MRG

MONITORING OF RURAL WATER SUPPLY AND SANITATION

A Study Conducted

In

Punjab and Haryana

For

RAJIV GANDHI NATIONAL DRINKING WATER MISSION

(RGNDWM)

MINISTER OF RURAL AREAS AND EMPLOYMENT

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CHAPTER I

INTRODUCTION

1.1 INTRODUCTION:

The Rajiv Gandhi National Drinking Water Mission (RGNDWM) is ensuring facilities for safe drinking water supply and sanitation in the rural areas. Accelerated Rural Water Supply Programme (ARWSP) is being implemented vigorously to supplement the efforts made by the states/union territories. The Missions objective is to provide safe drinking water free from chemical and biological contamination as also to ensure provision of 40 litres of safe drinking water per person per day (40 LPCD) in all areas for all human beings, and additional 30 litres per person per day in desert development programme areas for drinking water required for cattle. Habitations which are not getting full supply of 40 LPCD are treated as partially covered requiring augmentation facilities to bring them to the level of 40 LPCD. As on 1.4.97, about 69.3 percent of 14.31 lakhs habitations in the country were fully covered, while, 26.4 percent were partially covered. Only 4.3 percent of habitations were not covered.

There exists a direct relationship between water, sanitation and health. Inadequacy in the provision of safe drinking water and improper sanitation are causes of many killer diseases. According to a WHO estimate, around eighty percent of the diseases in the developing countries are due to the use of unsafe drinking water and lack of basic sanitary practices. The Central Rural Sanitation Programme (CRSP) was launched in 1986. Sanitary latrines are being provided to SC/ST families, and people below poverty line with 100% subsidy, and general public with subsidy as applicable under the state government. Beside construction of latrines, the sanitation programme encompasses several interventions aimed at improving personal hygiene, domestic and environmental sanitation.

With the main objective of assessing the present status of Rural Water Supply program and Sanitation program, and ascertaining people's perception about these programs, the Rajiv Gandhi National Drinking Water Mission had assigned Media Research Group, an independent research organisation, to undertake this study in two northern states of Punjab and Haryana. To accomplish this task, Media Research Group had conducted this study.

1.2 OBJECTIVES:

The primary objective of monitoring and evaluation include:

1. To assess the present coverage status of rural water supply with a special emphasis on the coverage of backward classes/areas.
2. To evaluate the safe water supply coverage in areas where quality of drinking water was a major problem.
3. To monitor and evaluate people's responses and perceptions about the coverage of rural water supply and implementation of water supply schemes.
4. To ascertain the operation and maintenance status of water supply schemes.
5. To assess monetary contribution made by the users in rural water supply scheme.
6. To assess the number of sanitary latrines constructed in recent years, and availability of sanitary latrines in rural households.

1.3 COVERAGE:

Selection of districts: The purpose of evaluation was to ascertain the present coverage and status of rural water supply programmes and sanitation programmes, and to evaluate the community involvement in the implementation of water supply schemes.

Two districts were selected in Punjab in consultation with the Secretary, Public Works Department & PHED, and Superintendent Engineer (Monitoring), PHED. These represented districts falling in Kandi earea, and a district not falling in Kandi area. These were:

1. Bhatinda, and
2. Hoshiarpur

The following two districts were selected in Haryana in consultation with the Engineer-in-Chief and Executive engineer (Planning), PHED:

1. Hissar, and
2. Panipat

The underground water in Hissar district is brackish. Therefore, the water supply system in the district is primarily canal based. Panipat ditrict has tubewell, as well canal based water supply system.

Selection of villages: MRG's Research director/executives had met with Superintendent/Executive engineers in selected districts. In each district, three blocks were selected randomly. In each block, five villages were selected to represent villages having various type of schemes - group village schemes, two-village schemes and single village schemes in these districts. Thus, a total of 60 villages were covered in these four districts.

1.4 METHODOLOGY:

Exploratory discussions were held with the officials of Public Health Engineering Department (PHED) in Punjab and Haryana to understand various aspects related to the rural water supply programmes and rural sanitation programmes. This was followed by discussion and interviews with district and block level PHED offcials. The study was based on the collection of information from primary and secondary sources. The following research techniques were used:

1. **Direct interviews** with village level functionaries, housewives/ head of the households, and village opinion leaders, and
2. **Observation** of some drinking water sources, and overall sanitary situation in selected rural areas

Research instruments - interview schedules and observation checklists were developed.

1.4.1 Direct interviews: Interviews were conducted with the following respondent types:

1. Village level functionaries,
2. Opinion leaders, and
3. Housewives/head of households.

Village level functionaries: Direct interviews were conducted with village level functionaries with the aid of an interview schedule designed to ascertain the follow ng

* Profile of village level functionaries
* Responsibilities assigned

* Number of public and private sources available in the village, who operates and maintains these sources, condition of drinking water sources - functioning or not, if not, reasons thereof,
* Perception about the quality of drinking water, and efforts made to monitor its quality
* Cooperation received from panchayat leaders and community at large in the implementation of water programs.

Opinion leaders: Interviews were conducted with the village opinion leaders to elicit information and views on the following aspects:

* Profile of village - population, no. of households, type of drinking water sources available, number of public and private sources,
* Opinion about coverage, status and condition of public drinking water sources - whether functioning or not, if not, reasons thereof,
* Opinion and level of satisfaction with quantity and quality of water supplied.

Head of the households/Housewives : Interviews were also conducted with the head of the household/housewives to ascertain information and views on the following aspects:

* Profile of the respondent/family - sex, age, education, occupation, religion, caste, family size, family income per month, etc.,
* Whether own a private water supply source or not,
* Sources of water supply - public or private, type of source - hand pump or stand post, distance of source of water supply from house, who brings water for the family, number of trips made to fetch water, water requirement per day, time devoted to fetch water to meet the requirement of the family, etc.,
* Opinion about the quantity and quality of water supplied,
* Availability of public/private latrines in village, if not, where does people go for disposal of human excreta, particularly girls/women,
* Whether willing to contribute to the capital requirement and share the recurring cost for the construction and maintenance of public drinking water sources, and public sanitary latrines.

1.4.2 **Observation of Public drinking water sources and Public latrines**: MRG's researchers had observed the condition of some public drinking water sources in the villages surveyed, type of sources - hand pump, stand post, location of water source, whether it was working or not, condition of drinking water source, whether it had a platform constructed or not, what was the condition of plat form, water drainage and soakage pit facilities, timing of operating wate supply system, number of households using a public source, whether people from all castes have access to the source or not.

1.5 **Sample Achieved**: A total of 1,429 interviews were conducted in 60 villages of Punjab and Haryana. This includes interviews with 43 project functionaries, 60 village opinion leaders and 1,326 beneficiary families.

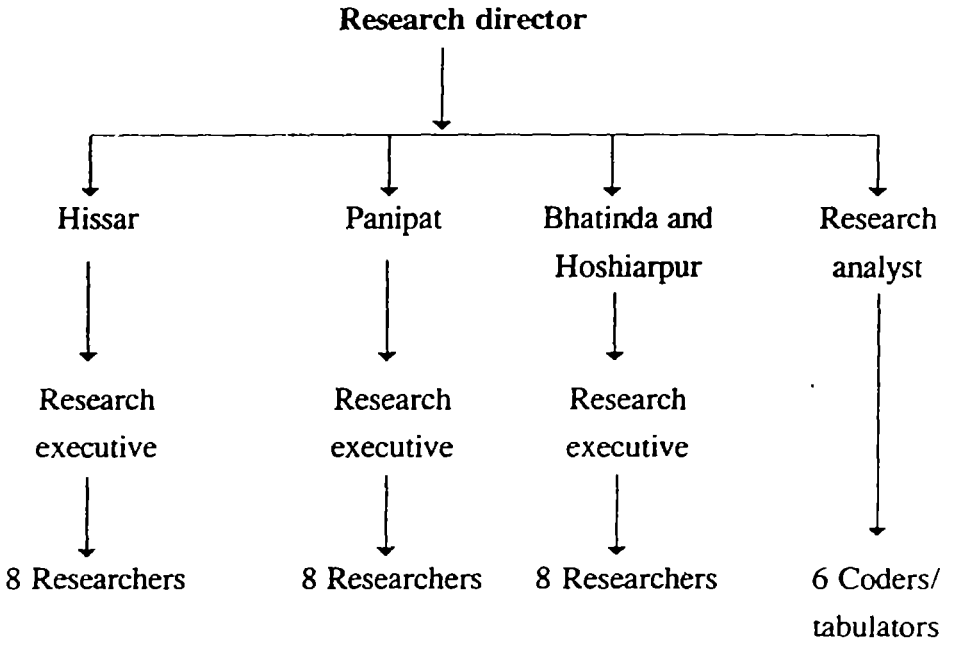
SAMPLE ACHIEVED IN PUNJAB AND HARYANA

State/district	Project functionaries	Opinion leaders	Beneficiaries	Total interviews
Punjab				
Bhatinda	14	15	319	348
Hoshiarpur	11	15	290	316
Punjab Total	25	30	609	664
Haryana				
Hissar	10	15	370	395
Panipat	8	15	347	370
Haryana Total	18	30	717	765
Grand Total	43	60	1326	1429

1.6 RESEARCH TEAM:

MRG's research team was led by a Research director. He was assisted by three research executives in primary data collection and a research analyst in analysis of the data. One Research executive each had looked after the field survey in Hissar and Panipat district respectively, while, one Research executive had looked after the field

survey in both Bhatinda and Hoshiarpur districts of Punjab. Researchers for Haryana and Punjab were recruited from Hissar and Patiala respectively. Post graduates/ students studying in Haryana Agriculture University, Shri Guru Jambeshwar University (Both in Hissar) and Punjabi University, Patiala, were selected. The researchers were given two days intensive training during which they were briefed about objectives of monitoring and evaluation, methodology, sampling of villages and households and interviewing techniques. The primary data collection was conducted during April-May, 1998 under the supervision and guidance of MRG's Research executives. The primary data collected was coded and analysed by six trained coders/tabulation assistants under the guidance of a Research analyst.



PART A - PUNJAB

EXECUTIVE SUMMARY - PUNJAB

1. Coverage of FC/PC/NC habitations should have been done in lieu of PHs.
2. Importance has been given to the coverage ~~under~~ thro' private sources whereas the objective of the [illegible] is for public sources only.
3. Whether the private toilets were made the [illegible]

PART I : RURAL WATER SUPPLY STATUS IN PUNJAB

1. **Area and Population**: With an area of 50,362 sq.kms, the state of Punjab had a population of 2.02 crores (1991 census). Seventy percent of population lived in 12,402 villages, while, 30 percent lived in 120 towns/cities.

2. Punjab Public Health Engineering Department (PHED) of Public works department looks after the operation and maintenance of rural water supply programmes in the state. As on March 1996, piped water supply was provided in 6,678 of 12,402 villages (53.8 percent), and 5,724 villages were left uncovered. Earlier water supply schemes were based on handpumps as well as pipled water supply, most new schemes are based on piped water supply with tube wells or canal wherever the ground water was not potable). During State Chief Ministers' conference held on July 5-6, 1996, it was decided to cover entire population by March 2,000 with a service level of 40 litres per capita per day (LPCD).

3. To accomplish the goal of providing piped water supply to entire rural population. PHED (Punjab) had developed action plans to achieve these targets in a phased manner. The following rural water supply programmes are in progress in the state:

   A. **District level schemes**: The PHED covers villages under minimum needs programme (MNP) having sub-programmes as under:
      1. Problem villages (PV)
      2. Non-Problem villages (NPV) with large population of 5,000 +
      3. Augmentation of water supply in Kandi areas, and
      4. Augmentation of water supply in other than Kandi areas

   B. **Central Sector**: The government of India provides funds under Accelerated Rural Water Supply Programme (ARWSP), as a matching contribution to MNP funds, and

   C. **Sub-Missions**: The Government of India provides funds under the head 'sub-mission' for specific water quality problems for areas under Rajiv Gandhi National Drinking Water Mission (RGNDWM).

4. **Achievements During 1996-97**: A total allocation of Rs.56.40 crores made during 1996-97. This included Rs.11.05 crores towards the ARWSP and Rs.16.35 crores towards the Sub-mission, and Rs.29.00 crores towards the District level schemes.

The budget of Rs.11.05 crores was provided towards ARWSP and the physical achievements were coverage of 256 villages as against a target of 255 villages.

A budget of Rs.12.98 crores was provided towards sub-mission and the physical achievements were achieved in 100 of 115 targetted villages. The original budget allocation towards the District level schemes was lowered down from Rs.29.00 crores to Rs.19.43 crores. **As a result, only 147 villages were covered as against a target of 320 villages (46 percent).**

In all, 503 villages were covered as against a target of 690 villages (73 per cent).

5. **Achievements during 1997-98:** The total budget allotted to the department had declined to Rs.38.56 crores during 1997-98. This included Rs.13.30 crores towards ARWSP, Rs.2.91 crores towards the Sub-mission, and Rs.22.35 crores towards District level schemes.

A budget of Rs.6.65 crores was provided towards ARWSP till September, 1997 and 20 of 190 target villages were covered in the first six months. Only four of 30 villages were covered under sub-mission till September, 1997. Similarly the achievements of district level schemes was low at 10 of 163 targeted villages.

It has been observed that the allocation in MNP funds had declined in recent years. Since the cost of launching new schemes and operation and maintenance of existing schemes increasing year after year the allocation under MNP requires substantial enhancement.

6. **Present Coverage:** As in March 1998, Punjab state had covered 7003 of 12,402 villages (56.5 percent) with piped water supply. The district-wise analysis shows that the coverage of villages was highest in Mansa district (98.8 percent), and lowest in Kapurthala (11.2 percent). All districts have been classified as `Good coverage', `Fair coverage' and `Poor coverage' districts as follows:

Districts with **`Good Coverage' (> 75 percent of villages)**: Mansa (98.8 percent), Bhatinda (97.5 percent), Moga (97.1 percent), Faridkok (95.7 percent), Muktsar (95.7 percent), and Sangrur (90.2 percent)

Districts with **`Fair Coverage' (50 - 75) percent of villages** : Ferozepur (72.6 percent), Amritsar (69.4 percent), Ropar (67.7 percent), Patiala (66.2 percent) and Hoshiarpur (65.9 percent).

Districts with Poor coverage (< 50 percent of villages) : Nawanshahar (47.1 percent), Ludhiana (35.6 percent), Fatehgarh Sahib (31.6 percent), Gurdaspur (27.4 percent), Jalandhar (27.3 percent) and Kapurthala (11.2 percent).

It has been observed that the achievements have fallen much short of targets fixed in recent years. Concerted efforts are, therefore, required to implement various programmes to achieve desired physical goals.

7. **Rural Water Supply Status in Bhatinda district:** The total population in Bhatinda district is estimated to be 9.85 lakhs (1998 estimate). Of this, 73 percent lived in 279 villages, while, 27 percent lived in urban areas. As on March 1996, 272 of 279 villages in Bhatinda district (97.5 percent) were covered with piped water supply.

Fifteen villages representing three blocks of Nathana, Talwandi sabo and Phool were covered in this monitoring study. The population of these 15 villages was 47,358 (1998 estimated). **These were 225 public sources in these villages, each public source for an average of 210 persons. The population per source seems tobe on the much higher side. More public sources, therefore, need to be installed.**

A total of 17.88 lakh litres of water was supplied per day to these villages. **The average per capita availability was 37.7 LPCD. Seven of 15 villages were fully covered (> 40 LPCD), while, eight villages were partially covered having per capital availability ranging between 24-30 LPCD. Villages with low per capita availability need to be augmented.**

8. **Rural Water supply status in Hoshiarpur district:** Hoshiarpur district falls in Kandi area and the topography is hilly and uneven. As on March 1, 1988, 920 of 1396 villages (65.9 percent) were covered with rural water supply programme. The remaining 476 villages were not yet covered.

Three blocks Bhanga, Dasuya, and Talwara blocks were covered in this monitoring study. Of the 501 villages in these blocks, 87 villages (15.4 percent) were fully covered (> 40 LPCD). Sixty one percent were partially covered (0-40 LPCD), while, 23 percent were not covered. Quite a few villages in Bhanga block which were earlier fully covered have now become partially covered. This was due to increasing population, and depletion of some water sources.

Fifteen villages were selected in these blocks to represent rural areas. The population of these villages is estimated to be 19,816 (1988 estimation). A

total of 275 public source were available in these villages, each public source for an average of 72 persons.

A total of 6.67 lakh litres of water was supplied per day. Thus, the per capita availability was 33.7 LPCD. Six of 15 villages were fully covered (> 40 LPCD), while, nine villages were partially covered with per capita water availability ranging between 20-30 LPCD. The partially covered sources need to be augmented so as to provide a minimum of 40 LPCD of water.

PART II : USERSHIP OF DRINKING WATER SOURCES

9. **Profile of Household Respondents:** During household survey, either housewife or head of the households were interviewed. Their profile is discussed here:

Sex: Forty two percent of respondents were men, while, 58 percent were women.

Age: Twelve percent of respondents were in 51 years + age group, while 35 percent were in 41-50 years age group. Twenty seven percent were in middle age group 31-40 years, while, 26 percent were in younger age group 30 years or less. **The average age of respondents was 38 years.**

Education: Twenty eight percent had attained high school + education, while, 12 percent has studied upto middle level. Fifteen percent had studied upto primary level,while, 46 percent were illiterates. Education was higher among men than women respondents.

Occupation: Thirty eight percent were agriculture, while, 19 percent were working as an agriculture/manual labour. Eleven percent were in service, while, six percent were traders. Only twenty three percent were housewives. Quite a few women were engaged in agriculture and other income generating activities.

Family income per month: Seventeen percent of respondents were in upper income group Rs.10,000 +, while 24 percent were in upper-middle Rs.5,001-10,000 per month income group per month. Sixteen percent were in middle income group Rs.3,001-5,000 while 17 percent were in lower middle income group of Rs.2,001-3,000. The remaining 36 percent were in low income group (Rs.2,000). **The average family income per month was Rs.4,078.** Since the family income was fairly good, ruralites could affort to contribute to operate and maintain public water sources.

Caste: Two-third of respondents were from forward/general castes, while, 11 percent were from other backward classes (OBC). The remaining 23 percent were from either scheduled castes or tribes.

Family size: Twenty four percent of respondents had very large families with 8 members or more, while 38 percent had families with 6-7 member each. Nineteen percent had five members, while, removing 19 percent had for members each of less. An average family had 6.2 members including 4.4 adult members. Thus, the average water requirement per family is 240-250 litres per day @40 lpcd.

10. **Availability of private sources: Sixty nine percent of households surveyed in both districts had own private sources. Ninety percent of households in Bhatinda district had private sources, while, only 46 percent of households in Hoshiarpur district had access to private sources.**

Type of private source: Sixty three percent of households had private hand pumps, while, 3 percent had wells, three percent had private standposts connected to piped water supply.

11. **Dependence on Public/Private Sources: Forty two percent of households depend on public sources, while, 58 percent were using private sources. It is interesting to note that 11 percent of households, though having access to private source, epended more on public sources.**

A higher proportion of households in Bhatinda district depend on private sources (79 percent) than public sources (21 percent). Dependence on public source was higher in Hoshiarpur district (65 percent of households) than private sources (35 percent).The following reasons were cited for using public sources:

* Availability of public sources (35 respondents)
* Quality of water from pubic source is good (80 respondents)
* Regularity in supply of water (29 respondents)
* Stand posts were easy to use (5 respondents)
* No private source cannot afford private source (111 respondents)
* Water table is very low for private hand pumps (4 respondents)
* Water is salty in private source (4 respondents)

The following reasons were cited for dependence an private source

* No public source/PWG (130 respondents)
* Public source is far away (41 respondents)
* Private source is available in the household (65 respondents)

* Quality of water is good at private source (9 respondents) and
* Supply on public source are irregular (4 respondents)

12. Use of water source: Sixty four percent of respondents were using hand pump more for drinking water/cooking food purpose. It was followed by the use of stand posts (48 percent) tube-wells (5 percent), open-well (4 percent) etc.

Sixty eight percent of respondents were using hand pumps more for bathing and washing clothes. It is was followed by the use of stand posts (51 percent). river/canel (8 percent) open well (6 percent) and tube-wells (5 percent).

A higher proportion of respondents were using hand pumps in Bhatinda district, while, more respondents were using stand posts as the major water source is Hoshiarpur district.

13. **Timing and Duration of Piped Water Supply**: Seven of 14 functionaries interviewed in Bhatinda district had said that piped water supply was provided both in the morning as well as in evening, while, six functionaries were providing water only in the morning hours. One functionary had said that water was supplied alternatively in morning and evening.

Three of eleven functionaries interviewed in Hoshiarpur district had said that water supply was provided throughout the day, while, one functionary had said that water was provided both in the morning as well as in the evening. Seven functionaries were providing water supply in the morning hours only

Most Household respondents had said that they receive water in the morning hours, while, 52 percent had said that they receive water in the evening hours. **Households had received water of an average one hour 52 minutes per day in the morning while, they had received water for 58 minutes in the evening hours**. Water supply was for a longer duration in Hoshiarpur district (3 hours 55 minutes) than in Bhatinda (1 hr. 38 minutes).

14. Observation of Public Sources: Sixty of 72 public sources observed (92 percent), were functioning in these two districts, while, **six sources were not functioning**. Twenty four of 27 stand posts observed were functioning, while, 25 of 28 hand pumps were functioning. All 17 tubewells were functioning.

Fifty three of 72 sources were installed more than 20 years back while, 13 were installed 11-20 years back. The remaining six sources were installed 6-10 years back.

The quality of water was perceived to be good at 54 of 72 sources, while, water from other sources was not perceived good for drinking. Water from 7 sources was muddy, while, water from two sources had contained fluoride contents.

Platforms were constructed around sixty five of 72 sources observed, while, there was no platform around seven sources.

Surroundings were observed to be clean around 62 of 72 water supply sources, while, surroundings were not clean/dirty around ten sources.

15 **Functioning of public sources** : Eighty six percent of household respondents had said that public sources were functioning in their villages, while, 14 percent had said that public sources were not functioning. A higher proportion of respondents in Hoshiarpur (90 percent) had reported that the public source was functioning than in Bhatinda district (82 percent).

Seven percent of respondents had said that the source was not functioning for last months, while three percent had said to it was not working for 4-12 months. Four percent had said that public sources was not working for more than a year.

