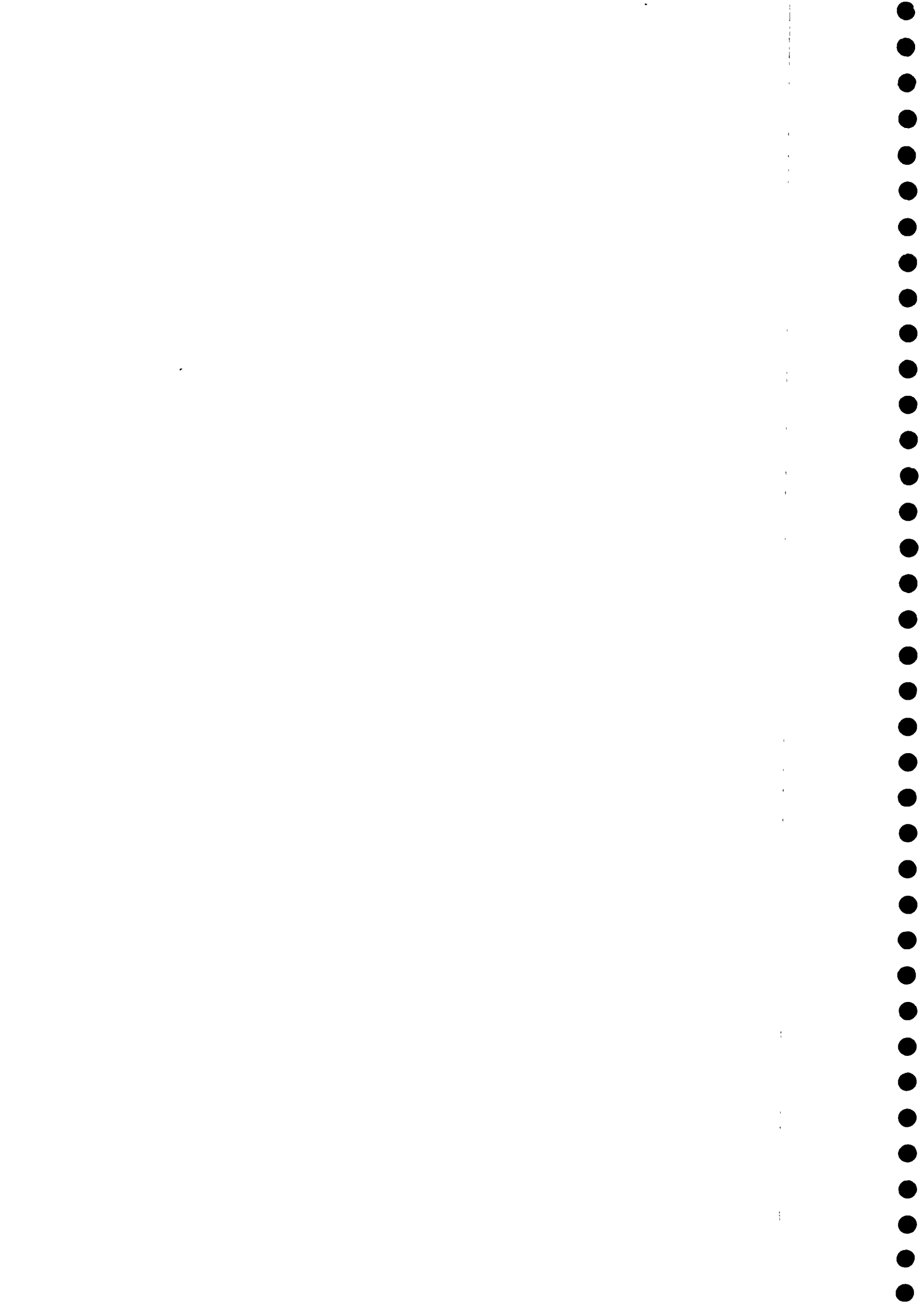
1.0 IDENTIFICATION

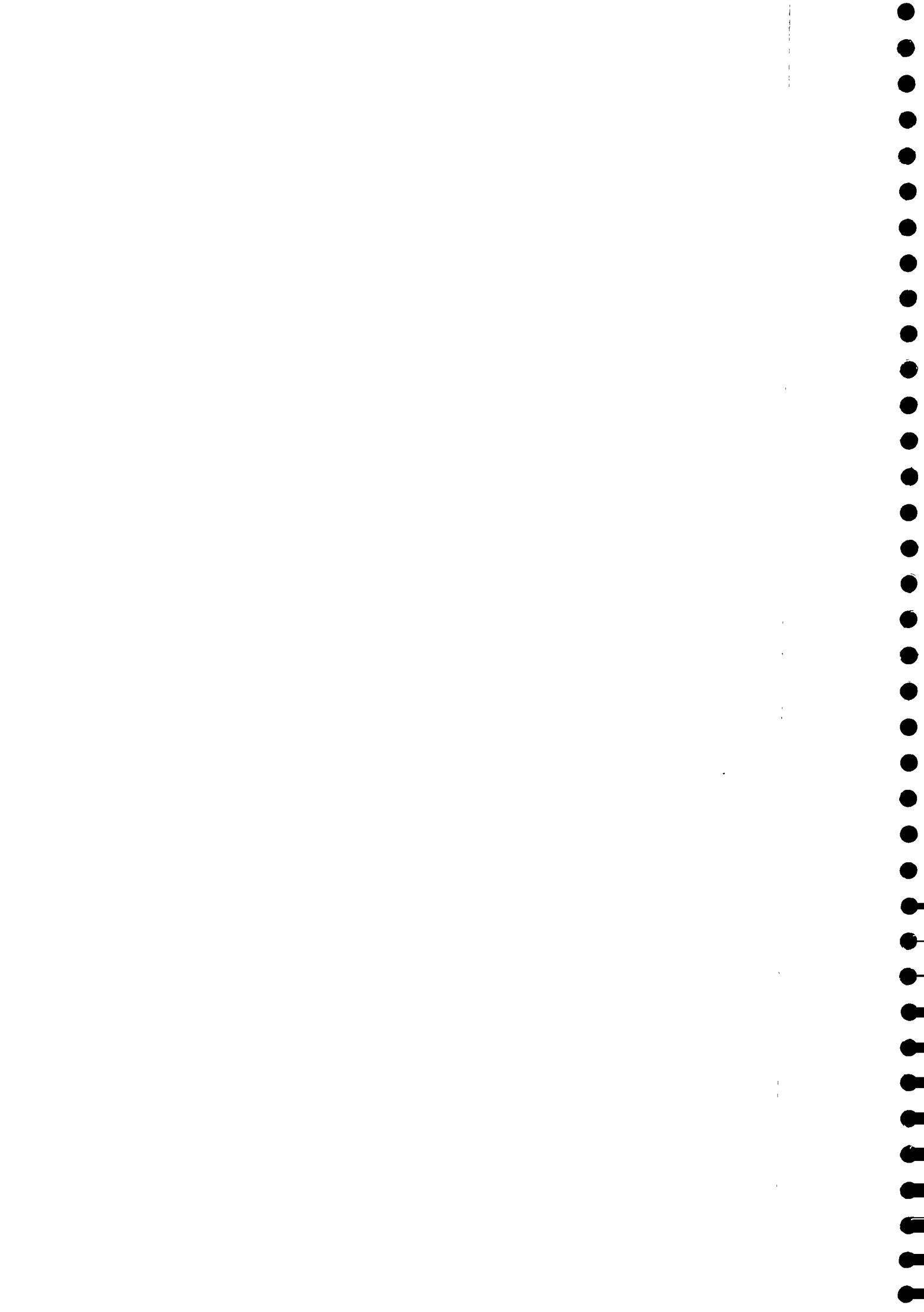
1.1	District	
1.2	Taluk	
1.3	Panchayat	
1.4	Habitation	

2.0 GENERAL PARTICULARS

2 1	Name of the Head of Household			
2 2	Name of the Respondent			
2 3	Relationship with Head of Household (see relationship code)			
2 4	Sex (Male - 1; Female -2)			
2 5	Religion (Hindu -1, Muslim - 2, Christian - 3, Others - 4)			
2 6	Caste (see caste code)			
2 7	Tribe			
2 8	Total Number of Members in the Household	Male	Female	Total
2 9	Income Group			

*Income Group (Rs) : < 1,000 - 1; 1,001 to 2,500 - 2; 2,501 to 5,000 - 3; 5,001 to 7,500 - 4;
7,501 to 10,000 - 5; 10,001 to 15,000 - 6; 15,001 to 25,000 - 7;
25,001 to 50,000 - 8; more than 50,000 - 9;*





4.0 ANNUAL INCOME

SL. NO.	SOURCE	AMOUNT (Rs.)
1	Land	
2	Livestock	
3	Agriculture Labour	
4	Non Agricultural Labour	
5	Artisan	
6	Service - Private	
7	Service - Government	
8	Others	
9	Total	