Reasons cited for non-functioning include:

- lack of maintanance (45 respondents)
- Pipe was leaking (14 respondents
- Non-availability of spare parts (12 respondents)
- Source damaged by cattle (7 respondents)
- Water table has gone down (6 respondents

16 **Problems faced in operation of water supply**: Eight of 25 functionaries interviewed in two districts had said that they did not face any problem in operating water supply systems. Seventeen functionaries, however, had cited the following problems faced in operation of rural water supply systems.

- Shortage of raw water (1 functionary)
- Machinery is too old and need to be replaced (2 functionaries)
- More powerful motor is required (2 functionaries)
- Irregular power supply (2 functionaries)
- Non-availability of diesel for operating sets (3 functionaries)
- Sedimentation and storage ranks is not right (1 functionary)
- Paucity of funds (1 functionary)
- Inadequate technical staff (1 functionary)
- Leakage in pipeline (3 functionaries)

More problems were cited by functionaries in Bhatinda district.

17. **Problems faced in maintenance**: Seven of 25 functionaries interviewed had said that they did not face any maintenance problem, while, 18 functionaries had cited the following maintenance problems:

- Old machinery/technology is being used (4 functionaries)
- Supply valve was not functioning properly (1 functionary)
- Sand was not available for fitters (1 functionary)
- Lack of spare parts (5 functionaries)
- Water tank has not been cleaned for a long time (1 functionary)
- Paucity of funds for maintenance/payment to labour (4 functionaries)
- Lack of monitoring and guidance by senior officers (1 functionary)
- Lack of technical staff (2 functionaries)
- Political groups interfere for more stand posts (1 functionary)
- Theft of stand post (1 functionary)

More maintenance problems were reported by functionaries in Bhatinda district.

18. **Fetching of water from public source:**

Distance of public water source : Sixty two percent of respondents had said that the public source was located with in 50 metres from their house, while, 23 percent had said that it was located 51-100 meters from their house. Fourteen percent had said that if was located at a distance of 101 meters or were from their house. The average distance of public source was 74 metres - Hoshiarpur (83 metres) and Bhatinda (61 metres).

The average distance of public stand posts (63 metres) was lower than the distance of public hand pumps (84 metres) and tubewell (99 metres).

Who fetched water from public source: Housewives fetched water from public source in 41 percent of households, while, young girls had fetched water in 9 percent of households. Young sons had fetched water in two percent of households, while, water was fetched by any person available in 48 percent of households.

Number of trips per day: Some 10.5 trips were made per day to fetch water from public source. More trips were made in Hoshiarpur (12 trips per day) than in Bhatinda district (9 trips per day).

Time per trip: The average time taken per trip was 12.5 minutes. The average time taken per trip was higher in Hoshiarpur district (13 minutes) then in Bhatinda district (12 minutes).

Quantity of water fetched from public source: An average household in these two districts had fetched 178 litres of water every day - Hoshiarpur (188 litres) and Bhatinda (149 litres). An average person had fetched 16-17 litres of water per trip. Fifty one percent of respondents were satisfied with the quantity of water supplied/available, while, 49 percent were dissatisfied.

Total time devoted to fetching water from public source: The total time spent by an average family in fetching water was 132 minutes per day. The average time spend per day was higher in Hoshiarpur (151 minutes) than in Bhantinda (106 minutes).

19 **Quality of water:** Four of 25 functionaries interviewed had said that the quality of water was monitored once a week, while, 12 the functionaries had said that it was monitored once in a fortnight. Eight functionaries had said that water quality was monitored once a month, while, one functionary had said that it was monitored less often.

Public stand position: Eighty five percent of respondents getting piped water supply had opined that the quality of water was good, while, five percent had said that it was alright. Ten percent, however, did not like the quality of water supplied on PWS.

Public hand pumps: Fifty percent of respondents using public hand pumps had opined that the quality of water was good, while, 26 percent had said that it was alright. Twenty four percent of user, however, felt that quality of water at public hand pumps was not good.
Interestingly, quantity of water was perceived to be better at private hand pumps.

20. **Contributions made by the village community towards cost of PWS:** Thirty seven pecent of respondents had shown their willingness to contribute towards the cost of PWS. Comparitively, more respondents were willing to contribute in Hoshiarpur (43 percent) than in Bhatinda (32 percent). This was perhaps due to higher private ownership of hand pumps in Bhatinda district. Among those who were willing to contribute, a large majority were willing to contribute upto Rs.25-30 per month.

21. **Cooperation received from gram panchayat and village community:** Eighteen of 25 functionaries interviewed had opined that they had received good cooperation from gram panchayat/ members, while, four functionaries had said that their cooperation was not so good. Three operators hand felt that

gram panchayat/members did not cooperate in operation and maintenance of rural water supply schemes.

Twenty of 25 functionaries interviewed had said that they had received good cooperation from villagers in general, while, two functionaries had said that their cooperation was not so good. Three functionaries, however, had felt that the villagers did not cooperate.

PART III : AVAILABILITY OF SANITARY LATRINES

22. **Construction of Sanitary Latrines in Bhatinda district**: A budget of Rs.8.10 lakhs was provided to the District Welfare Officer for the construction of sanitary latrines. A subsidy of Rs.2,500 per latrine was provided for construction of latrines. As a result, some 324 sanitary latrines were constructed in 1994.

The budget for construction of sanitary latrines had declined to Rs.4.2 lakh in 1995. The subsidy of Rs.2,500 per latrine continued, and only 168 sanitary latrines were constructed in 1995.

The budget allocation had increased to Rs.4.92 lakhs in 1996. The subsidy per latrine was increased from Rs.2,500 to Rs.4000. Therefore, only 123 sanitary latrines could be constructed during 1996. This scheme was discontinued since, 1997.

23. **Construction of Sanitary latrines in Hoshiarpur district**: A subsidy of Rs.2,500 per latrine was provided for the construction of sanitary latrines. During 1994, some 497 sanitary latrines were constructed.

The subsidy was increased to Rs.3,000 per latrine in 1995, and a total 296 sanitary latrines were constructed during the year.

The subsidy was further increased to Rs.4,000 per latrine in 1996, and a total of 309 sanitary latrines were constructed.

24. **Availability of sanitary latrines: Forty two percent of household respondents surveyed in two districts had own private latrines**, while, one percent were using community latrines. The remaining 58 percent were going to open field/jungle for disposing exerta/defecation.

Sixty five percent of respondents had own private latrines in Bhatinda, while, only 17 percent of respondents had access to their own private latrines

25. **Cleanliness in Villages:** Sanitation status in villages of these two districts presents a mixed picture. Drains were observed to be clean in 10 of 30 villages surveyed. Drains were not so clean in 18 villages, while, these were full of filth/dirt/stagnent water in two villages.

It was heartening to observe the most women used pits to throw household waste in these two districts. Very few women, however, continue to throw household waste in the street in two villages.

26. **Prevalence of water born diseases:** Household respondents were asked whether any member had fallen ill in last 12 months due to water borne diseases or not. Twenty three percent of respondents had said that household members had fallen ill. Of those who had fallen ill, 13 percent had suffered from diarrhoea, it was followed by the prevalence of malaria (7 percent). typhoid (2 percent), skin infection (2 percent), cholera (1 percent) etc.

More respondents in Bhatinda (30 percent) had reported prevalence of water borne disease than in Hoshiarpur (14 percent).

CHAPTER II

RURAL WATER SUPPLY STATUS IN PUNJAB

2.1 RURAL WATER SUPPLY STATUS IN PUNJAB:

With an area of 50,362 sq.kms, the state of Punjab had a population of 2.02 crores (1991 crores). Of these, 70 percent lived in 12.402 villages, while, 30 percent lived in 120 urban areas.

Public Health Engineering Department (PHED) of the Punjab Public Works Department looks after the operation and maintenance of water supply programmes in the state. Till March, 1996, piped water supply was provided in 6,678 of 12,402 villages, and 5,724 villages were left uncovered. Though earlier schemes were based on hand pumps most water supply schemes were through piped water supply with sources tube well or canal (where the underground water was not potable).

In an empowered committee meeting of Rajiv Gandhi National Drinking Water Mission (RGNDWM), it was decided to cover entire rural population in the state with piped water supply. It was also desired to augment water supply to habitations having service level of less than 10 liters per capita per day (<10 LPCD) on priority basis.

In the State Chief Ministers conference held on July 5-6, 1996, it was decided to cover entire population by March 2000 with a service level of 40 LPCD. The detailed guidelines for finalisation of lists of Not Covered (NC), Partially Covered (PC) and Fully Covered (FC) habitations and Action plans were provided by the Ministry of Rural Development, Government of India On the basis of these guidelines, Punjab PWD Pubic Health Engineering Department had prepared a comprehensive active plan for covering the entire rural population by March 2,000 with a service level of 40 LPCD.

The following rural water supply programmes/schemes are in progress in the state of Punjab:

A. **District level schemes**: The PHED covers villages under Minimum Needs Programme sub-programmes as under.

1. Problem villages (P.V)
2. Non-Problem Villages (N.P.V)
3. Augmentation of water supply in Kandi areas, and
4. Augmentation of water supply in other than Kandi areas.

B. Central sector: The government of India provides funds under Accelerated Rural Water Supply Programme (ARWSP) as a matching contribution to MNP funds.

C. Sub-Mission: The Government of India provides funds under the had 'Sub-mission' for specific water quality problems for areas under Rajiv Gandhi National Drinking Water Mission 1996-97.

Achievements in 1996-97: A target of commissioning 520 villages was fixed for 1996-97. These villages included some hardcore problem villages which were being covered under sub-mission of the RGNDWM. Some 170 other habitations, where pump water supply did not exist were also proposed to be covered.

A total allocation of R.56.40 crores was made for 1996-97, which was later lowered down to Rs.43.46 crores. During 1996-97, the department had received only Rs.36.42 crores. The budget for district level schemes was lowered from Rs.29.00 crores to Rs.19.43 lakhs. Of these, only Rs.12.21 crores was released. **Due to decrease in funds, only 147 of targeted 520 habitations (28 percent) were covered.**

The budget for Centrally sponsored Accelerated Rural Water Supply Programmes (ARWSP) was fully provided. **As a result, 256 habitations were covered as against a target of 255 habitations.**

As against the initial budget of Rs.16.35 crores towards Sub-missions (brackish and flouride) Rs.12.98 crores was received. As against a target of 115 habitations, **100 habitations (86 percent) were covered.** The following table 2.1 shows the physical and financial achievement during 1996-97

TABLE 2.1A
PHYSICAL & FINANCIAL ACHIEVEMENT DURING 1996-97

(Rs. in lakhs)

Sr. No.	Program	Allocation		Funds Received	Expendi-ture	Physical	
		Orig.	Rev.			Target	Achieve-ment
1	2	3	4	5	6	7	8
A.	**District level Schemes**						
1.	Minimum Needs Program (MNP)	2150.00	1580.97	904.19	1394.49	311	142
2	Non-Problem villages with NPV > 5000 pop	250.00	112.50	102.13	219.72	9	5
3.	Augmentation of Kandi Area	200.	100.00	83.49	204.37	-	-
4.	Augmentation of other areas	300.00	150.00	131.49	150.28	-	-
5.	Rural Dev. Board	-	-	13.80	13.80	-	-
	Total-A	2900.00	1943.47	1221.30	1982.66	320	147
B.	**Central Sector**						
6.	ARWSP	1105.00	1105.00	1105.00	1234.46	255	256
	Total-II	1105.00	1105.00	1105.00	1234.46	255	256
C.	Sub-Mission						
7.	1. Brackish water	361.58	361.58	361.58	192.61	50	37
	2. Flouride	936.20	936.20	936.20	792.94	65	63
		338.00					
	Total - C	1635.00	1297.78	1297.78	985.55	115	100
	G Total	5640.00	4346.25	3624.08	4199.09	690	503

Achievements in 1997-98: During 1997-98, the following targets were fixed:

* To augment water supply in 169 habitations which were partially covered (0-10 LPCD)
* To cover 1525 not covered (NC) habitations
* To cover remaining 877 other habitations.
* To improve quality of water supply in four habitations.

A budget of Rs. 38.56 crores was allotted to the Department. This included budget for district level schemes (Rs.22.35 crores), centrally sponsored schemes ARWSP (Rs. 13.30 crores) and Sub-missions under RGNDWM (Rs.2.91 crores).

The following table 2.1B shows budget allotted to various schemes and Physical targets/ achievements.

TABLE 2.1B
ALLOCATION OF BUDGET, TARGETS AND ACHIEVEMENTS 1997-98

Sl. No.	Name of Programmes	Budget allotment (Rs.in lakhs)	Releases upto 9/97	Physical targets (villages)	Achievements (upto 9/97)
A.	**District Level Schemes:**				
1.	Minimum Need Programme (MNP)	1500.00	-	160	10
2.	Non-Problem Villages (NPV) 5000 + Problem	135.00	-	3	-
3.	Augmentation of water supply in Kandi area	100.00	-	-	-
4.	Augmentation of water supply in other than Kandi areas	500	-	-	-
	Total - I	2235.00	-	163	10
B.	**Central Schemes**				
5.	Rural Water Supply Schemes under ARWSP	1330.00	665.00	190	29
C.	**Sub-Missions**				
6.	Sub-Mission under RGNDWM	291.00	-	30	4
	G. Total (A+B+C)	**3856.00**	**665.00**	**383**	**43**

Till September 30, 1997, only 43 habitations were covered.

It has been observed that the overall allocation of funds under Minimum Needs Programme (MNP) was going down year by year and even the inflation is not being accounted for. Allocation of funds during 1995-96 under MNP was Rs.33.00 crores and during 1996-97 it was 29.00 crores. For the year 1997-98 the allocation was only Rs.22 crores. The following table depicts the allocation and release of funds for the last 4 years.

DECLINE IN MNP ALLOCATION

S.No.	Year	Original allocation	Allocation	Actual Release
1	1993-94	2250.00	2250.00	2250.00
2	1994-95	2050.00	1661.00	1661.00
3	1995-96	2450.00	1225.00	1225.00
4	1996-97	2900.00	1943.47	1221.30
5	1997-98	2235.00	N.A	N.A

Note: NA - Not available

The achievements have fallen much short of targets fixed in recent years. Efforts should be made (both in terms of budget provision and physical efforts) to implement various programm to achieve targets.

In order to meet the target of coverage of entire rural population under Rural Water Supply programme by 2000 A.D, the allocations under MNP requires substantial enhancement.

Coverage of Non-Problem Villages (NPV) having population of more than 5,000: In Punjab State, there are many large villages having population of 5,000 or more. These villages do not have municipal committee or notified

area committees and panchayats do not have adequate means to provide necessary civic amenities.

Initially, 58 non-problem villages (NPV) were proposed to be covered by March 97, out of which only 34 villages have been covered upto March 1997. To cover the remaining 24 villages, Rs.1024.25 lackhs were required whereas only Rs.135 lakhs have been allocated during 1997-98. With this meagre amount no new village could be taken up during 1997-98, as the amount available was not even sufficient to clear the liability of the villages already commissioned during 1996-97. **The slow and inadequate release of funds adds to the cost escalation and there is no escape from it.**

Augmentation of water supply in Kandi areas: Under this sub-programme, renovation and augmentation of Kandi area schemes are being undertaken, which are old and have outlived their designed life.

Kandi area falls on the north-east side of road passing through Ambala-Chandigarh-Ropar-Hoshiarpur-Dasuya and Pathankot. The area comprises of foot hills of Himalayas and is known as Shivalik ranges. The area is devoid of underground water and depth of underground water ranges from 80 feet to 240 feet. These areas of Shivalik hills are totally dry and have only monsoon khuds and rivulets having steep slopes. These remain dry except for a brief period when monsoon sets in. The habitations are situated at hill tops and fetching of water involves lot of lift and lead. Thus, water supply needs are met from deep tube wells, springs, percolation wells etc.

Rural water supply schemes in Kandi area were taken up in 1970's and have outlived their life. The rural water supply schemes thus constructed upto 1980 cannot supply the required quantity of water supply based on a norm of 40 lpcd due to increase in population and depletion of sources.

During 1997-98, it was proposed to take up 29 schemes covering 76 villages for augmentation and renovation Allocation under augmentation of rural water supply for Kandi area was originally kept as Rs.300 lakhs was brought down

to Rs.100 lakhs and Rs.200 lakhs have been diverted to the works of historical town of Shri Anandpur Sahib. This diversion of funds amounting to Rs.200 lakhs has affected the progress of schemes being augmented in the Kandi area. The lowering of budgets or diversion leads to delay in implementation of the project, adds to cost over-run, and sullies the credibility of water supply department.

Augmentation of water supply in other than Kandi areas: The state government has introduced a scheme of renovation and augmentation of water supplies in other than Kandi areas. Rural water supply schemes which were constructed more than 15 years earlier and have outlived their life, and now require augmentation as the machinery, structures cannot cope with the present day requirement. Moreover, the population of the habitations have increased resulting in increased load on the system. In 1997, 167 villages were getting less than 10 lpcd against the designed allowance of 40 lpcd, while, 2954 villages were getting water supply between 10 - 30 lpcd. Even the yield of some of the sources had reduced and new sources are required to be created. The deptt. proposes to provide such schemes with new safe sources. The state will have to come up in a big way to provide 40 lpcd to the villages already covered more than 15 years back which at the moment are not getting the required water supply. It is a well known fact that once piped water supply is made available in a village the beneficiaries get used to that system and will meet their requirement of water for domestic as well as their live stock. The existing source of water supply prior to commissioning of piped water supply are abandoned for all future uses.

The norm of 40 lpcd adopted forbid grant of individual house connections whereas the house connections have been established. This 40 lpcd covers only bare minimum requirements of drinking, cooking, bathing, washing only. The pipes used for house connections are of G.I. and these pipes rust and corrode early having short, life, thus resulting in added leakage losses Due to less supply of water, the villagers fall back to unhygienic source to meet their demand. This use of unhygienic water creates health problems and state has to increase budget on health side. If preventive measures like timely renovation/

augmentation of water supply schemes is taken, it can save not only money spent on health Deptt. but can also help in better economic growth due to increase in man days availability in the rural areas.

During 1997-98, a budget of Rs.5 crore was allocated for this purpose. In view of the colossal problem, the funds provided were quite meagre.

2.2 PRESENT COVERAGE:

As in March, 1998, Punjab State had covered 7,003 of 12,402 villages (56.3 percent) with piped water supply. These include: 6716 problem villages (main habitations) and 287 non-problem villages (main habitations).

The district-wise analysis shows that the coverage of villages with piped water supply was highest in Mansa district (98.8 percent), and lowest in Kapurtala district (11.2 percent). Six of the 17 districts had good coverage (with more than 75 percent of villages covered). Five districts were fairly covered (having coverage between 50-75 percent of villages), while, six districts were poorly covered, (< 50 percent of villages).

Districts with Good Coverage (> 75 percent of villages): Mansa (98.8 percent), Bhatinda (97.5 percent), Moga (97.1 percent), Faridkot (95.7 percent), Muktsar (95.7 percent). and Sangrur (90.2 percent).

Districts with Fair Coverage (50-75 percent of villages): Ferozepur (72.6 percent), Amritsar (69.4 percent), Ropar (67.7 percent), Patiala (66.2 percent), and Hoshiarpur (65.9 percent).

Districts with Poor Coverage (< 50 percent of village): Nawan Shahar (47.1 percent), Ludhiana (35.6 percent), Fatehgarh Sahib (31.6 percent), Gurdaspur (27.4 percent), Jalandhar (27.3 percent) and Kapurthala (11.2 percent).

Some 5,425 villages, and 869 other habitation/basties were left uncovered. Of these, 2,732 are problem villages/habitations, while, 3,562 are other than

Problem habitations. The table 2.1C on the next page shows District-wise coverage of villages:

TABLE 2.2
DISTRICT WISE COVERAGE OF VILLAGES WITH RURAL WATER SUPPLY

Sl. No.	District	Number of villages covered	Upto 28/02/98	Balance
1.	Patiala	1073	710 (66.2)	363
2.	Fatehgarh Sahib	456	144 (31.6)	312
3.	Ropar	880	596 (67.7)	284
4.	Hoshiarpur	1396	920 (65.9)	476
5.	Jalandhar	957	261 (27.3)	696
6.	Kapurthala	635	71 (11.2)	564
7.	Nawan Shahar	465	219 (47.1)	246
8.	Gurdaspur	1546	423 (27.4)	1123
9.	Amritsar	1202	834 (69.4)	368
10.	Mansa	244	241 (98.8)	3
11.	Bathinda	279	272 (97.5)	7
12.	Faridkot	163	156 (95.7)	7
13.	Muktsar	234	224 (95.7)	10
14.	Moga	175	170 (97.1)	5
15.	Ferozepur	1113	808 (72.6)	305
16.	Sangrur	697	629 (90.2)	68
17.	Ludhiana	913	325 (35.6)	588
	Total	12,428	7,003 (56.3)	5,425

2.3 OPERATION AND MAINTENANCE OF RURAL WATER SUPPLY SCHEMES:

Due to commissioning of new villages during the year, wages of staff are updated, prices of consumables, and electric power are revised periodically, the requirement of funds increases every year. Funds provided by the government for the operation and maintenance of rural water supply schemes have always been less than the requirement of the department.

Funds required for operation and maintenance of 2,464 schemes covering 7,003 villages serving 93.63 lakhs population during the year 1997-98 was Rs. 4856 lakhs, whereas the allocation under this head is only Rs.3033.63 lakhs. As per norm, ten percent of the allotment under MNP and ARWSP is allowed to be diverted and utilised and the operation and maintenance. But in 1997-98, no allocation under MNP has been allowed for operation and maintenance by the planning department.

The following table 2.3 shows the allocation of funds made by the Govt. and actual expenditure incurred by the department during the last 5 years have been given.