5.0 WATER

5.1 Different Water Sources used by the Household and Distance

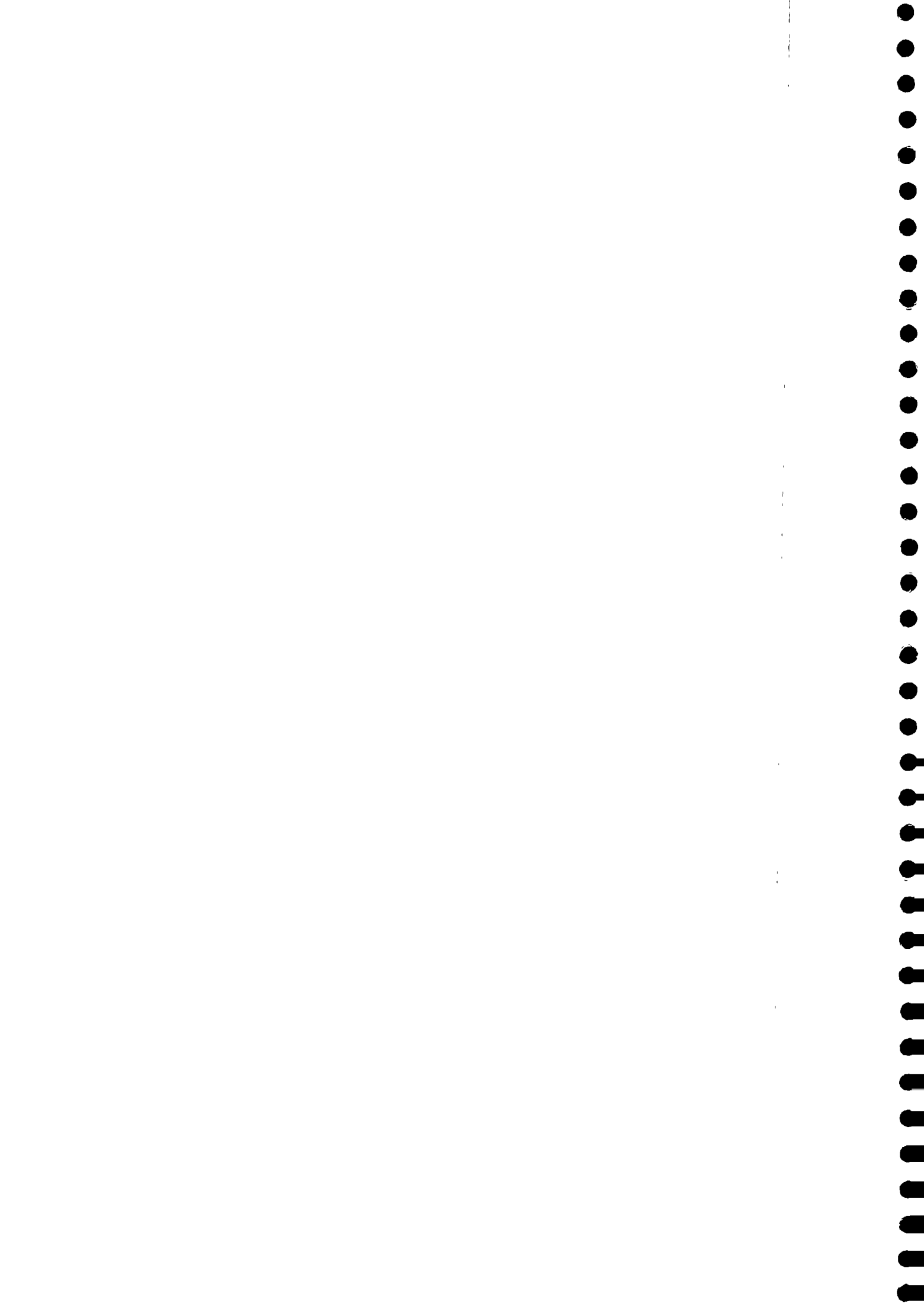
Season	Purpose					
	Cooking / Drinking		Other Domestic Purpose		Livestock	
Summer	Source	Distance	Source	Distance	Source	Distance
Other Season						

Source Code :

Tap (own) - 1; Public Stand Post - 2; Mini Water Supply Cistern - 3; Hand Pump - 4; Community Well - 5; Own Well - 6; Others Well - 7; River - 8, Canal - 9; Tank - 10; Irrigation Well - 11;

Distance Code

0 (with in the House) - 1; less than 50 Mtrs - 2; 50 to 100 Mtrs - 3; 101 to 200 Mtrs - 4; 201 to 500 Mtrs - 5; 501 Mtrs to 1 Km - 6; more than 1 Km - 7;



5 2 What is the Quality and Colour of different Water Sources used ?

Source	Quality	Colour

Quality Code :

Good (sweet) - 1; Brakish (salt) - 2; Fluoride - 3, Smell - 4, Others - 5;

Colour Code :

Clear - 1; Muddy - 2; Brown - 3; Others (specify) - 4,

5 3 Number of Trips made and average time taken per trip by the household members to collect water