TABLE 2.3
BUDGET AND EXPENDITURE ON OPERATION AND MAINTENANCE IN RECENT YEARS

S. No.	Year	Budget Provision	Diversion allowed from MNP & ARP allocation	Total funds available (3+4)	Expenditure - excluding wages of regular work charges staff	Released out of Col. No.3 by the Govt.
1.	1992-93	1234.87	410.25	1625.12	1897.06	1234 87
2.	1993-94	1857.00	338.00	2195.00	2234.57	1857.00
3.	1994-95	2362.00	166.10	2528.10	2678.41	2362.00
4.	1995-96	2647.26	122.50	2739.76	3170.33	2647.26
5.	1996-97	3113.53	211.13	3324.66	3682.00	2310.57
6.	1997-98	3033.63	130.00	3163.63	4856.00 (Anticipated)	

During 1996-97, funds only to the tune of Rs.25.74 crores were released by the finance department against an allocation of Rs. 31.13 crore. But funds actually received by the department from the treasury were Rs.23.11 crores as the treasury officer did not release the money amounting to Rs.2.63 crores received in March due to financial crunch. Thus, Rs.2.63 crores had lapsed. This resulted in pending of payments of electric bills and labour employed on muster rolls apart from repair payments.

To keep the schemes healthy, regular preventive maintenance is of utmost necessity, which is only possible if full funds are provided in the budget and release to the department are in full.

2.4 RURAL WATER SUPPLY STATUS IN BHATINDA DISTRICT:

For the present monitoring and evaluation study, the districts of Bhatinda and Hoshiarpur were selected. Bhatinda represents one of the good districts having good coverage, while, Hoshiarpur represents districts with fair coverage.

The present population in Bhatinda district is estimated at 9.85 lakhs. Of this, 2.66 lakhs (27 percent) lived in urban areas, while, 73 percent lived in 279 villages.

As on March 1998, 272 of 279 villages in Bhatinda (97.5 percent) were covered with rural water supply programs. Most villages in Bhatinda district had piped water supply and the source was either canal or tube wells.

During this study, fifteen villages representing blocks of Nathana, Talwandi Sabo and Phool were covered in Bhatinda district. The total population of these 15 villages was 39,493 (1991 census). The population for 1998 was estimated at 47,358 @ 1.76 percent per annum growth rate. All fifteen villages had stand posts installed as public sources. These were connected by pipe water supply to the canal or tube well based water supply system. A total of 225 public sources were installed in these villages. Thus, each public source was available for 210 persons. The population per public source was higher in Nathana village (360), and Fatehgarh (322) and lower in Lehra Saundha (36)

and Joganand (36). However, no information was available about the private stand posts-hand pumps in these villages.

A total of 17.88 lakh litres of water was supplied per day through these public sources. The per capita availability of water was 37.7 LPCD. Seven of 15 villages were fully covered having higher per capita availability (>40 LPCD), while, eight villages were partially covered having per capita availability raging between 24 - 30 LPCD.

TABLE 2.4
WATER SUPPLY STATUS IN SELECTED VILLAGES - OF BHATINDA DISTRICT

Villages	1991	1998	Type of public water source	No. of public sources (SP)	Total water supplied per day (litres)	Per capita availability (LPCD)
Lehra Saundha	1261	1416	Stand post	39	73532	52
Joganand	1653	1857	Stand post	20	83565	45
Nathana	6420	7211	Stand post	20	310073	43
Lehra Khana	1837	2063	Stand post	14	115528	56
Bibiwala	2071	2326	Stand post	9	69780	30
Fatehgarh Naunabad	1432	1608	Stand post	5	38592	24
Jean Singhwala	2892	3248	Stand post	11	90944	28
Shekh pura	4073	4575	Stand post	17	109800	24
Lelewala	3592	4035	Stand post	16	112980	28
Mahinangal	2000	2246	Stand post	13	107808	48
Dhingar	1250	1404	Stand post	6	40716	29
Sailbra	4011	4505	Stand post	20	243270	54
Kaloke	796	896	Stand post	4	25088	28
Harnam Singh wala	954	1072	Stand post	4	30016	28
Dhapali	5249	5896	Stand post	27	336092	57
All 15 villages	39,493	47,358	Stand post	225	17,87,884	37 7

2.5 RURAL WATER SUPPLY STATUS IN HOSHIARPUR DISTRICT:

Hoshiarpur district falls in the Kandi area. The topography of Hoshiarpur district is hilly and uneven. Availability of water is higher in plain and valley areas, while, it is low in upper reaches. As on March 1998, 920 of 1396 villages (65.9 percent) in Hoshiarpur district were covered with rural water supply programme. The remaining 476 villages were not yet covered.

In Bhanga block, 108 of 198 villages were fully covered in 1994. The number of fully covered villages had increased to 144 in 1995. It however, declined in the following years and a number of fully covered villages had become partially covered villages. This was a result of increasing population and depletion of water sources.

TABLE 2.5 A
RURAL WATER SUPPLY COVERAGE IN SELECTED BLOCKS - HOSHIARPUR DISTRICT

Block classifying	1994	1995	1996	1997	1998
Bhanga					
Fully covered (> 40 LPCD)	108	144	75	87	87
Partially covered (<40 LPCD)	-	-	69	69	69
Not covered	90	54	54	42	42
Dasuya					
Fully covered (> 40 LPCD)	-	-	-	-	-
Partially covered (<40 LPCD)	130	130	136	139	147
Not covered	75	75	69	66	58
Talwara					
Fully covered (> 40 LPCD)	-	-	-	-	-
Partially covered (<40 LPCD)	94	94	94	94	94
Not covered	4	4	4	4	4

The number of partially covered village in Dasuya block had increased from 130 in 1994 to 147 in 1998; and number of villages not covered had declined from 75 in 1994 to 58 village 1998.

The status of villages, however, continues to be the same during last five years in Talwara block.

In the present evaluation, fifteen villages representing Bhunga, Dasuya and Talwara blocks were covered in the district. The present population of these fifteen villages (1998) was estimated to be 19,818.

Stand posts were available in 13 villages, which were connected to tube wells (in 10 villages) or percolation well (in 3 villages). Two villages had Indian Mark II hand pumps (4). In all, there were 275 public sources - Stand posts (271) and Mark II hand pumps (4) in these 15 villages. **Thus, each public source was available for 72 persons.** No information was, however, available about private sources.

A total of 6.67 lakh litres of water was supplied/made available per day through these sources. The per capita availability of water was 33.7 LPCD. Six of fifteen villages fully covered (> 40 LPCD), while, nine villages wre partially covered with water availability ranging between 20 - 30 LPCD.

TABLE 2.5B
WATER SUPPLY POSITION IN VILLAGES SURVEYED INHOSHIARPUR DISTRICT

S. No.	Name of Block/Village	Population 1991	Population 1998 @1.76% increase per year for 7 year	Type of public source of water	No. of public water source	Total supply to the village in a day	Per capita availability in a day
1	Behbowal, Chhania	1300	1460	Stand post (Tube well)	5	43800 Ltr.	30 LPCD
2.	Rampur	993	1115	Stand post (Tube well)	34	22300 Ltr.	20 LPCD
3	Jalal Chak	542	609	Stand post (Tube well)	6	18300 Ltr.	30 LPCD
4.	Chak Phala	234	263	Stand post (Tube well)	4	10550 Ltr.	40 LPCD
5.	Jamalpur Kalan	329	369	Stand post (Tube well)	6	14800 Ltr.	40 LPCD
6.	Datarpur	4504	5859	Stand post (Percolation)	9	151800 Ltr.	30 LPCD
7	Adampur	248	279	Hand pump India mark II	1	8400 Ltr.	30 LPCD
8	Dohar	1085	1219	Stand post (Tube well)	15	36500 Ltr.	30 LPCD
9	Sathwan	597	671	Stand post (Tube well)	6	26840 Ltr.	40 LPCD
10.	Bhambotar	3484	3913	Stand post (Percolation)	85	156520 Ltr.	40 LPCD
11.	Nila-Naloa	729	819	Stand post (Tube well)	5	40400 Ltr	49 LPCD
12.	Phambran	508	571	Hand pump India mark II	3	23440 Ltr.	41 LPCD
13.	Dholbaha	1993	2126	Stand post (Percolation)	13	53150 Ltr	25 LPCD
14.	Dhaki	468	256	Stand post (tube well)	3	23560 Ltr	44.8 LPCD
15.	Pandori Sumla	729	819	Stand post (tube well)	9	37120 Ltr	43 5 LPCD
		17,643	19,818		275	6,67,480	337 LPCD

CHAPTER III

USERSHIP OF DRINKING WATER SOURCES

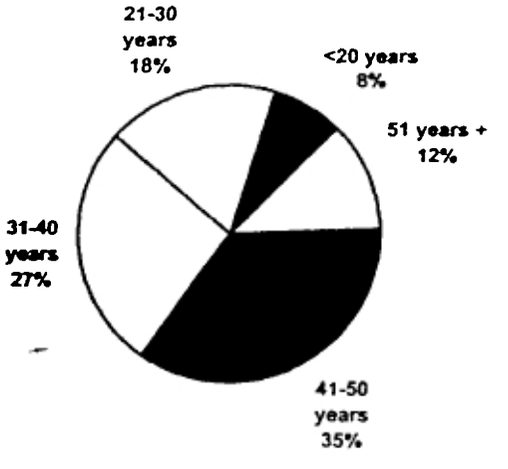
3.1 PROFILE OF HOUSEHOLD RESPONDENTS:

In households surveyed, either head of household or wife of head household were interviewed. The profile of respondents is discussed here.

Sex: Forty two percent of respondents interviewed were head of households, while, 58 percent were housewives.

Age: Twelve percent of respondents were in elderly age group 51 years or more, while, 35 percent were in 41-50 years age group. Twenty seven percent were in 31-40 years age group, while, 18 percent were in 21-30 years age group. The remaining 8 per cent were in younger age group of upto 20 years. **The average age of respondent was 38 years.**

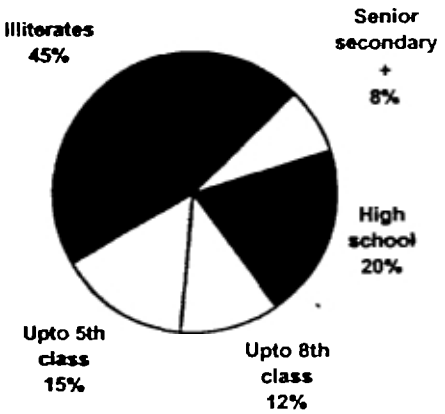
PROFILE OF RESPONDENTS - BY AGE



Average age of respondent - 38 years

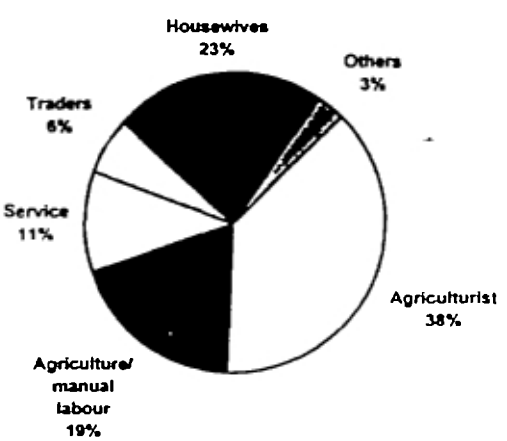
Education: Eight percent of respondents had attained senior secondary level or more, while, 20 percent had studied up to high school level. Twelve percent had studied upto middle level (VIIIth class), while, 15 per cent had studied upto primary level only The remaining 45 percent were illiterates The education profile of men respondents was better than women respondents

PROFILE OF RESPONDENTS - BY EDUCATION



Occupation: Thirty eight percent of respondents were agriculturalists, while, nineteen per cent were agriculture/ manual labour. Eleven percent were in service, while, six percent were traders. Twenty three percent were housewives, while, three percent were either retired or unemployed. Quite a few women were engaged in agriculture or working as an agriculture/manual labour, thus, spending more time in income generating activities and less time for household work including fetching of water.

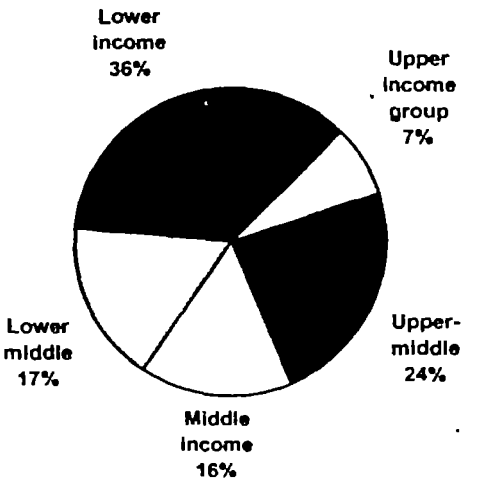
OCCUPATION



Family Income per Month: Seven per cent of respondents were in upper income group of Rs.10,001 + per month, while, 24 percent were in upper-middle income group Rs.5,001-10,000. Sixteen percent were in middle income group Rs.3,001-5,000 per month, while, 17 percent were in

lower-middle income group of Rs.2,001-3,000 per month. The remaining 36 percent were in lower income group of upto Rs.2,000 per month. The average family income per month was Rs.4,078.

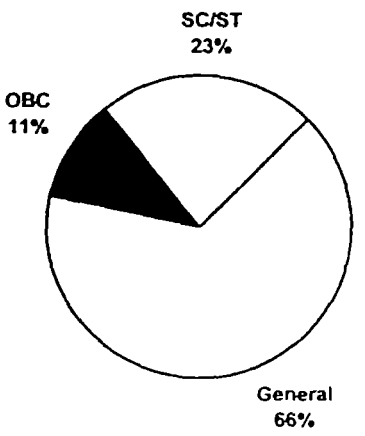
FAMILY INCOME PER MONTH



Average Family Income - Rs.4,078 per month

Caste: Two-third of respondents interviewed were from forward/general castes, while, eleven per cent were from other backward classes (OBC) The remaining 23 percent were scheduled castes/ tribes.

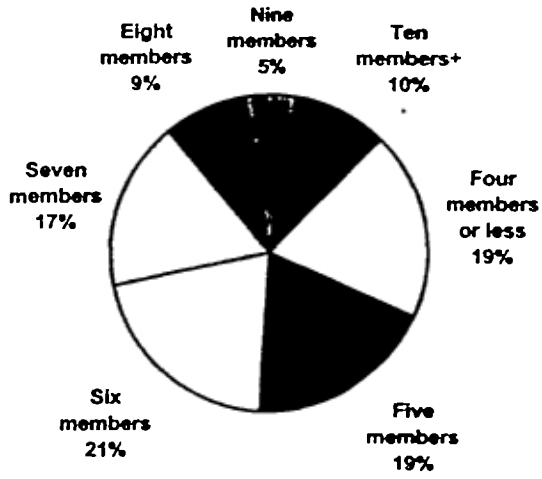
CASTE



Family Size: Twenty four percent of respondents had very large families having 8 members or more, while, 38 percent had families with 6-7 members

each. Nineteen percent of respondents had five family members each, while remaining 19 percent had four members each or less. **An average family surveyed had 6.2 members, including 4.4 adult members (18 years +).**

FAMILY SIZE



Average family size - 6.2 members

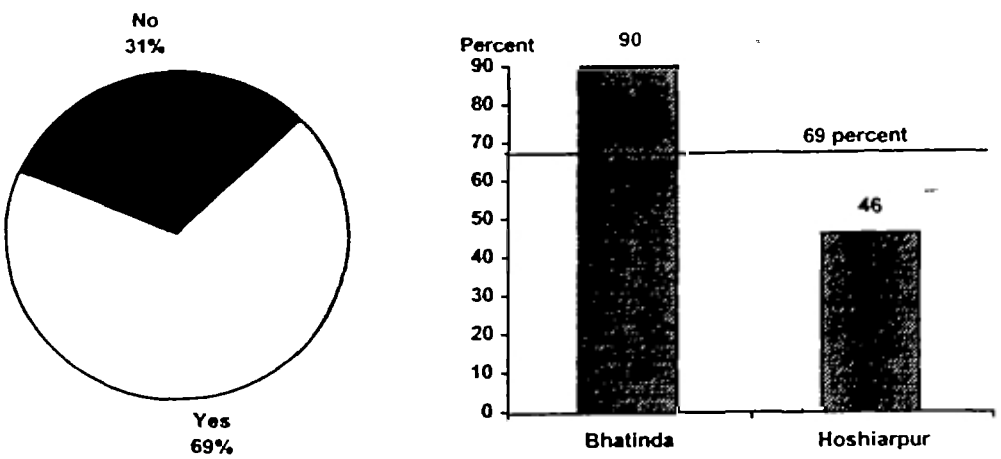
TABLE 3.1
PROFILE OF HOUSEHOLD RESPONDENTS

Characteristics	Bhatinda N = 319	Hoshiarpur N = 290	Both districts N = 609
Sex			
Men	105	151	256 (42.0)
Women	214	139	353 (58.0)
Age			
Upto 20 years	18	28	46
21-30 yrs	60	50	110
31-40 yrs	85	79	164
41-50 yrs	114	100	214
51 yrs +	42	33	75
Avarage Age			38 years
Education			

Characteristics	Bhatinda N = 319	Hoshiarpur N = 290	Both districts N = 609
Illiterate	204	7	259
Upto primary	50	43	93
Upto Middle	29	41	70
Upto high school	25	96	121
Senior Secondary +	11	35	46
Occupation			
Agriculturist	127	104	231
Agri./manual labour	68	51	119
Service	8	58	66
Trader	22	15	37
Housewives	94	44	138
Others	-	18	18
Family income per month			
Upto Rs.1000	56	42	98
Rs.1001-200	60	62	122
Rs.2001-3000	52	21	103
Rs.3001-5000	45	51	96
Rs.5001-10,000	81	64	145
Rs.10,001 +	25	20	45
Average family income			4,078
Caste			
General/forward	221	180	401
OBC	26	41	67
SC/ST	72	69	141
Family size			
Four members or less	63	54	117
Five members	61	56	117
Six	55	71	126
Seven	60	45	105
Eight	24	28	52
Nine	19	13	32
Ten members or more +	37	23	60
Average Family size			

3.2 AVAILABILITY OF PRIVATE SOURCES: Sixty nine percent of households surveyed in both the districts had own private water sources. A higher proportion of households in Bhatinda (90 percent) had private sources than in Hoshiarpur district (46 percent).

ACCESS TO PRIVATE SOURCE



Of households having private water sources in two districts, ninety one percent had hand-pumps installed in their houses. Five percent of households had own tube wells, while, four percent had stand posts. Private open wells were available in two households in Hoshiarpur.

TYPE OF PRIVATE WATER SOURCE AVAILABLE

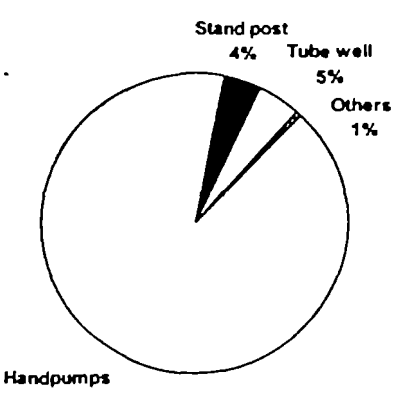


TABLE 3.2
OWNERSHIP OF PRIVATE WATER SOURCES

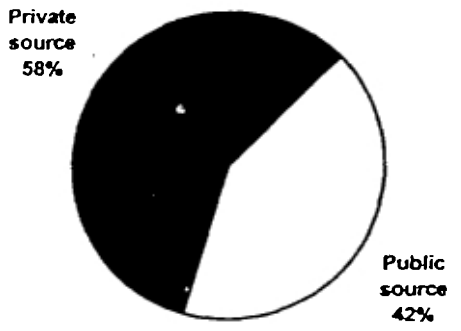
Ownership	Bathinda N=319	Hoshiarpur N=290	Both districts N=609
Yes	287 (90.0)	133 (45.9)	420 (69.0
No	32 (10.0)	157 (54.1)	189 (31.0)
If yes, type of source available:			
Hand pump	264 (82.8)	118 (40.7)	382 (62.7)
Stand post	10 (3.1)	6 (2.1)	16 (2.6)
Tube well	13 (4.1)	7 (2.4)	20 (3.3)
Open well	-	2 (0.7)	2 (0.3)

Note: The figures in brackets indicate percentage to total respondents in each district.

3.3 DEPENDENCE ON PUBLIC/PRIVATE SOURCE:

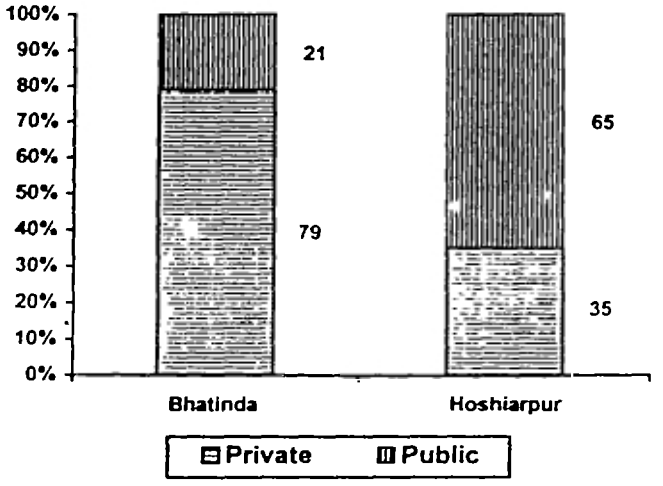
Forty two percent of households surveyed depended more on public sources, while, 58 percent of households were using more of private sources. Ten percent of households though having access to private sources, had depended more on public water sources. Perhaps the good quality of water at public sources attracts them to use public source.

DEPENDENCE OF PUBLIC/PRIVATE SOURCE



Dependence was higher on public sources (64.8 percent) than private sources (35.2 percent) in Hoshiarpur district. A higher proportion of households surveyed in Bhatinda district, however, had depended more on private sources (79 percent) than public sources (21 per cent).

DEPENDENCE OF PUBLIC/PRIVATE SOURCE



Reasons for using public source: Head of households/ housewives interviewed had cited the following reasons for using public sources:

+ Availability of Public source (35 percent)
+ Clean and good water from public sources (80 respondents)
+ Regularity in supply of water (29 respondents)
+ Easy to use (5 respondents)

+ No private source/cannot afford private source (11 percent)
+ Water table is very low for a private hand pump (4 respondents)

Reasons cited for using private source were:

* Private source is available in the household (65 respondents)
* Quality of water is good at private source (9 respondents)
* No public source/PWS is available (30 respondents)
* Public source is far away (41 respondents)
* Irregular supply at public source (4 respondents)

TABLE 3.3
DEPENDENCE ON PUBILC AND PRIVATE WATER SOURCES

Dependence	Bathinda N=319	Hoshiarpur N=290	Both districts N=609
Public Source	67 (21.0)	188 (64.8)	255 (41.9)
Private Source	252 (79.0)	102 (35.2)	354 (58.1)
Reasons for using public source:			
Clean and good water	57	23	80
Public source is available	18	17	35
Easy to use	-	5	5
Water supply is regular	17	12	29
Can't afford private hand pumps	-	11	11
No private source	8	92	100
Water in private source is salty	-	4	4
Water level has gone down	-	4	4
Reasons for using provate source:			
Source is available in the house	47	18	65
Quality of private source is good	9	-	9
No public source/PWS	89	41	130
Public source is far away	9	32	41
Irregular supply on public source	4	-	4

3.4 USE OF WATER - BY SOURCE:

For Cooking/Drinking Purposes: For drinking/cooking foods, 64 percent of households were using water from hand pumps, while, 48 percent were using supply from stand posts. Other sources of water used for drinking/cooking food were: tube wells (5 percent), open well (4 percent), sanitary well (1 percent) and others including river, canal, pond (2 percent).

Handpump were the most used water source in 82 percent of households in Bhatinda district, and was followed by the use of stand posts (33 percent), tube wells (6 percent), sanitary well (0.4 percent) and other sources (1 percent). **It was revealing that the quality of water from public stand posts was not perceived worth drinking** in some households in Bhatinda district. People continue to have apprehensions about the quality of water of stand posts for dirinking purpose.

Stand posts were the major source of drinking water in 63 percent of households in Hoshiarpur district, and was followed by the use of hand pumps (45 percent) open well (8 percent), tube well (3 percent), sanitary well (2 percent) and others (2 percent).

For Bathing/Washing clothes: Hand pumps were the major water source used in 68 percent of households for bathing/washing clothes purpose. It was followed by the use of stand posts (51 percent), open well (6 percent), tube well (5 percent), sanitary well (1 percent). Other source like river, canal, pond were also being used for bathing/washing clothes (8 percent).

For bathing/washing clothes, hand pumps, were used in 85 percent of households in Bhatinda district followed by the use of stand posts (43 percent), tube well (7 percent) etc.

TABLE 3.4
SOURCES OF WATER USED

Purpose/Source	Bathinda N=319	Hoshiarpur N=290	Both districts N=609
For Drinking water/cooking food:			
Hand pump	260 (81.5)	130 (44.8)	390 (64.0)
Stand post	107 (33.5)	183 (63.1)	290 (47.6)
Tube well	18 (5.6)	10 (3.4)	28 (4.6)
Open well	1 (0.3)	22 (7.6)	23 (3.8)
Sanitary well	1 (0.3)	6 (2.1)	7 (1.1)
Other sources (River/canal/bond)	3 (0.9)	6 (2.1)	9 (1.5)
Bathing/washing clothes			
Hand pump	272 (85.3)	140 (48.2)	412 (67.7)
Stand post	138 (43.3)	163 (57.9)	309 (50.7)
Tube well	22 (6.9)	9 (3.1)	30 (4.9)
Open well	1 (0.3)	37 (12.8)	39 (6.4)
Sanitary well	1 (0.3)	5 (1.7)	6 (1.0)
Other sources	10 (3.1)	36 (12.4)	46 (7.6)

Note: The figures in parenthesis indicate percentage to total respondents in each district. The total of percentage is more than 100 because of multiple responses.

Stand posts were used in 58 percent of households in Hoshiarpur district for this purpose, and was followed by use of hand pumps (48 percent), open well (13 percent), tube well (3 percent), sanitary well (2 percent) and other sources (12 percent) etc.

3.5 TIMING AND DURATION OF PIPED WATER SUPPLY:

Seven of fourteen functionaries interviewed in Bhatinda district had said water was supplied for two hours each in the morning and evening, while, six functionaries had said that water was supplied only in the morning hours. One functionary had said that water was supplied alternatively either in the morning or evening.

Three of eleven functionaries interviewed in Hoshiarpur had said that the water was supplied throughout the day, while, one functionary had said that water was provided both in the morning as well as in the evening. Seven functionaries had said they supply water only in the morning hours.

Household respondents availing piped water supply were also asked about the duration of water supplied. Half of respondents had said that water was supplied for one hour in the morning, while, 25 percent had said that it was supplied for 2 hours. Eleven percent had said that water was supplied for 3 hours, while, 14 percent had said that it was supplied for 4 hours.

TABLE 3.5
DURATION OF WATER SUPPLY FROM PUBLIC SOURCES

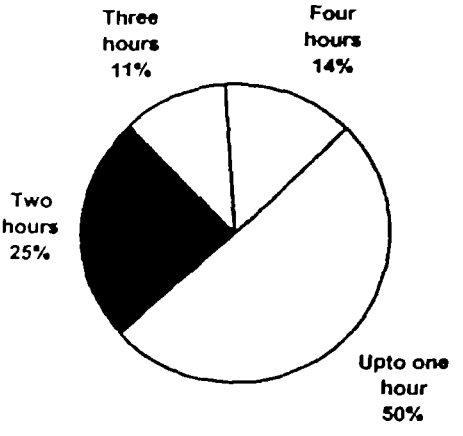
Duration	Bhatinda	Hoshiarpur	Both districts
Morning			
One hour	137	28	165 (50.8)
Two hours	14	66	80 (24.6)
Three hours	2	34	36 (11.1)
Four hours	-	44	44 (13.5)
Average duration	**One hr. 6 min.**	**2 hr. 33 min.**	**1 hr. 52 min.**
Evening			
No supply	80	76	156 (48.0)
One hour	66	19	85 (26.2)
Two hours	7	33	40 (12.3)
Three hours	--	26	26 (8.1)
Four hours	--	18	18 (5.5)
Average duration	**32 min.**	**82 min.**	**58 min.**

An average household had received water for one hour 52 minutes in the morning. The duration of water supply was longer in Hoshiarpur (2 hours 33 min.) than in Bhatinda (1 hour 6 min.).

Fifty two percent of household respondents had said that they were receiving water supply in evenings, while, 48 percent did not get water supply in the evening. An average household had received water supply for 58 minutes in the evening. The duration of water supply was longer in the evening in Hoshiarpur (82 minutes) than in Bhatinda (31 minutes).

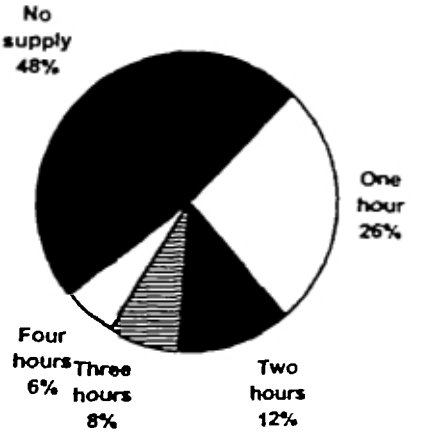
DURATION OF WATER SUPPLY

MORNING



Average duration - 1 hour 52 mins

EVENING



Average duration - 58 mins.

3.6 OBSERVATION OF PUBLIC SOURCES:

Seventy four public sources were observed by MRG's researchers. Of these, 44 were in Bhatinda district, and 28 were in Hoshiarpur district. Of these, 27 were stand posts, 28 were hand pumps and 17 were tube wells/ borewells.

Fifty three of 72 sources were installed more than 20 years back, while, thirteen were installed 11-20 years back. The remaining six public sources had been installed 6-10 years back.

Sixty six of 72 public sources were functioning (92 percent), while, eight sources (9 percent) were not working.

Fifty four of 72 sources were used by all communities, while, four sources were used only by the upper income groups. Five sources were used by OBC's, while, 7 sources were exclusively used by SC/ST. Most of these pubic sources were used for multi-purposes - washing clothes/utensils (67 sources), bathing (66 sources), cattle (64 sources), but only sixty sources were used for drinking water cooking purpose.

Quality of water was observed to be good from 55 of 72 sources (76 percent), while, water from seven sources was observed to be muddy (10 percent). Fluoride problem was observed at two sources, while, water from 9 sources was not considered worth drinking. The quality of water from public sources was observed to the somewhat better in Hoshiarpur district then in Bhatinda district.

Sixty five of 72 sources (90 percent) were observed to have platforms build around it.

Surroundings were observed to be clean around 62 public sources (86 percent), while, it was not so clean around 10 sources.

TABLE 3.6
OBSERVATION OF PUBLIC SOURCES

Total sources observed	Stand post		Hand pumps		Tube well		Total	
	B	H	B	H	B	H	B	H
	14	13	15	13	15	2	44	28
Year of installation								
6-10 years	1	3	1	1	-	-	2	4
11-20 years	6	3	-	3	1	-	7	6
21 years +	7	7	14	9	14	2	35	18
Sources is Working or not								
Yes	11	13	14	11	15	2	40	26
No	3	-	-	2	-	-	4	2
Who uses it								
Upper	-	-	-	-	2	2	2	2
OBC	1	-	-	-	2	2	3	2
SC/ST	7	-	-	-	-	-	7	-
All	6	14	12	11	11	-	29	25
Purpose of use								
Drinking	7	13	13	11	14	2	34	26
Washing	14	13	13	11	14	2	38	26
Bathing	13	13	13	11	14	2	40	26
cattle	11	13	13	11	14	2	40	26
Quality of water								
Good	7	13	9	11	12	2	28	26
Breaking	-	-	-	-	-	-	-	-
Fluoride	-	-	1	-	1	-	2	-
Not worth drinking	4	1	2	1	1	-	7	2

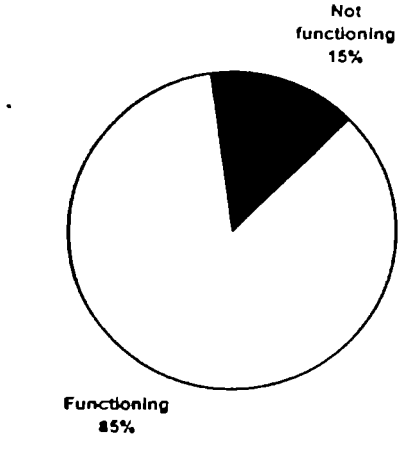
Total sources observed	Stand post		Hand pumps		Tube well		Total	
	B	H	B	H	B	H	B	H
Platform constructed								
Yes	11	12	14	12	14	2	39	26
No	3	1	1	1	1	-	5	2
Surrounding was clean								
clean	10	10	14	11	15	2	39	23
No so clean	4	3	1	2	-	-	5	5

Note: B - Bhatinda, H - Hoshiarpur

3.7 FUNCTIONING OF PUBLIC SOURCES:

About 86 percent of respondents had said that public sources were functioning in their villages, while, 14 percent had said that the public sources were not working. A higher proportion of respondents is Hoshiarpur (90 percent) had said that Public source was functioning than in Bhatinda (82 percent).

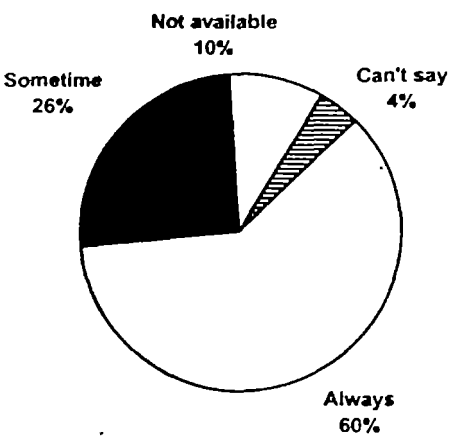
FUNCTIONING OF PUBLIC SOURCES



As stated earlier in Chapter 2, the operation and maintenace of water supply programme is looked after by the Public Health Department. Three-fifth of respondents had said that maintenance person was always available in the village, while, 26 percent had said that they were available only sometime. Ten percent of respondents had opined that the maintenance person was mostly not available. Five percent did not respond.

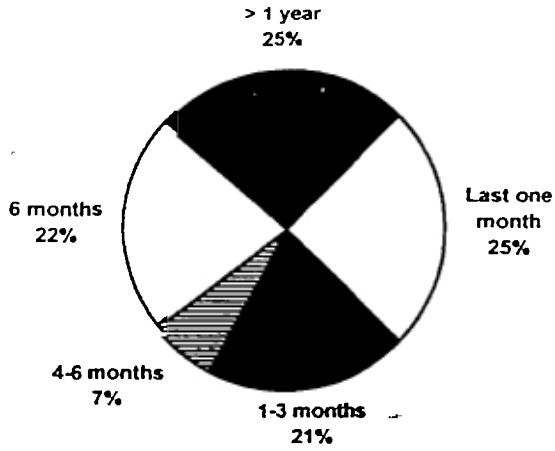
A higher proportion of respondents had said person maintenance person was available in Hoshiarpur (65 percent) than in Bhatinda (57 percent).

AVAILABILITY OF MAINTENANCE PERSON



Of those who had reported that public source was not working, four percent had said that public source was not working since last one month. Three percent had said that public source was not functioning for 1-3 months, while, one percent had said that it was not functioning for 4-6 months. Three percent of respondents had said that the public source was not functional for 6 months - 1 year, while, 3 percent had said that public source was not working for more than a year. **The average duration of non functioning was reported to be 12.6 months.**

NON FUNCTIONING OF PUBLIC - SINCE WHEN



Average duration of non-working - 12.6 months.

Reasons cited for non-functioning were:

- Lack of maintenance (45 respondents)
- Pipe had leaked (14 respondents)
- Non-availability of spare parts (12 respondents)
- Source damaged by cattle (7 respondents)
- Water table has gone down (6 respondents)

The following problems were cited in operating and maintenance of Rural Water Supply Schemes:

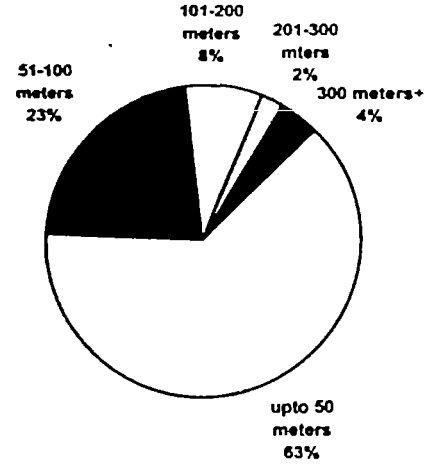
TABLE 3.7
PROBLEMS FACED IN OPERATION AND MAINTENANCE OF PUBLIC SOURCES

Problems	Bhatinda	Hoshiarpur	Both districts
Problems faced in operating water supply system:			
Shortage of Raw water	1	-	1
More powerful motor is required. Machinery is too old and need to be replanned	2	1	3
Sedimentation and storage rank is not right	1	-	1
Leakage in pipeline	3	-	3
Irregular power/electricity supply	1	1	2
Supply of Diesel for operating sets	2	1	3
Paucity of funds	-	1	1
Inadequate technical staff	1	-	1
Diversification of water for agriculture purposes	1	-	1
No problem	-	8	8
Maintenance problems			
Obsolete machines/ old technology is being used	2	2	4
Supply valve is not functioning properly	1	-	1
No sand for filters available	1	-	1
Lack of spare parts	5	-	5
Water tank has not been cleaned for a long time	1	-	1
Paucity of funds for maintenance/ payment to labour	2	2	4
Lack of monitoring and guidance by higher officers	1	-	1
Lack of technical staff	2	-	2
Political/ group interfere for more stand posts	-	1	1
Theft of stand posts	1	-	1
No problem	-	7	7

3.8 DISTANCE OF PUBLIC WATER SOURCE:

Sixty three percent of respondents had said that public source was located with in 50 metres from their house, while, 23 percent had said that public source was located at a distance of 51-100 metres. Eight percent had said that public source was located at a distance of 101-200 metres, while, 2 percent had said that it was located 201-300 metres from their house. Four percent had said that public source was located at a distance of 300 metres or more. **The average distance of public source was 74 metres.** The average distance of public water source was higher in Hoshiarpur (83 metres) then in Bhatinda district (61 metres).

DISTANCE OF SOURCE FROM HOUSEHOLDS



Average distance = 74 metres

In recent years, no hand pumps have been installed, but some of the hand pumps installed in earlier years are still working and have also been reported as public sources.

TABLE 3.8
DISTANCE OF PUBLIC WATER SOURCE

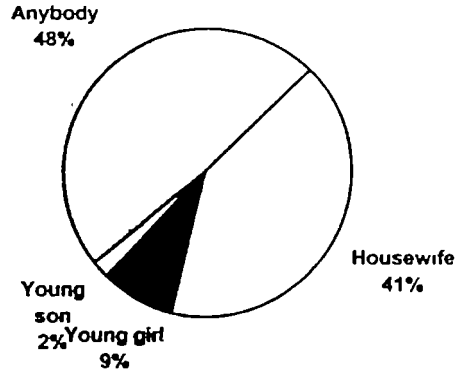
Distance (in metres)	Hand pump		Stand post		Tube well		Total
	Bhatinda	Hoshiarpur	Bhatinda	Hoshiarpur	Bhatinda	Hoshiarpur	
Upto 50 m.	43	23	50	91	5	3	215
51 - 100 m.	4	5	--	37	28	3	77
Between 101-200 m.	4	3	1	15	2	2	27
Between 201-300 m.	2	1	--	4	--	1	8
Between 301-400 m.	--	1	--	--	1	--	2
Between 401-500 m.	1	--	--	4	1	1	7
> 500 metres	1	3	--	1	--	--	5
Average distance (m)	**68**	**100**	**32**	**73**	**91**	**132**	

The average distance of Public stand post (63 metres) was lower than the distance of hand pumps (84 metres) and tube wells (99 metres).

3.9 FETCHING OF WATER FROM PUBLIC SOURCES:

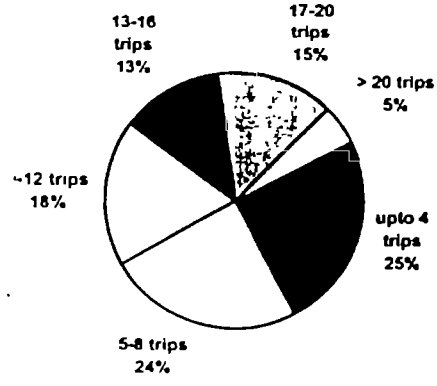
Water from public sources is fetched by housewives in 41 percent of households, while, young girls fetch water in 9 percent of households. Young sons fetch water in two percent of household, while, water is fetched by any person available in 48 percent of households Comparatively, more housewives (51 percent) fetch water in Bhatinda district than in Hoshiarpur district (37 percent).

WHO FETCHES WATER



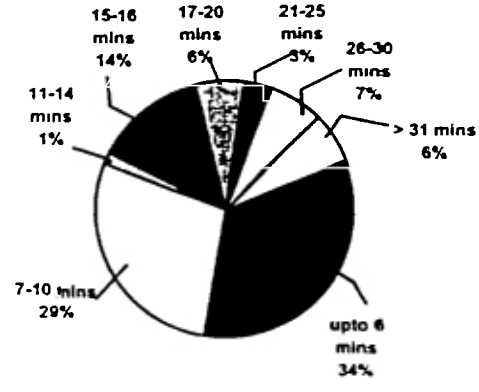
Trips per day: Number of trips made per day directly relates to the family size. The more members means more water requirement, and therefore, number of trips to water source will be more. Four trips or less were made everyday to fetch water from public source to meet the requirement of water in 25 percent of households. In 24 percent of households, 5-8 trips were made per day, while, 9-12 trips were made in 18 percent of households. Some13-16 trips were made per day in 13 percent of households, while, 17-20 trips were made in 15 percent of households. In five percent of households, 21 trips or more are made to fulfil water requirement of the household. **In an average household, 10.5 trips were made per day. More trips were made per day by an average household in Hoshiarpur (11.9 trips) then in Bhatinda district (8.8 trips).**

NUMBER OF TRIPS MADE PER DAY



Average - 10 trips per day

TIME PER TRIP (in minutes)



Average time - 12.6 minutes

Time taken per trip: The average time taken per trip depends on the distance of public source from the household and the queue time spent at the source. The queue time depends on the number of households depend on each source.

An analysis of time taken per trip by respondents shows that the time per trip was upto 6 minutes for 33 percent of households, while, it was between 7-10 minutes for 28 percent of households. Time taken per trip was between 11-14 minutes for one percent households, while, it was 15-16 minutes for 14 percent of households. The time per trip was between 17-20 minutes for 6 percent of households, while, it was between 21-25 minutes for 3 percent of households. Time taken per trip was between 26-30 minutes for 7 percent of households while, it was 31 minutes more for remaining 6.5 percent of households. **The average time per trip was 12.5 minutes. The average time per trip was slightly higher in Hoshiarpur (12.7 minutes) then in Bhatinda (12.1 minutes)**. This was perhaps due to longer distance of public source from households.

Total time spend: **The average time spend for fetching water comes to 132 minutes**. The average time spend in fetching water was higher in Hoshiarpur (151 minutes) then in Bhatinda (106 minutes).