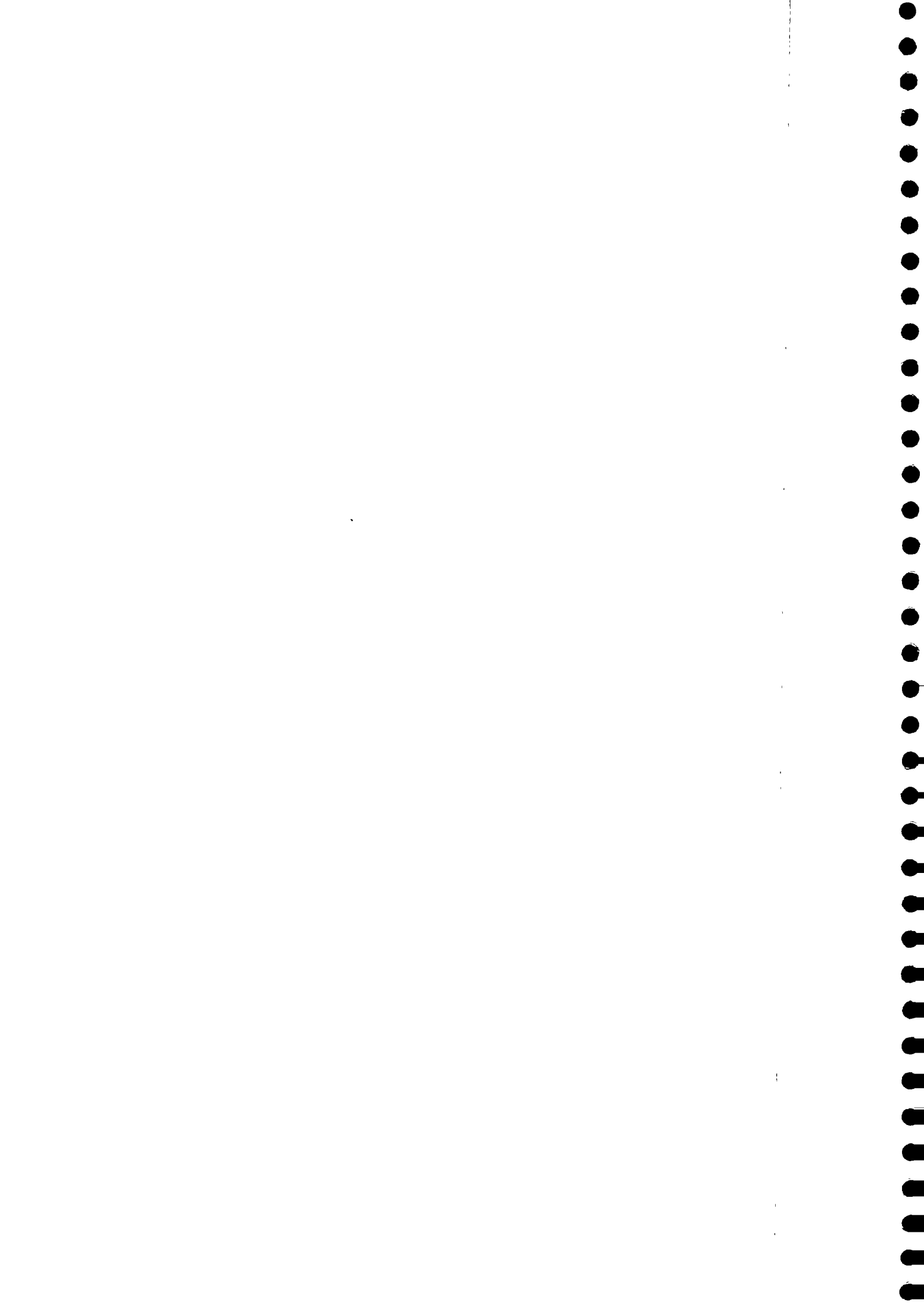
Time	Summer		Other Season	
	No. of Trips	Time*	No. of Trips	Time*
Morning				
Afternoon				
Evening				

Code for Time : < 15 Minutes - 1; 15 to 30 Minutes - 2; 30 Minutes to 1 Hour - 3; > 1 Hour - 4;

5 4 What are the problems In the present Water Supply Systems ?

5 5 What improvements can be made to the present Water Supply Systems?

5 6 What do you think would be a better system ?



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6.0 COMMUNITY PARTICIPATION

6 1 Did any of the members of your household involved during the Planning & Implementation of the Scheme ? YES - 1 / NO - 2

6 1 1 If Yes, Describe

6 2 Did you contribute towards the Capital Cost of the scheme ? YES - 1 / NO - 2

6 2 1 If yes, how did you contribute, Describe

6 3 Is there a fixed rate for operation and maintenance of the present water supply system ? YES - 1 / NO - 2