TABLE 3.9
FETCHING OF WATER FROM PUBLIC SOURCES

Who fetches/trip/time	Bhatinda (N=69)	Hoshiarpur (N=169)	Both districts (N = 238)
Who fetches water:			
Housewives	35 (50.7)	63 (37.3)	98 (41.2)
Young daughter	9 (13.0)	11 (6.5)	20 (8.4)
Young son	1 (1.4)	4 (2.4)	5 (2.1)
Anybody	24 (34.8)	91 (53.8)	115 (48.3)
Number of trips made per day to water source:			
Upto 4 trips	17 (28.8)	39 (25.0)	56 (26.0)

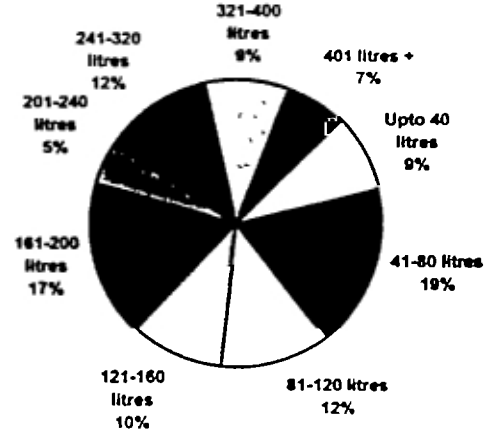
Who fetches/trip/time	Bhatinda (N=69)	Hoshiarpur (N=169)	Both districts (N = 238)
5 - 6 trips	9 (15.3)	21 (13.5)	30 (13.9)
7 - 8 trips	11 (18.6)	14 (9.0)	25 (11.6)
9 - 10 trips	6 (10.2)	31 (19.9)	37 (17.2)
11 - 14 trips	2 (3.4)	4 (2.6)	6 (2.8)
15 - 18 trips	6 (10.1)	23 (14.7)	29 (13.5)
19 - 20 trips	5 (8.5)	16 (10.2)	21 (9.8)
21 trips or more	3 (5.1)	8 (5.1)	11 (5.1)
Not reported	10	13	23
Average of trips per day	**8.8 trips**	**11.9 trips**	**10.5 trips**
Time per trip:			
Upto 6 minutes	23 (40.5)	49 (31.0)	72 (33.5)
7 - 8	1 (1.7)	5 (3.2)	6 (2.8)
9 - 10	12 (21.1)	43 (27.2)	55 (25.6)
11 - 12	1 (1.7)	--	1 (0.5)
13 - 14	1 (1.7)	1 (0.6)	2 (0.9)
15 - 16	7 (12.3)	23 (14.6)	30 (14.0)
17 - 20	3 (5.3)	10 (6.3)	13 (6.0)
21 - 25	2 (3.5)	5 (3.2)	7 (3.3)
26 - 30	2 (3.5)	13 (8.2)	15 (7.0)
30 minutes +	5 (8.7)	9 (5.7)	14 (6.5)
Not reported	12	11	23
Average time per trip	**12.1 minutes**	**12.7 minutes**	**12.6 minutes**
Average time spent per day	**106 minutes**	**151 minutes**	**132 minutes**

3.10 QUANTITY OF WATER FETCHED FROM PUBLIC SOURCE:

Twenty seven percent of households had fetched 80 litres or less of water from public source per day, while, 23 percent had fetched 81-160 litres. Twenty two percent of households had fetched 161-240 litres per day, while, 12 percent had fetched 241-320 litres. Ten percent of households had fetched 321-400 litres of water per day, while, 6 percent had fetched more than 400 litres per day to meet the household requirement of water.

An average household in these two districts had fetched 178 litres of water per day. The average family size in Hoshiarpur was higher. Therefore, fetching of water per household per day was higher in Hoshiarpur (188 litres) than in Bhatinda (149 litres).

QUANTITY OF WATER FETCHED PER HOUSEHOLD



Average water fetched per household - 178 litres

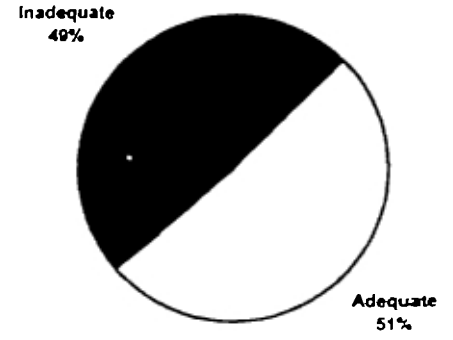
An average household fetches 16-17 litres of water per trip in these two districts.

TABLE 3.10
QUANTITY OF WATER FETCHED FROM PUBLIC SOURCE

Quantity of water fetched	Bhatinda N = 69	Hoshiarpur N = 169	Both districts N = 238
Upto 40 litres	8	10	18 (8.6)
41 - 80	11	28	39 (18.5)
81 - 120	7	19	26 (12.3)
121 - 160	5	17	22 (10.5)
161 - 200	12	25	37 (17.6)
201 - 280	5	17	22 (10.5)
281 - 360	2	17	19 (9.1)
361 liters +	4	23	27 (12.8)
Not reported	15	13	28
Average Quantity of water fetched	**149 litres**	**188 litres**	**178 litres**

Fifty one percent of respondents had opined that the quantity of water supplied was adequate, while, 49 percent had felt that the quantity of water was inadequate. More respondents in Bhatinda (56 percent) were satisfied with the quantity of water supplied than in Hoshiarpur (46 percent)

QUANTITY OF WATER



3.11 OPINION ABOUT QUALITY OF WATER:

Punjab state had four testing laboratories at Patiala, Amritsar, Ferozepur and Bhatinda. These laboratories are sufficient only to cover schemes falling in these districts.

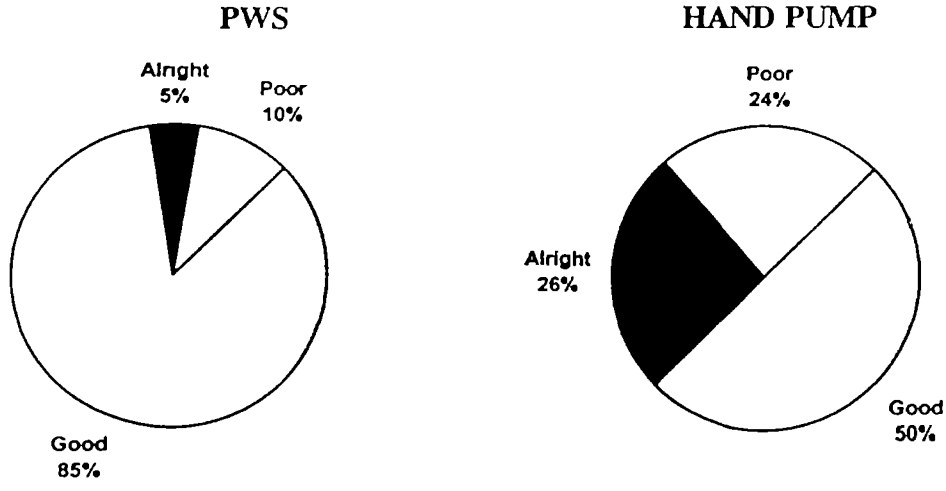
Operators interviewed in Bhatinda and Hoshiarpur districts were asked how often the quality of water was monitored Four of 25 operators interviewed had said that quality of water was monitored at least once a weak, while, twelve operators had said that quality was monitored at least once a fortnight. Eight operators had said that monitoring was done once in a month. The frequency of monitoring quality of water was higher in Bhatinda district than in Hoshiarpur. To cover the whole state and better compliance of quality control norms and requirements, each district should have a water testing laboratory.

TABLE 3.1A
FREQUENCY OF MONITORING QUALITY OF WATER - OPERATORS

Frequency	Bhatinda	Hoshiarpur	Both districts
Once a week	4	-	4
Once in a fortnight	7	5	12
Once in a month	2	6	8
Less often	1	-	4

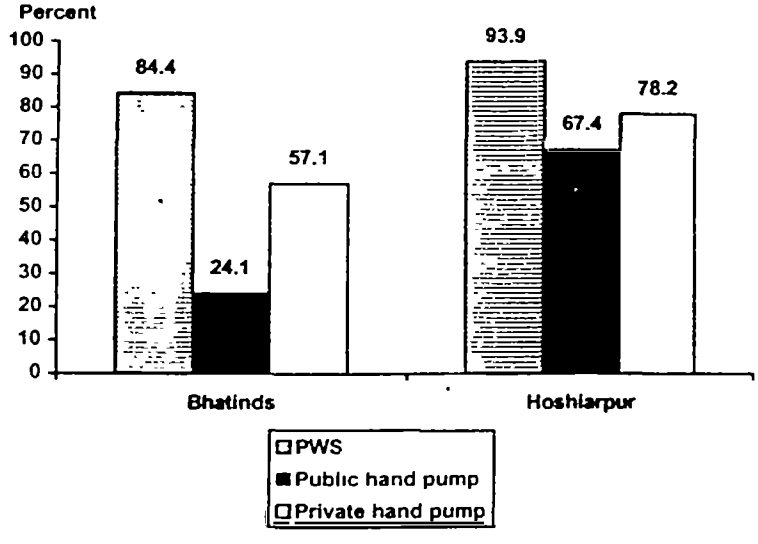
Piped water supply: Eighty five percent of respondents getting piped water supply had opined that the quality of water was good. Five percent had said that the quality of water was alright, while, 10 percent had felt that water supplied through PWS was not of good quality.

QUALITY OF WATER FROM PUBLIC SOURCES



Public Hand pumps: Fifty percent of users using public hand pumps had said that the quality of water was good, while, 26 percent had felt that it was alright. Twenty four percent of respondents, however, had said that the quality of water was not good.

QUALITY OF WATER PERCEIVED AS 'GOOD' - DISTRICT WISE



Private hand pumps: Sixty four percent of users using private hand pumps had perceived the quality of water to be good. Thirteen percent had said that

the quality of water was alright, while, 24 percent had felt that the quality of water was not good.

It is interesting to note that a higher proportion of private hand pump users had perceived the quality of water to be good than public hand pump users. Perhaps, public hand pumps installed are too old resulting in leakages and contamination of water resources.

TABLE 3.11
PERCEPTION ABOUT QUALITY OF WATER FROM PUBLIC/PRIVATE SOURCE

Source/Quality	Bhatinda	Hoshiarpur	Both districts
Public source			
Stand post			
Good	135 (84.4)	170 (93.9)	205 (85.1)
Alright	7 (4.4)	4 (2.2)	11 (4.6)
Poor	18 (11.2)	7 (3.9)	25 (10.4)
Hand pump			
Good	7 (24.1)	29 (67.4)	36 (50.0)
Alright	14 (48.3)	5 (11.6)	19 (26.4)
Poor	8 (27.6)	9 (20.9)	17 (23.6)
Private Source			
Hand Pump			
Good	141 (57.1)	86 (78.2)	227 (63.6)
alright	43 (17.4)	3 (2.7)	46 (12.9)
Poor	63 (25.5)	21 (19.1)	84 (23.5)

3.12 CONTRIBUTIONS MADE BY VILLAGE COMMUNITY TOWARDS PWS

Household respondents interviewed were asked whether they were willing to contribute towards PWS or not. Only thirty seven percent of respondents had said that they were willing to contribute towards PWS. Since private water source are aplenty in these two districts fewer respondents were willing to pay cost of water through PWS. Comparatively more respondents were willing to

contribute towards PWS in Hoshiarpur (43 percent) than in Bhatinda (32 percent).

Among these who were willing to contribute, 11 percent were willing to contribute upto Rs.10 per month, while, 35 percent were willing to pay upto Rs.15-20 per month. Thirty three percent were willing to pay upto Rs.25-30 per month, while, 25 percent were willing to pay even higher at Rs.35-40 per month.

TABLE 3.12
WILLINGNESS TO CONTRIBUTE TOWARDS PWS

	Bhatinda (N = 319)	Hoshiarpur (N=290)	Both districts (N=609)
Willing to contribute towards PWS:			
Yes	101(31.7)	124(42.8)	225(26.9)
No.	218 (68.3)	166 (57.2)	384 (63.1)
If yes, what amount:			
Upto Rs.10 per month	16	9	25 (11.1)
Rs.15-20 per month	41	37	78 (34 7)
Rs.25-30 per month	26	48	74 (32.9)
Rs.35-40 per month	18	30	48 (21 3)

3.13 COOPERATION FROM GRAM PANCHAYAT AND VILLAGE COMMUNITY:

Eighteen of 25 operators/ functionaries had said that they had got good cooperation from gram panchayat members, while, four operators had opined that their cooperation was so - so. Three operators, however, had said that panchayat members did not cooperate in operation and maintenance of rural water supply schemes.

Twenty of 25 operators functionaries interviewed had said that they had received good cooperation from the village community, while, two operators had opined that their cooperation was so - so. Three operators had, however, said that they did not get cooperation from the village community.

TABLE 3.13
COOPERATION RECEIVED FROM GRAM PANCHAYAT AND PEOPLE

Cooperation	Bhatinda	Hoshiarpur	Both Districts
Gram panchayat members			
Good	10	8	18
Alright	2	2	4
Not so good	2	1	3
Village community			
Good	12	8	20
Alright	1	1	2
Not so good	1	2	3

Various reasons cited for not getting good cooperation include:

- Irregular water supply (3 respondents)
- Inadequate water supply (2 respondents)
- Unwillingness to pay increased rates (3 respondents)
- Political conflict in villages (1 respondents)

CHAPTER IV

AVAILABILITY OF SANITARY LATRINES

4.1 SANITARY LATRINES IN BHATINDA DISTRICT:

According to the information collected from the District Welfare Officer. a budget of Rs.8.10 lakhs was provided during 1994. This allocation had declined to Rs.4.20 lakhs in 1995, but had increased slightly to Rs.4.92 lakhs in 1996.

A subsidy of Rs.2500/- was provided per sanitary latrine during 1994 and 1995. The subsidy, however, had increased to Rs.4000/- per sanitary latrine in 1996. Some 324 latrines were constructed in 1994, but the number of latrines constructed had declined to 168 latrines in 1995 and to 123 latrines in 1996. Since 1997, this scheme of providing subsidy for sanitary latrines has been stopped.

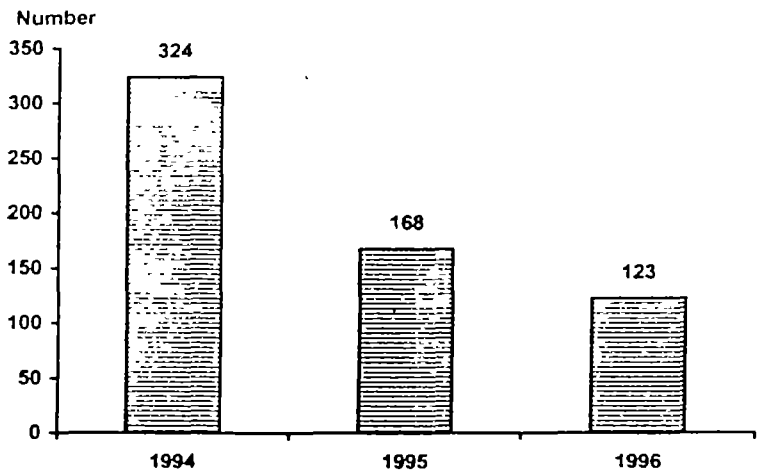
TABLE 4.1
SUBSIDY GIVEN AND NUMBER OF LATRINES CONSTRUCTED

	1994	1995	1996	1997
Total expenditure by state govt. by way of subsidy (Rs.)	Rs.810,000	Rs.420,000	Rs.492,000	Discontinued
Amount provided per latrine (Rs.)	Rs.2,500	Rs.2,500	Rs.4,000	
No. of sanitary latrines constructed.	324	168	123	

Source: District Welfare Office

Beside District Welfare Officer, other department like District Development and Panchayat Officer, Block Development and Panchayat Officer, Block Development and Panchayat Officers are also involved in construction of Sanitary latrines. However, no details of sanitary latrines constructed are available.

SANITARY LATRINES CONSTRUCTED IN RECENT YEARS



4.2 Sanitary Latrines in Hoshiarpur District:

According to the District Welfare Officer, Hoshiarpur, the subsidy given for latrine construction was Rs.2500 in 1994, which was increased to Rs.3,000 in 1995 and to Rs.4,000 in 1996. The district welfare officer had opined that the subsidy given for constructing latrines was little, and need to be increased substantially.

Some 497 sanitary latrines were constructed in the district in 1994. The number of sanitary latrines constructed, however, had declined to 296 in 1995, but increased slightly to 309 in 1996. This activity of constructing sanitary latrines has been stopped since 1997. Thus during 1994-97, a total of 1,102 sanitary latrines were constructed.

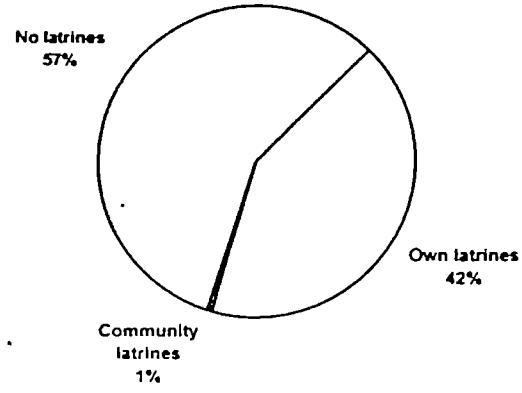
TABLE 4.2
SANITARY LATRINES CONSTRUCTED IN HOSHIARPUR DISTRICT

Year	No. of latrines	Increase/decrease
1994	497	-
1995	296	- 40.4%
1996	309	+ 4.4%

4.3 AVAILABILITY OF SANITARY LATRINES

Forty two percent of household respondents surveyed had own private latrines, while, one percent were using community latrines. The remaining 58 percent were going to open fields/nearby Jungle for disposing excreta/ defecation.

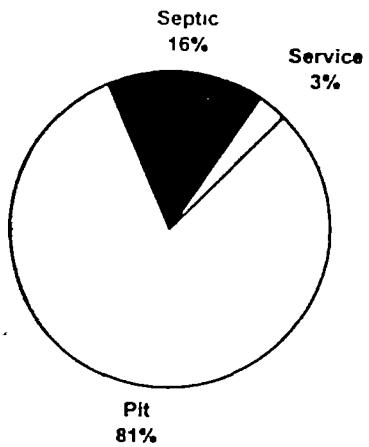
AVAILABILITY OF SANITARY LATRINE



A higher proportion of respondents in Bhatinda district (65 percent) had private latrines than in Hoshiarpur (17 percent).

Of the households having latrines, 81 percent had pit-type latrines, while, 16 percent had septic tanks. The remaining three percent were using service latrines. A higher proportion of households had septic latrines in Hoshiarpur, while, more households had pit latrines in Bhatinda.

TYPE OF LATRINES



4.4 OVERALL CLEANLINESS OBSERVED IN THE VILLAGES

MRG's researcher's had made observations about the cleanliness in villages. Drains were observed to be clean in 10 to 30 villages surveyed in two districts of Punjab. Drains were not so clean in 18 villages, while, these were dirty, and having lot of stagnant water in 2 villages.

Opinion leaders were asked as to how people disposes of their household waste. An overwhelming 27 of 30 opinion leaders interviewed had said that household garbage was being disposed of in a pit in the outskirts of the village. Two opinion leaders had said that people throw household waste in the backyard of their houses. One opinion leader had, however, said that people threw it in the streets.

Overall cleanliness was observed to be somewhat better in the villages surveyed in Punjab than in villages surveyed in Haryana.

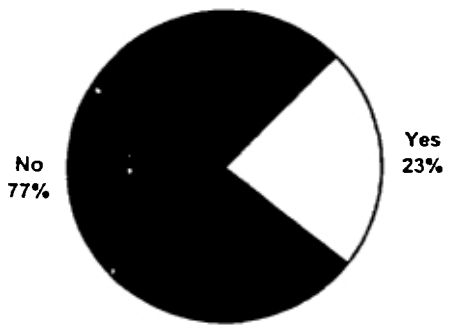
TABLE 4.4
OBSERVATION ABOUT CLEANLINESS IN THE VILLAGES

Observations	Bhatinda (N=15)	Hoshiarpur (N=15)	Both districts (N=30)
Condition of drainage in villages :			
Clean	5	5	10
Not so clean	9	9	18
Dirty/stagnant water	1	1	2
Garbage disposal :			
On the street	1	-	1
On the backyard of houses	-	2	2
In the pit in outskirts of village	14	13	27

4.5 PREVALENCE OF WATER BORNE DISEASES:

Household respondents were asked whether any member had fallen ill in last 12 months and about the prevalence of water borne diseases in their village. Twenty three percent of respondents had said that their household member had fallen ill during last 12 months due to water borne diseases. More respondents in Bhatinda (30 percent) had reported the prevalence of water borne diseases than in Hoshiarpur (14 percent). Of those fallen ill, 13 percent had suffered from diarrhoea, followed by those suffered from malaria (7 percent), typhoid (2 percent), skin infection (2 percent), cholera (1 percent), etc.

PERCENT OF HOUSEHOLDS HAVING INCIDENCE OF WATER BORNE DISEASES



In Bhatinda, prevalence of Diarrhoea was higher followed by Malaria, typhoid, skin infection and cholera.

TABLE 4.5
PREVALENCE OF WATER BORNE DISEASES

Diseases	Bhatinda (N=319)	Hoshiarpur (N=290)	Both district (N = 609)
Diarrhoea	50	25	75 (12.8)
Malaria	19	25	44 (7.2)
Typhoid	8	6	14 (2.3)
Skin infection	5	6	11 (1.8)
Cholera	1	5	6 (1.0)
Number	96 (30.0)	41 (14.1)	137 (22 5)

PART B- HARYANA

EXECUTIVE SUMMARY - HARYANA

PART I: RURAL WATER SUPPLY IN HARYANA

1. **Area of population** - With an area of 44,212 sq.kms, the state of Haryana had population of 1.63 crores (1991 census). About 75 percent of population lived in 6,759 inhabited villages, while, 25 percent lived in 90 towns/cities. The present rural population is estimated at 1.41 crores (1998 estimates).

2. Haryana Public Health Engineering Department of PWD looks after the operation and maintenance of rural water supply schemes. The potable drinking water supply facilities have been provided to all 6,759 villages by March, 1992. A field survey thereafter, however, revealed that the water allowance had gone below level of 40 lpcd in 3,623 villages. This was due to increasing population, and depletion of water sources in these villages. During the Eighth Five year plan, drinking water supply have been augmented to 40 lpcd in 2,536 villages.

3. During the Chief Minister's Conference held in July, 1996 it was decided to provide water facilities to a level of 55 lpcd in the 4,350 villages in ten non-desert districts, and to a level of 70 lpcd in the 2,409 villages in eight desert development programme districts. To accomplish these goals, the following rural water supply programmes are in progress in the state:

   A. **Desert Development Programme (DDP)** - Eight districts namely Hissar, Sirsa, Rohtak, Bhiwani, Mohindergarh, Rewari, Jhajjar and Fatehabad are being covered under DDP. Water supply schemes are being implemented @70 lpcd (40 lpcd for human beings and 30 lpcd per cattle) and 100 percent assistance is being provided by the Government of India. In the last eight years, 195 schemes covering 550 villages have been commissioned at an expenditure of Rs.68.55 crores.

   B. **Improvement of water supply in bigger villages** - According to 1991 census, there were 455 villages having a population of 5000+. During the Eighth plan, it was proposed to augment water supply in these villages @110 lpcd. But due to financial constraints, only 11 villages were covered. During 1997-98, three villages have been provided these water levels.

   C. **Drainage facilities in bigger villages** - With the augmentation of water sources, the generation of waste water is likely to increase manifold. In the absence of proper drainage, this would become a potential health hazard. During 1997-98, three big villages were covered.

D. **Fluorosis programme** - The Government of India under sub-mission control of Fluorosis have cleared a project costing Rs.6.64 crores for Mohindergarh district. Seventy five percent of amount is being provided by the GOI, and 25 percent is borne by the State government.

4. **Rural water supply in Hissar district** - The population in newly carved out Hissar district is estimated at 10.61 lakhs (1998). All 155 villages in the district are covered by piped water supply connected to canal-based water supply systems. The underground water is brackish, and therefore, can't be used for drinking purposes.

Fifteen villages representing three blocks of Hansi, Barwala and Adampur were covered in this study. The present population of these 15 villages is estimated at 43,726. A total of 252 public sources were installed in these villages, **each stand post for 174 persons**. The population per source is much on the higher side, and more public sources need to be installed. **The per capita availability was 67.2 lpcd Six of 15 villages were fully covered (> 70 lpcd), while, nine villages were partially covered (40-70 lpcd). Since these villages were selected randomly and were reflect the condition in the district, much efforts are required to augment rural water supply to reach supply levels of 70 lpcd in Hissar district.**

5. **Rural Water Supply status in Panipat District** - About 6.92 lakh (1998 estimates) people live in 173 villages in the district. All 173 villages were provided with piped water supply. Forty eight villages get water supply from canal-based system while, 125 villages get supplies from tube-well based systems. There are 29,527 public stand posts erected in rural and urban areas.

Some 165 of 173 villages are claimed to be fully covered with water supply level of 40 lpcd, while, 8 villages were partially covered (< 40 lpcd).

During this monitoring study, 15 villages representing three blocks of Panipat, Israna and Madlauda were covered. The total population of these villages was 65,482 (1998). A total of 656 public stand posts were installed in these villages **each public source was for 100 persons.**

The per capita availability of water was 43.3 lpcd. **Eight of 15 villages surveyed were fully covered (> 40 lpcd), while, seven villages were partially covered (<40 lpcd).** Since the villages selected and covered reflect the overall condition in the district, it shows that the above claims of state government about the coverage were not true. **Much efforts are, therefore, required to achieve water supply level of 40 lpcd in Panipat district.**

PART II: USERSHIP OF DRINKING WATER SOURCES

6. **Profile of respondents who fetch water**

Sex : An overwhelming 97 percent of respondents who fetch water were women, while, 3 percent were men.

Age : The average age of respondents engaged in fetching water was 33.5 years. The average age of respondents was higher in Panipat (35 years) than in Hissar (32 years).

Education : Seven percent of respondents had attained high school education, while, eight percent had studied upto middle level. Nine percent had studied upto primary level, while, 11 percent were just literates. As many as 63 percent were illiterates.

Occupation : More than half of respondents were contributing to the family income either by working in agriculture or as a labour, while, 42 percent were housewives. More women were engaged in economic pursuits in Hissar then in Panipat.

Family Income per month : The average family income per month was Rs.2,268. Income levels were higher in Hissar (Rs.2,655 per month) than in Panipat (Rs.1,855).

Caste : Fifty two percent of respondents were from general/forward castes, while, 25 percent were from OBC. The remaining 23 percent were from scheduled castes.

Family Size : An average family had 6.9 members - 4.8 adults (18 years+) and 2.1 children (< 18 years).

7. Availability of Private Water Sources : Thirty eight percent of households surveyed had private water sources. More households had private sources in Panipat (48 percent) than in Hissar (30 percent).

Sixty percent of households had private hand pumps, while, 38 percent had stand posts in two districts. More households in Hissar had private stand posts than hand pumps, while, more households in Panipat had private hand pumps.

Availability of private sources was much higher among general/forward casts (52 percent) than among OBC (22 percent) and SC (26 percent).

8. **Dependence on Public/Private Source** : Fifty seven percent of households surveyed, had depended on public sources, while, 43 percent had depended on private sources. Dependence on public sources was much higher in Hissar district (65 percent) than in Panipat district (49 percent). It has been observed that quite a few households who have own private sources, also depended on public sources. This was perhaps due to regular supply of good quality water at public sources.

9. **Use of water-by source** : Stand posts was the most used water source both in Hissar and Panipat districts. Water available from these sources were used for multi-purposes i.e. for drinking, bathing, washing utensils, clothes as well as for cattle.

It has been observed that quite a few respondents (25 percent) in Hissar had felt that the quality of canal based water supply was not good for drinking purposes. They feel that lot of people use canals for having a bath, washing clothes/utensils as well for cleaning themselves after defecation, which contaminates the water quality. Hence, they were not using water from stand posts connected with canal based PWS for drinking purpose.

10. **Timing and duration of piped water supply** : All PWS users had said that water was supplied in the morning, while, 88 percent had said that it was supplied in evenings.

An average household had received water for one hour 48 minutes in the morning, and for one hour 38 minutes in the evening. Thus, piped water was supplied for 3 hours 26 minutes in an average day. Piped water supply was for a longer duration in Panipat than in Hissar.

11. **Observation of public sources** : Some 141 public sources, 113 stand posts, 23 hand pumps and 5 tube-wells were observed by MRG's researcher during this monitoring study.

Forty three percent of these sources were installed in recent 10 years, while, 28 percent were installed 11-15 years back. **The remaining 29 percent of public sources were more than 15 years old, and have outlived their designed life-span.**

Seventy one percent of these public sources were functioning, while, 29 percent were not working. Sixty eight percent of stand posts were observed to be working. The main reasons for non-function of stand posts included: -

- Bursting of PVC pipes/leakage
- Water comes at a very low pressure

Ninety percent of sources observed in Hissar district were used by all communities, while, 10 percent were used exclusively by appear income gaps (3 sources), OBC (4 sources), and SC (3 sources). **All public sources observed in Panipat were used by all communities.**

Quality of water was observed to be good and clean in 90 percent of working sources while, it was not drinkable at 10 percent of sources.

Platforms were constructed around 56 percent of public sources only. Surroundings were observed to be clean only around 23 of 100 working sources, while, it was not clean/dirty around other 77 sources. **Much efforts are therefore, required to keep surrounding of public water sources cleaner, otherwise it may lead to many water borne diseases.**

12. **Functioning of public sources : Seventy one percent of household respondents had said that public source was functioning in their area** while, 29 percent had said that it was not functioning.

One-fifth of public source users had said that maintenance person was always available to maintain the sources, while, 39 percent had said that maintenance staff was available sometime. Two-fifth of respondents, however, had said that the maintenance staff was not available most of the times.
Reasons cited for non-functioning of public sources include:

- Very low pressure in piped water supply
- Motor pump was damaged/burnt
- Pipelines were broken/leakage
- Lack of maintenance staff
- Misuse of public sources/illegal connections/diversions for agriculture
- Spare parts were not available etc.

13. **Problems faced in operation of rural water supply** : Nine of 17 operators interviewed had said that they did not face any problem in operation of rural water supply. Eight operators, however, had cited the following problems faced.

- Machinery was too old, needs frequent repairs
- Power/electricity supply was irregular
- PVC pipes had broken
- Staff was not adequate/efficient
- People do not co-operate/illegal use and connections

14 **Problems faced in maintenance of water sources** : Nine of 17 operators interviewed had said that they did not face any problem in maintenance. Eight operators had however, cited the following problems.

- Spare parts were not available
- Irregular supply of electricity
- Lack of staff/officers did not co-operate
- People did not co-operate

15 **Distance of public source from households : The average distance of public source was 251 metres from respondents household.** The average distance of public source was higher in Hissar (307 metres) than in Panipat (162 metres)

16. **Fetching of water from public source** : Water was fetched from public sources usually by housewives in 79 percent of households surveyed. Young daughters had fetched water in 8 percent of households, while, young sons fetched water in 3 percent of households. Any person available had fetched water in 10 percent of households.

Trips made per day : In an average household, 10 trips were made per day to fetch water. More trips were made by an average household in Panipat (11 trips) then in Hissar (9 trips).

Time per trip : The average time per trip was 17.4 minutes. The average time per trip was higher in Hissar (20 minutes) than in Panipat (13 minutes). This was perhaps due to longer distance of public source and higher population dependent per source in Hissar, resulting in higher queuing time.

Total time spent in getting water: The total time spent per day in getting water from public source was 174 minutes. The average time spent per day was higher in Hissar (188 minutes) than in Panipat (145 minutes).

17. **Quantity of water fetched from public source : An average household had fetched 161 litres of water per day from public source.** More water was fetched by households in Panipat (200 litres) than in Hissar district (137 litres)

The per capita usage of water was 25.7 lpcd. Per capital usage was higher in Panipat (31 lpcd) than in Hissar district (22 lpcd).

18. **Quality of water** : Eighty three percent of public source users had opined that the quality of water at public source was good, while, 17 percent had felt that it was not so good. More users were satisfied with the quality of water in Panipat (93 percent) then in Hissar (75 percent).

19 **Contributions made by Village community towards PWS:** Sixty six percent of 106 private stand post owners had said that they were contributing towards PWS. Respondents who were not availing PWS/not contributing were asked whether they were willing to contribute towards cost of water supplied through PWS. As many as 59 percent of respondents had responded affirmatively stating that they were willing to contribute towards the cost of PWS. Those who had agreed to contribute, a large majority are willing to pay Rs.20-25 per month.

20. **Co-operation received from gram Panchayat/village community** : Eight of 17 operators had opined that they had received good co-operation from gram panchayat/members while, 7 operators had felt that they did not receive good co-operation from panchayat/members.

Nine operators had opined that they had received good co-operation from village community, while, three operators did not receive good co-operation from villagers.

PART III - AVAILABILITY OF SANITARY LATRINES

21. **Sanitary latrine in Hissar district**: Development and Panchayat Department looks after the construction of sanitary latrines in Haryana. The scheme for construction of sanitary latrines was started in 1991. The average cost of construction is Rs.3,400 per latrine. The subsidies are as follows:

* In case of general categories, about 50 percent of cost is borne by the government (both central and state) and the rest 50 percent is borne by the beneficiary.

* In case of SC, 90 percent of cost (Rs.3,060 per latrine) is borne by the government, and the rest 10 percent is borne by the beneficiary. If SC family agrees to put in unskilled labour, even the 10 percent is waved off.

Most sanitary latrines are 2-pit type, based on design from UNICEF. During last 7 years, 42,902 sanitary latrines were constructed in Hissar district. Thus about 18 percent of estimated 2.37 lakh households in Hissar district had a latrine with support from the government.

22 **Sanitary latrines in Panipat district** : During March 96- July, 1998 period. 3,627 sanitary latrines were constructed in Panipat district. About 90 percent of these latrines were among general population, while, 10 percent were among SC population.

23 **Availability of Sanitary latrines in households surveyed** : About 34 percent of households surveyed in two districts had own latrines. One percent of households had used community latrines, while, 65 percent of household members were going to open field/jungle for disposing excreta/defecation. More households had sanitary latrines in Hissar (37 percent) than in Panipat (31 percent).

24. **Overall cleanliness in the village** : The status of cleanliness in rural areas of Haryana was not satisfactory. drains were observed to be clean in 7 of 30 villages surveyed in these two districts. drains were not clean in 11 villages, while, these were filled with filth/stagnant water in 16 villages. even household garbage was thrown in streets by housewives as observed in seven villages. Much efforts are required to improve the awareness and attitudes towards maintaining cleanliness.

25. **Prevalence of water borne diseases** : One-third of household respondents surveyed had reported that some member had fallen ill during last 12 months. Sickness was reported more in Hissar (41 percent of households) then in Panipat (25 percent). An analysis of causes shows that 73 percent had fallen ill due to prevalence of water-borne diseases in these villages. The prevalence of malaria was higher (51 percent), followed by diarrhoea (11 percent), typhoid (7 percent), skin infection (3 percent), cholera (1 percent) etc.

CHAPTER V

RURAL WATER SUPPLY STATUS IN HARYANA

5.1 **Rural Water Supply in Haryana**: With an area of 44,212 sq kms the total population in the state was 1.63 crore (1991 Census). About 75 percent of population lived in 6,759 inhabited villages, while, 25 percent lived in 90 towns/cities. The projected population in rural areas for 1998 is 141.14 lakhs.

The Public Works Department's Department of Public Health deals with the execution and maintenance of water supply facilities in rural areas, water supply and sewerage facilities in urban areas and public health amenities in government buildings.

The potable drinking water supply facilities have been provided to all the inhabited villages by 31.3.1992. After providing water supply to all the villages in the state, a survey was conducted in the field wherein 3,623 villages were identified where the water allowance had gone below 40 litres per capita per day (lpcd) on account of depletion of water source or increase in population.

During the Eighth Five Year Plan, drinking water supply facilities have been augmented to 40 lpcd in 2,536 villages, leaving a balance of 1,087 villages. It was proposed to augment water supply in 400 deficient villages at a cost of Rs.3,000 lakhs during 1997-98.

In the Chief Minister's Conference held on July 4-5, 1996, it was decided to provide water supply facilities to a level of 55 lpcd in the non-desert districts of the state. There are 4,350 villages falling in the non-desert districts, and since the task of providing water supply to these villages @ 55 lpcd is enormous, it was therefore, proposed to take up this work in phase. To start with it was proposed to raise the level of water supply upto 55 lpcd in 250 villages during the year 1997-98, for which a sum of Rs.12.00 crores had been earmarked under State Plan during the year.

The Government of India had approved the State Plan 1997-98 for the Department for Rs.83.21 crores, which was revised to Rs.58.21 crores in December 1997. The rural component was of Rs.43.60 crores, which was

revised to Rs.41.31 crores in December, 1997. The approved Plan for 1998-99 is Rs.60.97 crores, of which the component of rural water supply is Rs.41.50 crores, the break-up of which is as under:

TABLE 5.1
BUDGET PROVISION FOR RURAL WATER SUPPLY

(Rs.in lakhs)

Description	1997-98		1998-99
	Original	Revised	
Water supply	2625	3506	3600
Sanitation	150	150	100
Drainage/Sewerage	150	50	50
Maintenance	425	425	400
Establishment expenditure for regular establishment on maintenance	1010	-	-
Total	4360	4131	4150

During the year 1998-99, it is proposed to augment water supply in 300 villages to a level of 55 lpcd at a cost of Rs.3200 lakhs. The task of providing 55 lpcd in non-desert and 70 lpcd in DDP districts is enormous. The achievements in the recent years are not satisfactory and lot of concerted efforts are required to achieve desired goals. The following Rural Water Supply and Sanitation Programmes are in progress in the state:

A. **Desert Development Programme**: There are eight districts in the state namely; Hissar, Sirsa, Rohtak, Bhiwani, Mohindergarh, Rewari, Jhajjar and Fatehabad, where the water supply schemes are being implemented @ 70 lpcd and 100 percent assistance is being provided by the Government of India. The state government has been equally concerned about its animal population especially in these eight districts. Beside a service level of 40 lpcd for human beings, water supply has been provided @ 30 lpcd per cattle. With the approval of the Government of India and adequate financial assistance. 345

schemes covering 850 villages, costing Rs.95.30 crores have been sanctioned in the last 8 years of which 195 schemes covering 550 villages have been commissioned at an expenditure of Rs.68.55 crores. The Government has further decided to provide house connections in these villages, where the per capita water supply has been augmented to 70 lpcd.

Government of India have released a sum of Rs.9.90 crores during the current financial year for augmenting water supply @ 70 lpcd to 100 villages. For the year 1998-99, it is expected that govt. of India will provide Rs.9.90 crores under this programme and water supply status in another 100 villages will be improved.

B. Improvement of water supply in big villages to 110 lpcd: As per the 1991 census there are 405 villages in the state where the population is 5000 persons or more. During the Eighth Five Year Plan 1992-97, it was proposed to augment the water supply in such villages @110 lpcd, but due to financial constraints this programme was only limited to 11 villages. In order to provide better water supply amenities to the people residing in big villages of the state, 3 villages have been benefited by March, 1997 and it is proposed to cover 3 villages @ 110 lpcd during 1997-98 for which a provision of Rs.450 lakhs has bee made. This has been considered essential so as to bring the big villages at par with the towns regarding availability of water supply. For providing water supply facilities @110 lpcd in 5 villages, a sum of Rs.450 lakhs has been earmarked during the year 1998-99 as well.

C. Providing drainage facilities in big villages: With the augmentation of water sources to 110 lpcd in big villages, the generation of waste water is likely to increase manifold and in the absence of any proper drainage facilities, this would become a potential health hazard. This is an enormous task and is to be executed in a phased manner. During the year 1997-98, a sum of Rs.50 lakhs was reserved for providing drainage facilities in 3 big villages Similarly during the year 1998-99, a sum of Rs.50 lakhs has been earmarked for rural drainage under the state plan and target is to benefit 3 villages.

D. **Fluorosis Programme**: Government of India under Sub-mission control of Fluorosis have cleared a project, costing Rs.663.61 lakhs for Mohindergarh district on sharing basis. Seventy five percent amount is provided by the Government of India, where as, 25 percent is borne by the State government. A sum of Rs.100 lakhs was also released during March, 1997 for implementing this project. Another project consisting of 10 schemes covering 129 villages amounting to Rs.797 lakhs has been approved by the Government of India and under this project, a sum of Rs.89.75 lakhs have been released. Total funds available from the government of India is Rs.189.75 lakhs, whereas provision for state allocation of Rs.160 lakhs was made and approved in the original budget for 1997-98.

For 1998-99, it is expected that a sum of Rs.400 lakhs will be available against the above two projects from the Government of India and considering overall central releases, a sum of Rs.40 lakhs towards matching assistance has been provided under the State plan.

Since the schemes under this project are canal based, it may not be possible to benefit any village by 31.3.1998. However, during 1998-99, 140 villages will be benefited whereas during 1999-2000, another 50 villages shall be benefited.

E. **Rural Sanitation**: Rural sanitation is a very important aspect of the overall sanitation and it was proposed to give a greater fillip to this programme so as to ensure proper and safe disposal of human excreta. The work of providing sanitation facilities in rural areas is undertaken by the Development and Panchayat Department. For the year 1997-98, a sum of Rs.150 lakhs approved in the budget stands transferred to Panchayat Department, whereas for the year 1998-99, a provision of Rs.100 lakhs has been kept in the department budget for providing above facilities.

5.2 **RURAL WATER SUPPLY STATUS IN HISSAR DISTRICT**: For the present monitoring and evaluation study, Hissar district was selected. Hissar is being covered under the Desert Development Programme (DDP) in the

state With an area of 6,279 sq. kms, the total population in Hissar district was 18.36 lakhs (1991 Census). Last year, the district was bifurcated into two districts - Hissar and Fatehabad. The present population of Hissar district is estimated at 10.61 lakhs (1998 estimates). All 155 villages in the district are covered by piped water supply connected to canal based systems.

During this study, fifteen villages representing blocks of Hansi, Barwala and Adampur were covered in Hissar district. The total population of these 15 villages is estimated to be 43,726 (1998 estimates).

All 15 villages had stand posts installed as public sources connected to canal based water supply systems. Since the underground water in Hissar district is brackish, neither tube wells nor hand pumps have been installed as public sources in recent years.

According to information collected from the district block PHED officials, a total of 252 public sources (stand posts) were installed in these 15 villages. Thus each public stand post was available for 174 persons. Information about private sources was available for ten of 15 villages. The average number of persons per public source was higher in Gaibipur village (576 persons) and Pavitra chak (335), while, it was lower in Khaller baini (67 persons) and Depali (84 persons).

A total of 29.38 lakh litres of water was supplied per day through these public and private source (stand posts). The per capita availability of water was 67.2 lpcd. Per capita availability was higher in Arya nagar (88 lpcd), followed by in Prabhuwala (87.8 lpcd), Khaller baini (87.5 lpcd), Dhani Khan bahadur (85 lpcd), and

TABLE 5.2
WATER SUPPLY STATUS IN SELECTED VILLAGES - HISSAR DISTRICT

Block/ village	Population (1998)	Source of water	No. of sources (S.P)		Total water supplied per day (ltrs)	per capita availability (lpcd)
			Public	Private		
Hansi Block						
Dhani kutabpur	3248	Canal-SP	35	NA	230000	70.8
Ramayan	2568	Canal-SP	30	NA	105000	40.9
Depali	2684	Canal-SP	32	NA	110000	41.00
Dhani Mamunpur		Canal-SP		NA		
Dhandheri	2641	Canal-SP	30	NA	110000	41.7
Barwala Block						
Gaibipur	4608	Canal-SP	8	142	310030	67.3
Prabhuwala	4942	Canal-SP	17	109	434000	87.8
Khalkrbaini	104	Canal-SP	24	2	140840	87.8
Dhani Khan bahadur	2166	Canal-SP	9	1	183260	84.6
Adampur Block						
Arya nagar	6160	Canal-SP	5	377	542080	880
Hinduwan	2855	Canal-SP	12	94	157000	55.0
Siswala	3199	Canal-SP	17	154	176000	55.0
Muklan	2509	Canal-SP	18	245	175600	70.0
Bherian	1862	Canal-SP	7	40	130400	70.0
Pavitar chak	2680	Canal-SP	8	73	134000	50.0
Total of 15 villages	43726	Canal-SP	252	1237	2938210	67.2 lpcd

Note: NA - not available

villages Ramayan (41 lpcd), Depali (41 lpcd) and Dhanderi (42 lpcd). Since, Hissar district is one of the DDP district, the water levels aimed are 70 lpcd. Six of 15 villages were fully covered (>70 lpcd) supply level, while, the supply level was between 40-70 lpcd in nine villages, and were partially covered. Since the villages selected are representatives of villages in Hissar district, lot of efforts are needed to provided target level of water supply.

5.3 **RURAL WATER SUPPLY STATUS IN PANIPAT DISTRICT**: With an area of 1,754 sq. kms the total population in Panipat district was 8.32 lakhs (1991 Census). About 73 percent of population lived in villages, and 27 percent lived in towns/cities.

According to district officials, all 173 villages in the district were provided with piped water supply. Of these villages, some 48 villages get piped water supply from canal based system, while 125 villages get piped water supply from Tube wells based system. There are 130 tube-wells installed in the district - 125 in villages and 5 in towns. Water is supplied through 29,527 stand posts erected in rural and urban areas.

During 1996, 147 of 173 villages were claimed to be fully covered (>40 lpcd), while, 26 were partially covered (< 40 lpcd). In 1997, the number of fully covered villages had declined to 144. The number of fully covered villages, however, had increased to 165 in 1998.