6 3 1 If Yes, are you paying ? YES - 1 / NO - 2

6.3.1.1 If Yes, how much are you paying ?

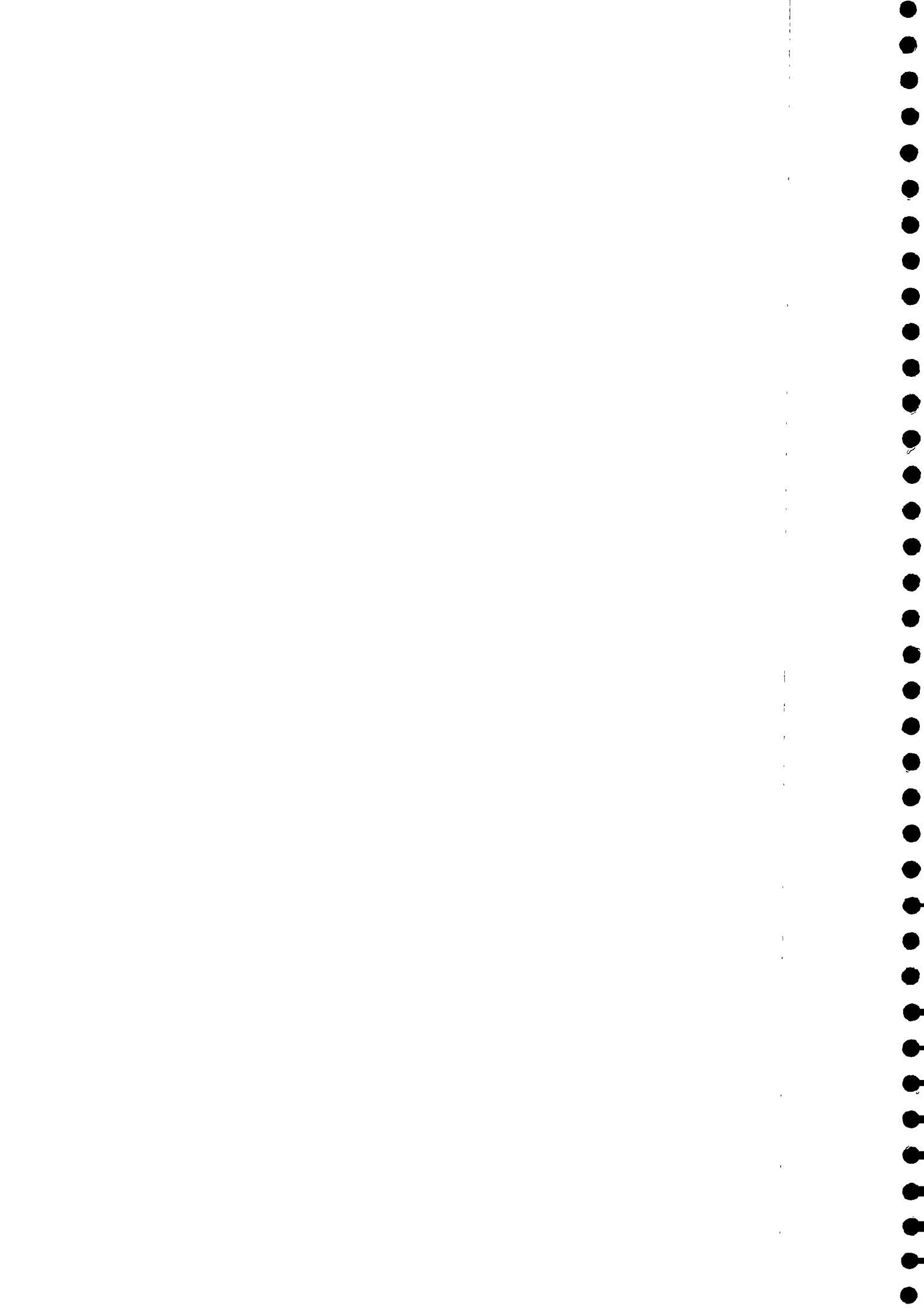
6 3 2 If No, what are the reasons for non payment ?

6 4 If better water supply system is installed, will you contribute towards the Capital Cost to be incurred ? YES - 1 / NO - 2

6 4 1 If yes, how will you contribute ?

6 5 If the rate for operation and maintenance of the system is fixed, will you pay the fixed rate ? YES - 1 / NO - 2

6 5 1 If yes, how much will you pay ?



7.0 SANITATION

7 1	Is there a Latrine in your house ? (Yes - 1 / No - 2)	
7 2	If Yes, mention the type of Latrine (Pit Latrine - 1, Septic tank - 2, others - 3)	
7 3	When was it constructed ?	
7 4	Have you received subsidy for the latrine from the Government ? (Yes - 1 / No -2)	
7 5	Where is the Latrine located ? (Attached to House - 1, back Yard - 2, Front Portion of the House - 3)	
7.6	Who are using the Latrine ? (All - 1, Women only -2, Children only - 3, Men only - 4, Women & Children - 5, Women & Men - 6, Men & Children - 7, None - 8)	
7 7	Is any member of your house not using the Latrine ? (Yes - 1 / No - 2)	
7 8	If Yes, What is the reason for non usage ? (Not in the Habit - 1; Prefer Open Space - 2; Meant for Women only - 3; Water Scarcity - 4)	

7 9 If Latrine is not available in the house where do the household members go for defecation ?