During this monitoring and evaluation study, 15 villages representing three blocks of Panipat, Israna and Madlauda were covered. The total population of these 15 villages was estimated to be 65,482 (1998). Seven of these villages were big villages having a population of 5000+, while, six were big villages in the population category of 2,001-5000. One village was a medium size village having population between 1001-2000, while, one village was a small villages with population (< 1000).

Five of these 15 villages were connected to a canal based water supply system while, 10 villages were connected to a tube-well based water supply system

TABLE 5.3

WATER SUPPLY STATUS IN SELECTED VILLAGES - PANIPAT DISTRICT

Block/ village	Population (1998)	Public Source	No. of Public sources	Total water supplied per day (ltrs)	per capita availability (lpcd)
Panipat Block					
Jatal	2975		30	214200	72
Ughar keri	4508		42	274990	61
Nagla	406		5	19900	49
Risalu	2615		26	159510	61
Bahaip	5454		55	267250	49
Israna Block					
Dahar	5915		60	283920	48
Naultha	7037		70	309630	44
Brahmin majra	2745		27	120780	44
Bandhi	3371		35	117990	35
Israna	6120		62	214200	35
Madlauda Block					
Madlauda	8992		90	314720	35
Nahra	6015		61	210520	35
Qai	5939		59	207860	35
Joshi	2086		21	73010	35
Bhalsi	1304		13	45640	35
All 15 villages	65482		656	2834120	43.3

A total of 656 public stand posts were installed in these 15 villages. Thus, each public stand post was available for 100 persons.

A total of 29.34 lakh litres of water was supplied per day through these public sources. The per capita availability of water was 43.3 lpcd. The per capita availability was higher in Jatal village (72 lpcd), Ughar kheri (61 lpcd) and Risalu (61 lpcd), while, it was lower at 35 lpcd in seven villages. **Eight of 15 villages surveyed were fully covered with a supply level of 40 lpcd or more, while, seven villages were partially covered (< 40 lpcd).**

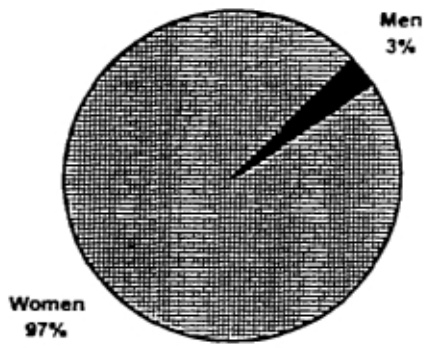
CHAPTER VI

USERSHIP OF DRINKING WATER SOURCES

6.1 Profile of Respondents who fetch water:

Sex: An overwhelming 97 percent of respondents who fetch water were women, while, 3 percent were men.

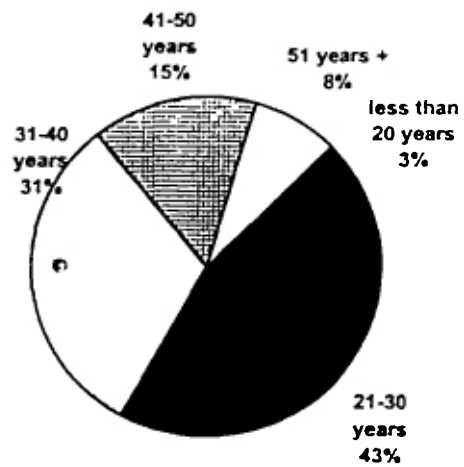
PROFILE - BY SEX



Age: Ten percent of respondents who fetch water were in elderly age group 51 years+, while, 15 percent were in 41-50 years age group. Thirty one percent were in middle age group 31-40 years, while, 42 percent were in 21-30 years age group. The remaining 3 percent were in younger age group upto 20 years.

The average age of person engaged in fetching water in both the districts was 33.5 years. The average age of respondents was higher in Panipat (35.4 years) than in Hissar (31.7 years).

PROFILE - BY AGE

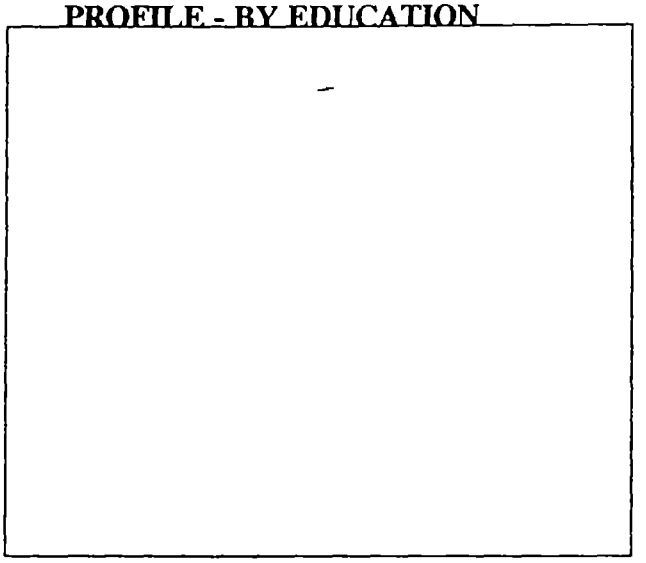


Average age of Respondents: 33.5 years

Education: Two percent of respondents had attained senior secondary level or more, while, 7 percent had studied upto high school level. Eight percent had studied upto middle level, while, 9 percent had studied up to primary level. Eleven percent were literates, while, **as many as 63 percent were illiterates.**

Education profile of respondents interviewed was somewhat better in Hissar than in Panipat district.

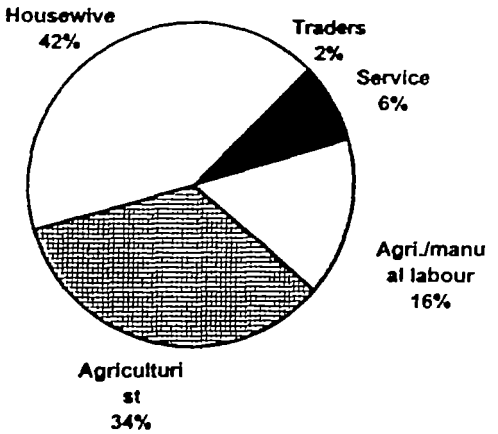
PROFILE - BY EDUCATION



Marital status: An overwhelming 96 percent respondents were married, while, four percent were unmarried.

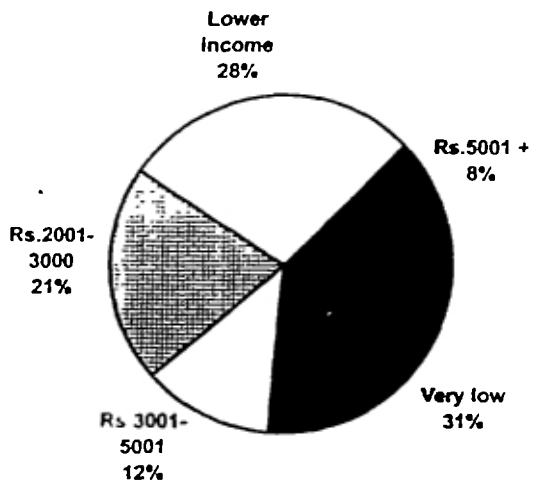
Occupation: One-third of respondents were agriculturist, while, 16 percent were engaged as manual/ agriculture labour. Six percent of respondents were in service, while, 2 percent were traders. The remaining 42 percent were housewives. More women respondents in Hissar were engaged in agriculture and contributing economically, while, a large majority of women respondents in Panipat were housewives.

PROFILE - BY OCCUPATION



Family income per month: Eight percent of respondents were in Upper income group of Rs.5001+ per month, while, 12 percent were in Middle income group of Rs.3001-5000. Twenty one percent were in Lower-middle income group Rs.2001-3000, while, 28 percent in Lower income group Rs.1001-2000. Thirty one percent were in Very low income group upto Rs.1000 per month.

PROFILE - BY FAMILY INCOME PER MONTH

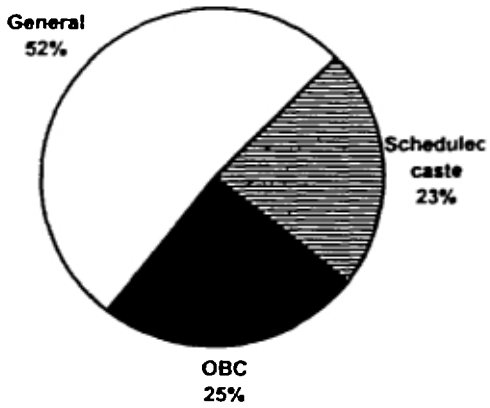


Average Family Income - Rs.2268/- per month

The average family income per month in two districts was Rs.2268/- per month. The family income per month was higher in Hissar (Rs.2,655) than in Panipat (Rs.1,855).

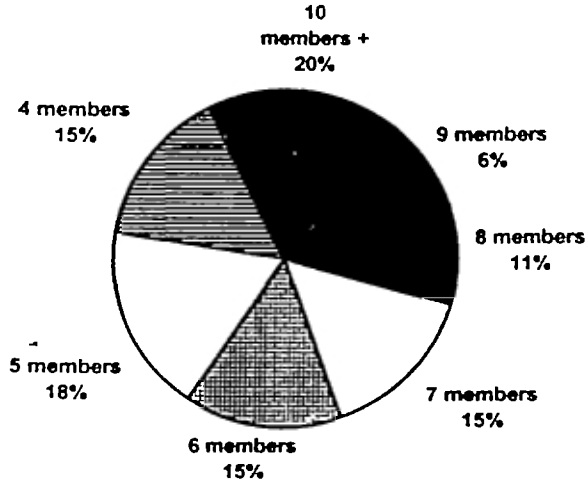
Caste: Fifty two percent of respondents were from general/ forward castes, while, one-fourth were from other backward classes (OBC). The remaining 23 percent were from Scheduled castes.

PROFILE - BY CASTE



Family size: One-fifth of respondents had large families having ten or more members, while, 17 percent had 8-9 members each. Thirty percent of respondents had a family size of 6-7 members, while, 18 percent had 5 members each. The remaining 15 percent of respondents, had smaller families having 4 members or less. **An average family had 6.9 members. The family size was slightly higher in Panipat district (7 members) than in Hissar (6.8 members)**. An average household had 4.8 adults (18 years +) and 2.1 children.

PROFILE - BY FAMILY SIZE



Average family size - 6.8 members

TABLE 6.1
PROFILE OF HOUSEWIVES/HEAD OF HOUSEHOLD INTERVIEWED

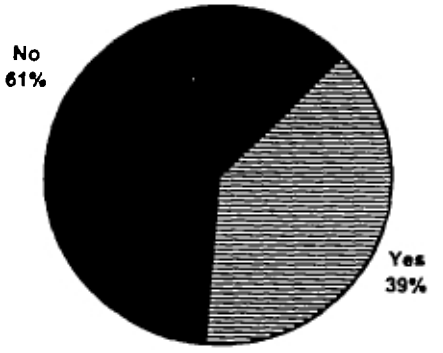
Characteristics	Hissar (N = 370)	Panipat (N = 347)	Both district (N = 717)
Sex			
Male	20 (5.4)	02 (0.6)	22 (3.11)
Female	350 (9.46)	345 (99.4)	695 (96.9)
Age			
Upto 20 yrs	10 (2.7)	10 (2.9)	20 (2.8)
21-30 yrs	195 (5.27)	105 (30.3)	300 (41.8)
31-40 yrs	98 (26.5)	124 (35.7)	222 (31.0)
41-50 yrs	35 (9.5)	71 (20.5)	106 (14.8)
51 yrs +	32 (8.6)	37 (10.7)	69 (9.6)
Average age	31.70	35.4	33.5
Education)			
Illiterate	235 (63.5)	217 (62.5)	452 (64.0)

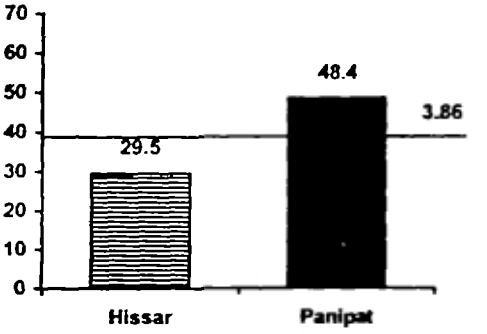
Characteristics	Hissar (N = 370)	Panipat (N = 347)	Both district (N = 717)
Literate	31 (8.4)	49 (14.1)	80 (11.2)
Upto primary	28 (7.6)	38 (11.0)	66 (9.2)
Upto middle	34 (9.2)	20 (5.8)	54 (7.5)
Upto high school	29 (7.8)	20 (5.7)	49 (6.8)
Senior secondary +	13 (3.5)	03 (0.9)	16 (2.3)
Occupation			
Agriculturist	186	54	240 (33.5)
Agri./manual labour	103	11	114 (15.9)
Service	30	13	43 (6.0)
Trader	10	06	16 (2.2)
Housewife	41	263	304 (42.4)
Marital Status			
Married	356 (96.3)	334 (96.2)	690 (96.2)
Unmarried	14 (3.8)	13 (3.7)	27 (3.8)
Family Income (per month)			
upto Rs.1000	68	150	218 (30.4)
Rs.1001 - 2000	117	86	203 (28.3)
Rs.2001 - 3000	92	61	153 (21.3)
Rs.3001 - 5000	50	38	88 (12.3)
Rs.5001 +	43	12	55 (7.7)
Average family income	2655	1855	2268
Caste			
General	147	226	373 (52.0)
OBC	131	50	181 (25.2)
SC/ST	92	71	163 (22.7)
Family members			

Characteristics	Hissar (N = 370)	Panipat (N = 347)	Both district (N = 717)
Upto 4 members	61	64	107 (14.9)
5	73	59	132 (18.4)
6	53	51	104 (14.5)
7	53	56	109 (15.2)
8	33	43	76 (10.6)
9	25	21	46 (6.4)
10 members +	72	71	143 (19.9)
Average family size	6.8	7.0	6.9

6.2 **Availability of Private Sources**: Thirty eight percent of households surveyed in Hissar and Panipat districts had private water sources. A higher proportion of households surveyed had private sources in Panipat (48.4 percent) than in Hissar (29.5 percent).

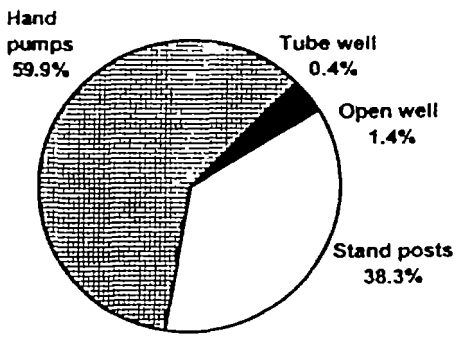
ACCESS TO PRIVATE SOURCE





Of the households having access to private sources, three-fifth of households had hand pumps installed, while, thirty eight percent had a stand post (tap). The remaining households either had open-wells (1.4 percent) or tube-well (0.4 percent).

TYPE OF PRIVATE SOURCES



More households in Hissar district had stand posts (57 percent), followed by hand pumps (39 percent) and tube-well (1 percent). Since the underground water in Hissar district is brackish, fewer people have hand pumps installed in their household. More households in Panipat, however, had hand pumps (73 percent), followed by stand posts (26 percent) and open well (11 percent).

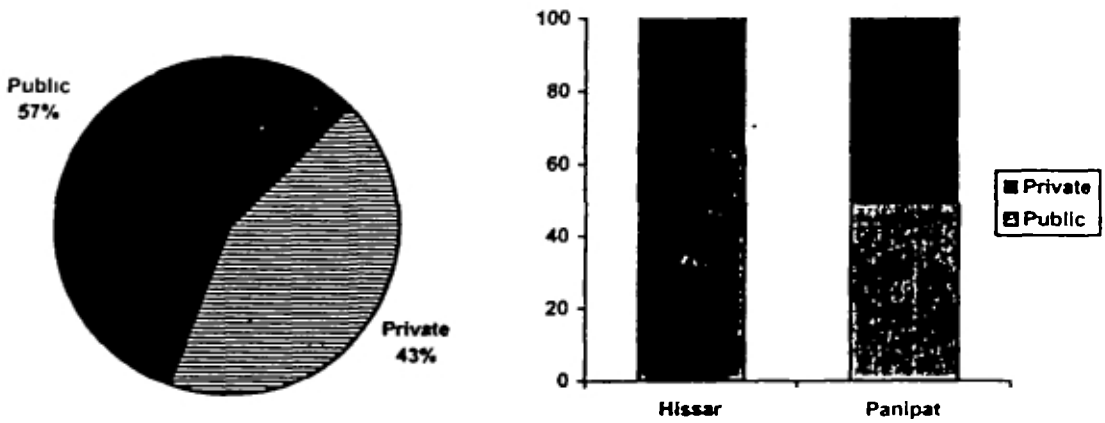
TABLE 6.2
AVAILABILITY OF PRIVATE WATER SOURCES

Availability	Hissar (N=370)	Panipat (N=347)	Both district (N=717)
Do you have a private source			
Yes	109 (34.1)	168 (48 4)	277 (38.6)
No	261 (65.9)	179 (51.6)	440 (61.4)
If yes, Type of source			
Hand pump	43	123	166 (59 9)
Stand post	62	44	106 (38 3)
Open well	3	1	4 (1.4
Tube well	1	-	1 (0.4)

The availability of private sources was much higher among general forward castes (52 percent) than among OBC (22 percent) and SC (26 percent). This shows that there is need for more public source for those belonging to OBC and SC communities.

6.3 **DEPENDENCE ON PUBLIC/PRIVATE SOURCE**: Fifty seven percent of households depended on public water supply source, while, 43 percent depended on private sources. Five percent of households though had their own private sources, depended on public sources for water supply.

DEPENDENCE ON PUBLIC/PRIVATE SOURCES



Dependence on public sources was much higher in Hissar district (65 percent) than in Panipat district (49 percent). Households who depended more on public sources had cited the following reasons:

* Easy availability of water at public sources (82 percent)
* Public source was near the house (74 respondents)
* Quality of water was better/clean at public sources (49 respondents)
* No private source/can't afford a private source (73 percent)
* Water supply on private sources was inadequate (34 respondents)

Households who had depended more on private sources had cited the following reasons

* No public source (91 percent)
* Water quality was brackish at public sources (66 percent)
* Public source was not functioning (21 Respondents)

TABLE 6.3
DEPENDENCE ON PUBLIC AND PRIVATE SOURCES

Dependence on	Hissar (N=370)	Panipat (N=347)	Both districts (N=717)
Public source	239 (64.6)	170 (49.0)	409 (57.0)
Private source	131 (35.4)	177 (51.0)	308 (43.0)
Reasons for using public source			
Availability of public source	46	36	82
Near to house	41	33	74
Quality of water is good	11	38	49
Do not have private source	2	71	73
Water supply through private source is inadequate	24	10	34
Reasons for using private source			
No public source	34	78	112

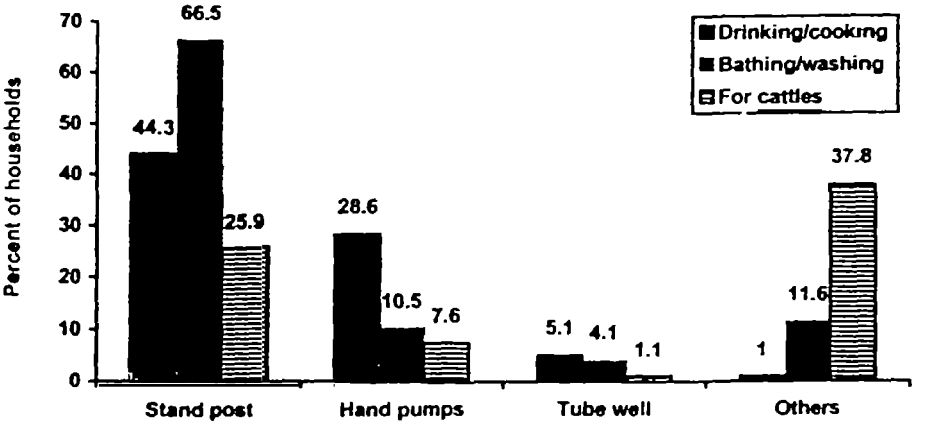
6.4 USE OF WATER - BY SOURCE

Hissar : Stand posts was the most used water source in Hissar district. Two-third of households used it for bathing/washing clothes purpose, while, 44 percent used it for drinking/cooking purpose. One fourth used it for their cattle as well. It has been observed that though piped water supply is the safest source, quite a few households perceived that the quality of water was not good for drinking cooking purposes. They apprehend that since PWS is connected to canal based system, lot of people use canals for bathing and cleaning themselves after defecation. As a result, its quality gets contaminated

Hand pumps was the second most used source for drinking/cooking purpose (29 percent), while, only 11 percent used it for bathing/washing purpose. This is despite the fact that underground water was brackish in Hissar districts.

Other source like river/ponds were mainly used for bathing cattle. Twelve percent of respondents said that they were also using these source for their self-clothes/ utensils bathing/washing purpose.

PURPOSE WISE USE OF WATER SOURCE - HISSAR DISTRICT



Panipat : Stand posts were the most used water source in Panipat district. Sixty two percent of households used it for drinking/cooking purpose, while, 55 percent used it for bathing/washing purpose as well. Twenty three percent of households use stand post water for cattle as well. Unlike Hissar there are no apprehensions about the quality of water from stand posts, and it is even used for drinking/cooking purpose. This was perhaps because of the fact that PWS in ten of 15 villages surveyed in Panipat district was tube-well based and quality of tube-well based PWS is perceived to be somewhat better than the canal based PWS.

Hand pumps were used for drinking water/cooking purpose in 27 percent of households, while, it was used by 15 percent of households for bathing/washing purpose. Four percent of households used it for cattle as well.

Water from river/pond was used for bathing of cattle (34 percent), while 18 percent of households used for self-bathing/washing clothes.