	Men	Women	Children
Place			

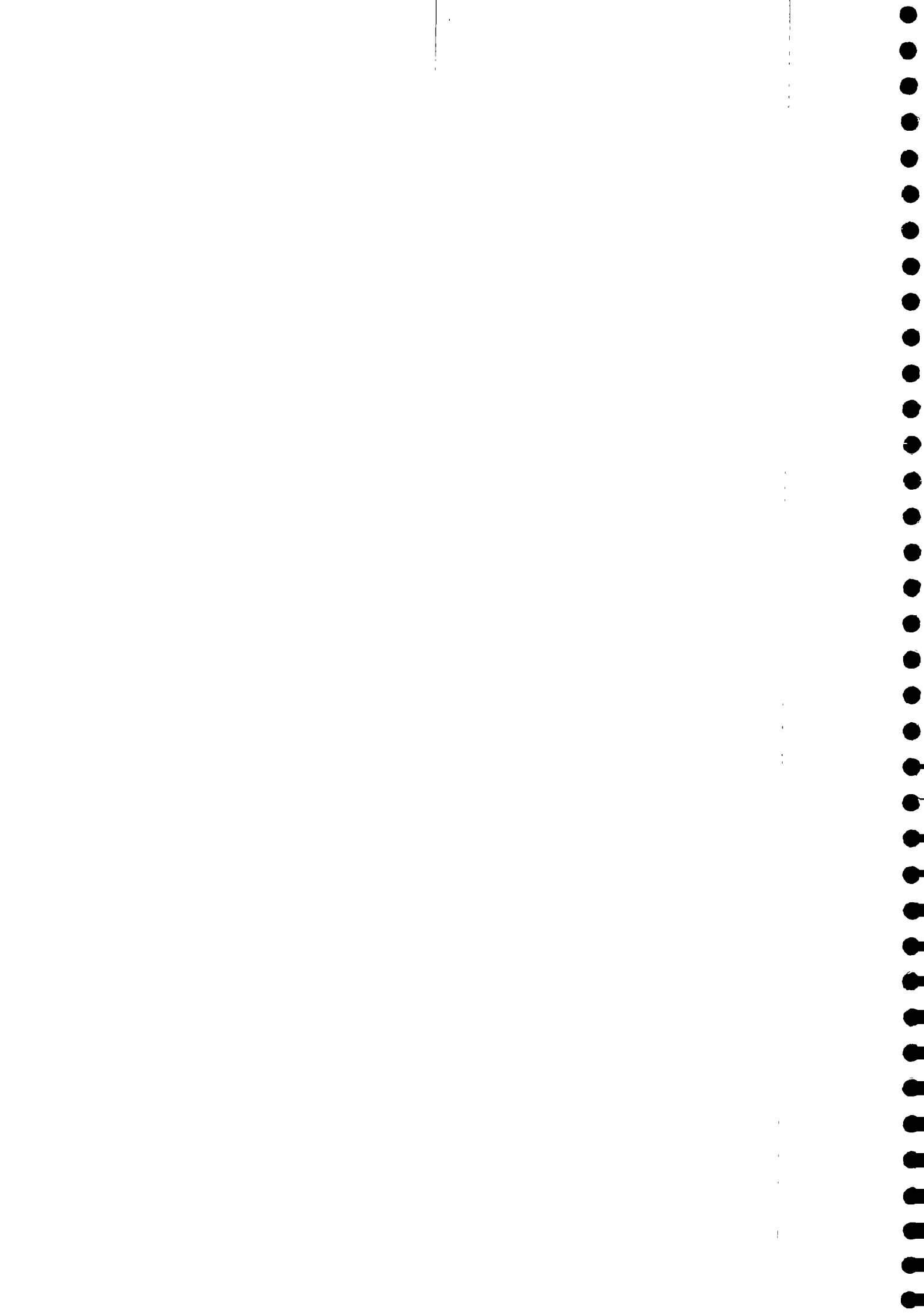
Place Code :

**Open Ground - 1; Agricultural Fields - 2; Road Side - 3; Dilapidated Structures - 4;
Near Surface Water Source - 5; Community latrine - 6; Neighborhood latrine - 7;**

7 10 What are your views in having a Latrine in your house ?

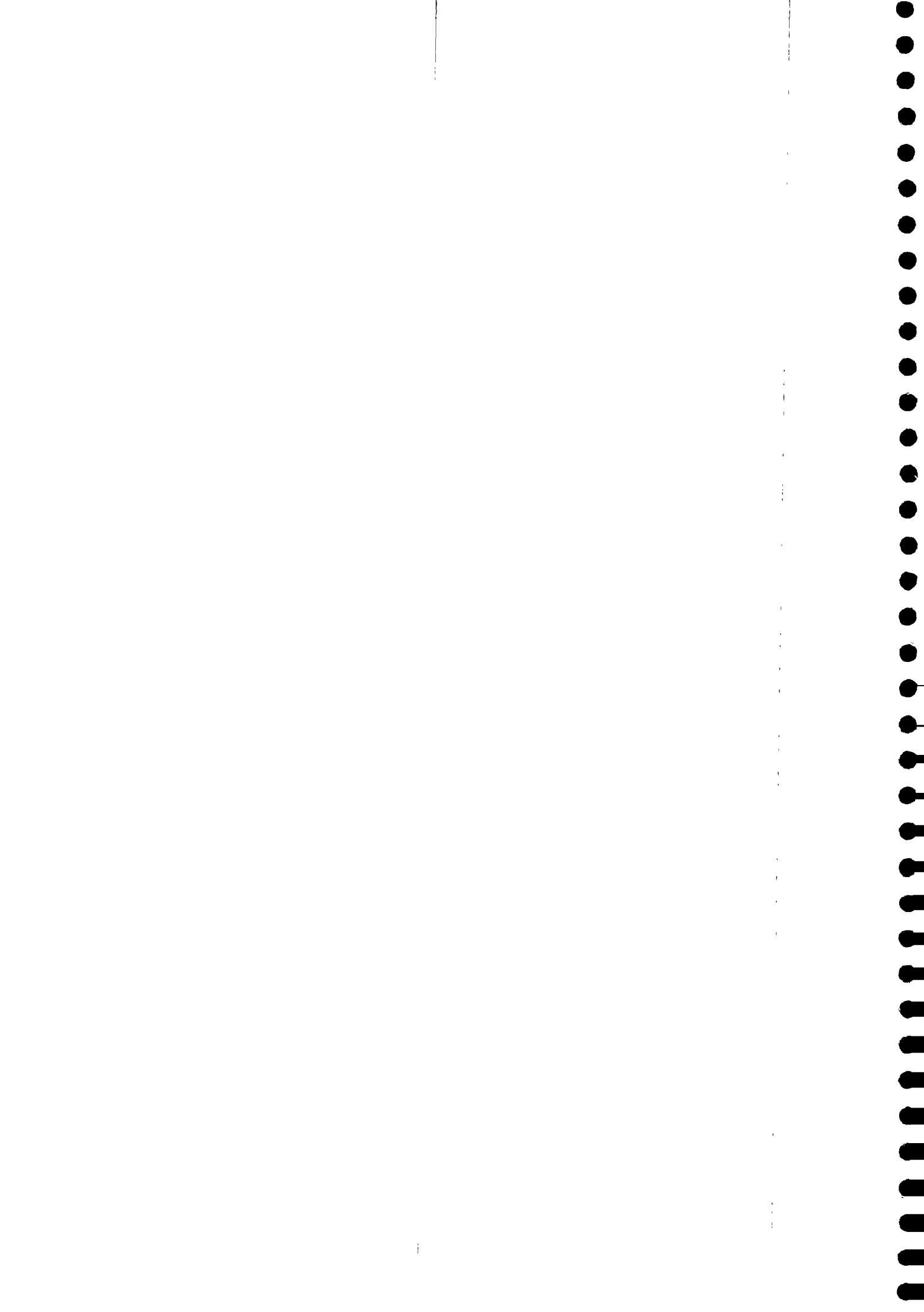
Investigators Name

Date

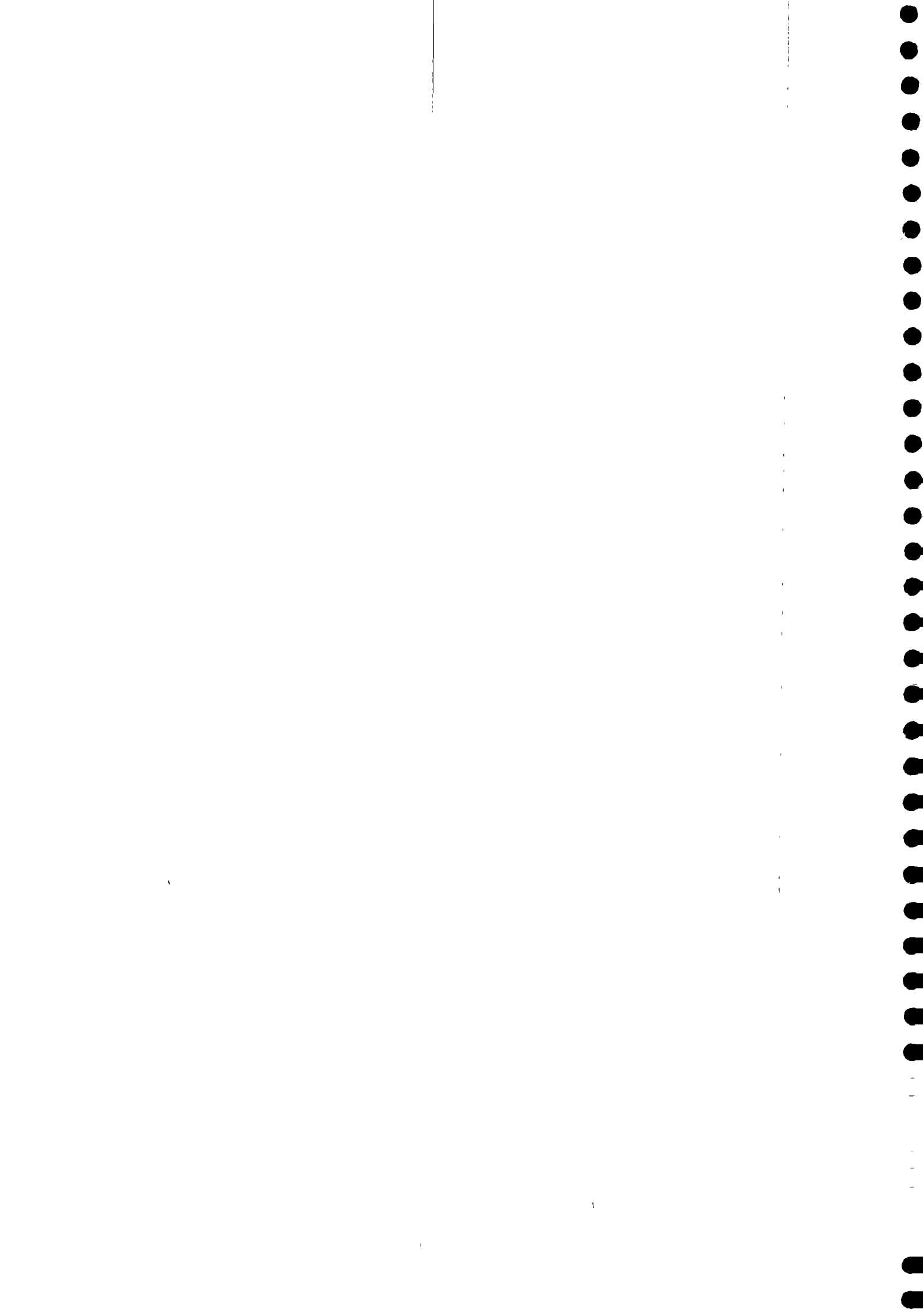


LIST OF SELECTED HABITATIONS

Sl. No.	Habitation	Panchayat
A	SALEM DISTRICT	
1	Gandhinagar	Edangalasalai
2	Kaniampatti	Konasamudram
3	Sappanipatti	Vellarivalli
4	Pallitherupatti	Pallitherupatti
5	Kotthhukadu	Thangayur
6	Kalaramapatti	Erumapalyam
7	Vinayakapuram	Vilaripalyam
8	Annapuram	Thirumanur
9	Reddipatti	Peniyarpatti
10	Puliampatty - AD Colony	Puliampatty
11	Kannanaickanur Chinnavepanattam	Vasanthapuram
12	Sedapatty Pudur	Talambadi
13	Karianthinni Pudur	Konvelampatti
14	Serukkalai	Serukkalai
15	Indiranagar	Vagurampatty



Sl. No.	Habitation	Panchayat
B	VELLORE DISTRICT	
1	Nimmianpettai	Kattuputhur
2	Pappanthoppu	Kattuputhur
3	Odanthangan Colony	Kanipedau
4	Angarakuppam	Angarakuppam
5	Indiranagar SC Colony	Karasamangalam
6	Perumalpettai	Senur
7	Pudur	Kattuputhur
8	Venkatasamudram	Kalampattu
9	Eripudur	Unai Vaniambadi
10	Kattapalli	Karungali
11	N Puram	Keel Mudukur
12	Alankuppam	Alankuppam
13	Alankuppam AD Colony	Alankuppam
14	Vellakannan Vattam	Vengayapalli
15	Parandapalli	Chandrapuram



Sl. No.	Habitation	Panchayat
C	KANYAKUMARI DISTRICT	
1	Chettivilai	Vellavancode
2	Kazhuvanthittai	Marathancode
3	Kaladaimeri	Pallor
4	Enayamputhanthurai	Thoothoor
5	Enayam	Thoothoor
6	Srikrishnapuram	Kattimancode
7	Attor	Attoor
8	Kannattuvilai	Eraniel
9	Zion Malai	Kannanoor
10	Elluvilai	Elluvilai
11	C.T. Maharajapuram	Gandhipuram
12	Kadetty	Thengampudur
13	North Sooran Kudi	North Sooran Kudi
14	NGO Colony	Gandhipuram
15	Keezhasankaran Kuzhi	Neelasankaran Kuzhi