PERCENT OF HOUSEHOLDS USING SOURCE - BY PURPOSE

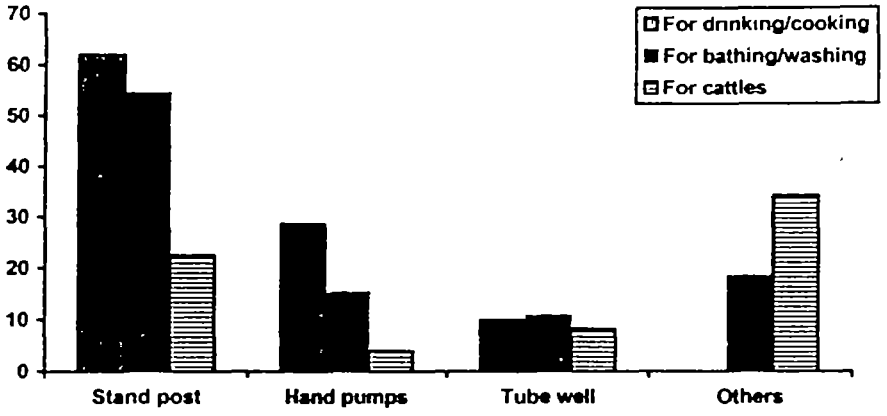


Table 6.4
SOURCE OF WATER USED - PURPOSE-WISE

Purpose/Source	Hissar N=370	Panipat N=347	Both districts N=717
For drinking water/cooking food:			
Hand pump	106(28.6)	93(16.8)	199(27.8)
Stand post	164(44.3)	215(62.0)	379(52.9)
Tube well	19(5.1)	34(9.8)	53(7.4)
Open well	85(23.0)	2(0.6)	87(12.1)
For Bathing/Washing clothes:			
Hand pump	39(10.5)	53(15.3)	92(12.8)
Stand post	246(66.5)	189(54.5)	43(60.7)
Tube well	15(4.1)	37(10.7)	52(7.3)
Open well	27(7.3)	1(0.3)	28(3 9)
Other sources	43(11.6)	64(18.4)	107(14.9)

Purpose/Source	Hissar N=370	Panipat N=347	Both districts N=717
For Cattle:			
Hand pump	28(7.6)	14(4.0)	42(5.9)
Stand post	96(25.9)	78(22.5)	174(24.3)
Tube well	4(1.1)	28(8.1)	32(4.5)
Other sources	140(37.8)	118(34.0)	258(36.0)

6.5 TIMING AND DURATION OF PIPED WATER SUPPLY:

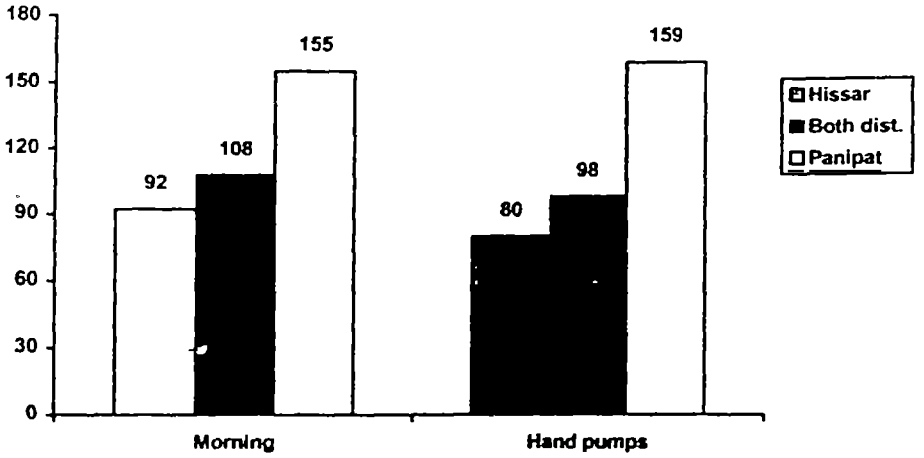
Nine of 10 functionaries interviewed in Hissar district had said that water was supplied both in the morning and evening, while, one functionary had said that water was supplied only in the morning hours.

All seven functionaries interviewed in Panipat district had said that piped water supply was operated both in the morning and evening.

Household respondents availing piped water supply in two districts were also asked about the duration of water supplied. Thirty seven percent of respondents had said that water was supplied in the morning for one hour, while, 51 percent had said that water was supplied for 2 hours. Seven percent of respondents had said that water was supplied for 3 hours, while, 5 percent had said that water was supplied for 4 hours or more. **An average household had received water for 1 hour 48 minutes in the morning. The duration of water supply was higher in Panipat (155 minutes) than in Hissar (92 minutes).**

Eighty eight percent of respondents had received water supply in the evening as well, while, 12 percent had received water supply only in the morning hours. Thirty two percent of respondents had received water supply for one hour in the evening, while, 44 percent had received water for 2 hours.

DURATION OF SUPPLY OF WATER THROUGH PWS
TIME IN MINUTES



Seven percent had received water supply for 3 hours, while, 5 percent had received for 4 hours or more. An average household had received water supply for one hour 38 minutes in the evening. The duration of water supply was longer in Panipat (159 minutes) than in Hissar (80 minutes).

Thus in an average day, piped water was supplied for 3 hours 26 minutes. Piped water supply was for a longer duration in Panipat district (5 hours 14 minutes) than in Hissar district (2 hours 52 minutes).

TABLE 6.5
DURATION OF WATER SUPPLY FROM PUBLIC PWS

Duration	Hissar (N = 261)	Panipat (N = 88)	Both district (N=349)
Morning			
One hour	125	4	129 (37.0)
Two hours	123	47	179 (51.3)
Three hours	4	20	24 (6.9)
Four hours	-	14	14 (4.0)

Duration	Hissar (N = 261)	Panipat (N = 88)	Both district (N=349)
Five hours +	-	3	3 (0.8)
Average duration	1 hr. 32 min.	2 hr. 35 min.	1 hr 48 min.
Evening			
No supply	41	-	41 (11.7)
One hour	105	6	111 (31.8)
Two hours	109	45	154 (44.1)
Three hours	6	20	26 (7.4)
Four hours		14	14 (4.0)
Five hours +		3	3 (0.9)
Average duration	1 hr. 20 min.	2 hr. 39 min.	1 hr. 38 min.

Note: The figures in parenthesis indicate percentage to total respondents.

6.6 **OBSERVATION OF PUBLIC SOURCES:** Some 141 public sources were observed by MRG's researchers in these two districts. Of these, 97 were in Hissar, while, 44 were in Panipat district. Of the 141 sources observed, 113 were stand posts, 23 were hand pumps and 5 tube-wells.

Sixty of 141 public sources were installed in recent 10 years, while, remaining 81 public sources were installed 11-20 years back. Most tube-wells were installed in recent 10 years only. Thus, nearly 30 percent of water sources were 15 years + old.

Some 100 of 141 public sources were functioning (71 percent), while, 29 percent were not functioning. Seventy nine percent of sources observed in Hissar district were functioning, while, 21 percent were not working Only fifty two percent of sources observed in Panipat district were functioning

Sixty eight percent of stand posts observed in two districts were functioning. More stand posts installed in Hissar district were functioning (78

percent) as compared to stand posts installed in Panipat district (45 percent). The main reasons for non-functioning of stand posts in most villages was bursting of PVC pipes used for piped water supply distribution, and low pressure of water.

Eighteen of 23 hand pumps observed in two districts were functioning (78 percent), while, all 5 tube-wells observed were functioning.

Ninety percent of sources observed in Hissar district were used by all communities, while, 3 sources were used by upper income groups exclusively. Four sources were used exclusively by OBC, while, 3 sources were used by SC/ST only. **All sources observed in Panipat district were used by all communities**

Most public sources were used for multi-purposes - drinking water (89 percent), washing utensils/cloths (75 percent), bathing (75 percent) and for cattle (19 percent).

TABLE 6.6
OBSERVATION OF PUBLIC SOURCES

Characteristics	Stand posts		Hand pumps		Tube well		All sources	
	H	P	H	P	H	P	H	P
Total sources observed	80	33	13	10	4	1	97	44
Year of installation :								
< 10 years	21	21	4	9	4	1	29	31
11 - 20 years	59	12	9	1	-	-	67	13
Source is working or not :								
Working	62	15	11	7	4	1	77	23
Not working	18	18	2	3	-	-	20	21
Who uses it								
Upper income group	3	-	-	-	-	-	3	-

Characteristics	Stand posts		Hand pumps		Tube well		All sources	
	H	P	H	P	H	P	H	P
OBC	3	-	1	-	-	-	4	-
SC/ST	2	-	1	-	-	-	3	-
All communities	54	15	9	7	4	1	67	23
Purpose of use								
Drinking	54	13	10	7	4	1	68	21
Washing	52	10	3	7	2	1	57	18
Bathing	54	8	3	7	2	1	59	16
Cattle	12	5	-	-	1	1	13	6
Quality of water :								
Good	57	15	6	7	4	1	67	23
Not so clean	4	-	2	-	-	-	6	-
Brackish	1	-	3	-	-	-	4	-
Was platform constructed :								
Yes	33	12	3	3	4	1	40	16
No	29	3	8	4	-	-	37	7
Was surrounding clean :								
Clean	11	7	1	-	4	-	16	7
Not so clean	25	4	1	5	-	1	26	10
Dirty	26	4	9	2	-	-	35	6

Note: H - Hissar, P - Panipat

Quality of water was observed to be good and clean in 90 percent of working sources while, it was it was muddy in 6 sources. Water was brackish in four sources. Quality of water available was better at stand posts and tube well as compared to a hand pumps. The underground water in Hissar district is brackish, the water in 3 hand pumps was observed to be brackish.

Platforms were constructed around 56 percent of sources, while there was no platform around 44 percent of sources.

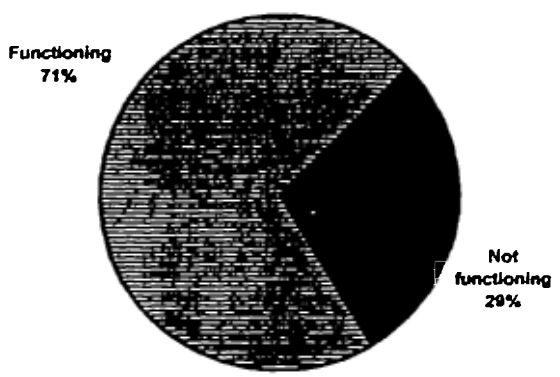
The surroundings around these public sources were not so clean. In fact, **surrounding was observed to be clean around 23 of 100 working sources (23 percent)**, while, it was not so clean around 36 sources (36 percent). It was very dirty around 41 working sources observed in two districts. Much efforts were required to keep surroundings of public water sources clean. Dirty and stagnant water may led to water borne diseases including malaria, cholera, diarrhoea, etc.

6.7 FUNCTIONING OF PUBLIC SOURCES:

Household beneficiaries interviewed were also asked whether public sources were functioning or not? Seventy one percent of respondents had said that public sources were working, while, 29 percent had said that public sources were not working. A higher proportion of respondents in Panipat (83 percent) had said that pubic source were functioning in their villages than in Hissar (62 percent).

One-fifth of public source users had said that the maintenance person was always available in their village, while, 39 percent had said that he was available sometime. **Two-fifth of respondents, however, had said that maintenance was not available most of the time.**

FUNCTIONING OF PUBLIC SOURCES



The following reasons were cited for non-functioning of public sources:

- Very low pressure in piped water supply (45 respondents)
- Motor/pump had been burnt (25 respondents)
- Water at public source was not good/worth drinking (14 respondents)
- Source pipes were broken (12 respondents)
- Lack of maintenance staff (4 respondents)
- Spare parts were not available (4 respondents)
- Misuse of public sources/ illegal connections (2 respondents)

TABLE 6.7A
FUNCTIONING OF PUBLIC SOURCES

Functioning	Hissar	Panipat	Both districts
Are all public sources functioning:			
Yes	121 (62.1)	120 (83.3)	241 (71.1)
No	74 (37.9)	24 (16.7)	98 (28.9)
Is the maintenance person available:			
Yes, available at all times	51	30	81 (20.5)
Yes, sometime available	117	39	156 (39.4)
Not available	77	82	159 (40.2)
Reasons for non-functioning			
Water was muddy/brackish/saline	12	2	14
Very low pressure of water	42	3	45
Motor has been burnt	20	5	25
Source/pipe was broken	7	5	12
Lack of maintenance/person was not available	3	1	4
Spare parts were not available	1	4	5
Illegal connections/misuse by people	-	2	2

Operators/functionaries were also asked about the problems faced by them in operation and maintenance of public supply/sources. The following problems were cited by operators/functionaries in operation and maintenance of rural water supply schemes.

6.7 B

PROBLEMS FACED IN OPERATION AND MAINTENANCE OF PUBLIC SOURCE

Problem	Hissar N=10	Panipat N=7	Both districts N=17
Problems faced in operating water supply system			
Machinery is too old/needs frequent repair	3	-	3
Irregular supply of electricity	2	1	3
Pipe had broken/leaked	1	1	2
People did not co-operate	-	1	1
Staff was not adequate/ efficient	1	4	5
No problem	4	4	8
Problems faced in maintenance of water sources			
Spare parts were not available	1	-	1
Illegal connections/misuse of water	1	-	1
Irregular supply of electricity	1	-	1
Gram panchayat members did not co-operate	1	-	1
Lack of staff/officers do not co-operate	1	1	2
No problem	4	5	9

6.8 DISTANCE OF PUBLIC WATER SOURCE:

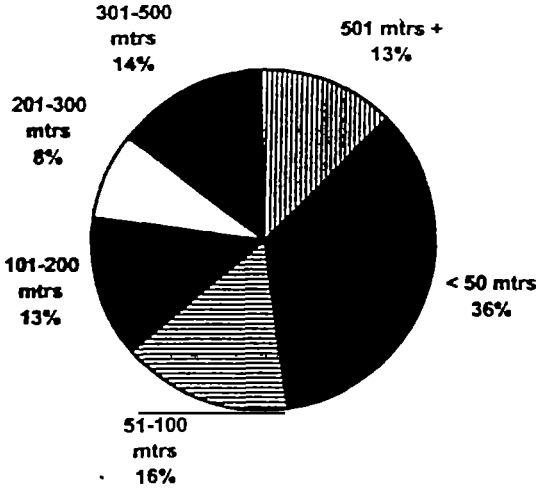
Thirty five percent of respondents had said that public water source was located with in 50 metres from their house, while, 16 percent had said that public source was located at a distance of 51-100 metres. Thirteen percent had said that public source was located 101-200 metres from their house, while, 8 percent had said that public source was located 201 - 300 metres from their house. Fourteen percent had said that public source was located 301-500 metres from their house, while the remaining 13 percent had said that it was located more than 500 metres from their house. **The average distance of public source was 251 metres from respondents household. The average distance of public source was higher in Hissar (307 metres) than in Panipat district (162 metres).**

TABLE 6.8
DISTANCE OF PUBLIC WATER SOURCE

Distance (in metres)	Hand-pump		Standpost		Tube-well		All sources	
	Hissar	Panipat	Hissar	Panipat	Hissar	Panipat	Hissar	Panipat
Upto 50 m	6	10	50	66	-	2	56	78
51-100m	5	4	31	16	-	6	36	26
61-200m	4	5	32	3	-	4	36	12
201-300m	2	1	14	8	-	4	16	13
301-400m	2	1	6	-	-	4	8	5
401-500m	15	1	21	-	4	1	40	2
501-750m	2	-	4	-	-	-	6	-
751-1000m	13	5	15	-	5	3	33	8
1001m+	3	-	1	1	-	3	4	4
Average distance (m)	**490m**	**251**	**233**	**73**	**686**	**411**	**307**	**162**

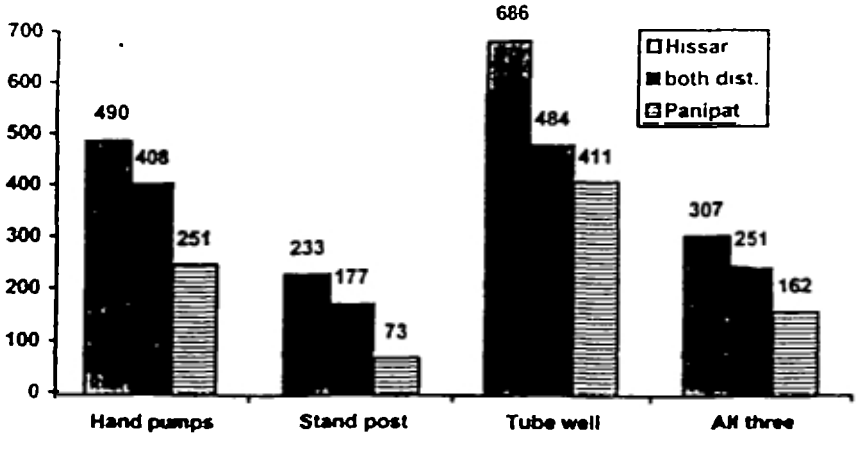
It has been observed that the average distance of standpost was lower in both districts (Hissar-233m, Panipat-73 m) than the distance of handpumps in both districts (Hissar-490m, Panipat-251m).

DISTANCE OF PUBLIC SOURCE FROM HOUSEHOLD



Average distance - 251 metres.

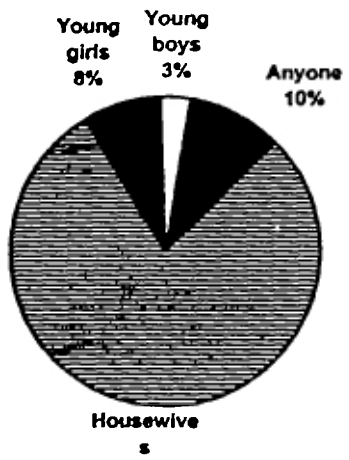
AVERAGE DISTANCE OF PUBLIC SOURCES



6.9 WHO FETCHES WATER FROM PUBLIC SOURCES:

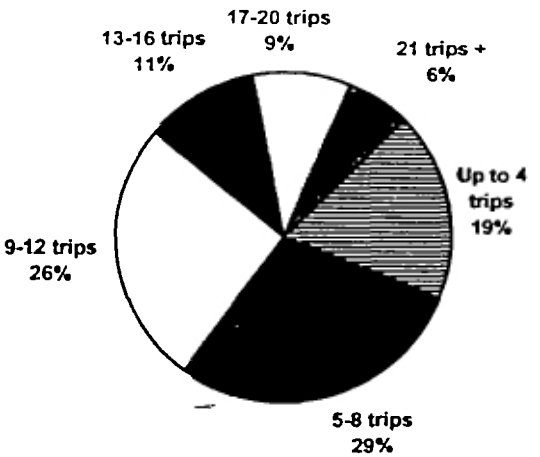
Water from public sources was fetched by housewives in 79 percent of households surveyed. Young girls fetched water from public sources in 8 percent of households, while, young boys/ sons had fetched water in 3 percent of households. Any person available had fetched water in 10 percent of households.

WHO FETCHED WATER



Trips made per day: Number of trips made per day to public source is related to the water requirement of the family members. Thus, in larger families, more trips are made, and fewer trips are made in smaller families. Four trips or less were made per day to public sources in 18 percent of households, while, 5-8 trips were made per day in 28 percent of households. Some 9-12 trips per day were made by one fourth of households, while, 13-16 trips were made in 14 percent of households. Some 17-20 trips per day were made in 9 percent of households, while, 21 trips or more were made in 9 percent of households. **In an average household, 10 trips were made per day to fetch water from public sources to meet household requirement.** More trips were made by an average household in P..nipat (11.2 trips) as compared to in Hissar (9.3 trips per day).

NUMBER OF TRIPS MADE PER DAY

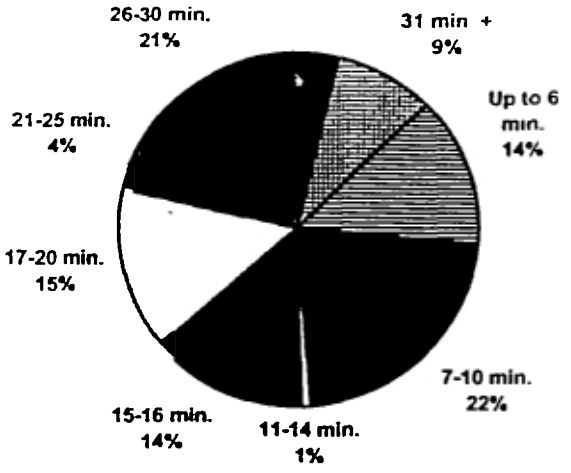


Average trips 1.10 per day

Time per trip: The time spent per trip is directly related to the distance of public source from residence and queuing time. If fewer families depend on a public source, less time will be spent in queuing time. On the other hand, queuing time will be higher if a large number families depend on each public source. An analysis of time taken per trip by households shows that the time taken per trip was upto 6 minutes in 14 percent of households, while, it was between 7-10 minutes for 22 per cent of households. Time taken per trip was between 11-14 minutes for 1 percent of households, while, it was 15-16 minutes for 14 percent of households. Fifteen percent of respondents spent 17-20 minutes per trip, while, four percent had spent 21-25 minutes per trip. Twenty one percent of respondents had spent 26-30 minutes per trip, while, 9 percent had spent 31 minutes or more per trip. The average time per trip comes to 17.4 minutes. The average time per trip was higher in Hissar (20 minutes) than in Panipat (13 minutes).

The total time spent per day in getting water from public sources by an average household comes to 174 minutes. The average time spent per day was higher in Hissar (188 minutes) than in Panipat (146 minutes).

TIME SPENT PER TRIP



Average time per trip : 17 minutes

TABLE 6.9
FETCHING OF WATER FROM PUBLIC SOURCES

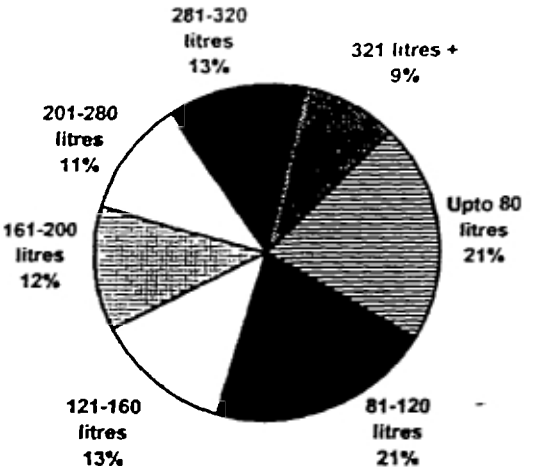
	Hissar	Panipat	Both districts
Who fetches water from public sources			
House wife	180 (76.6)	132 (82.5)	312 (79.0)
Young girl/ daughter	20 (8.5)	10 (6.3)	30 (7.6)
Young boy /son	11 (4.7)	1 (0.6)	12 (3.0)
Any one in the house hold	24 (10.2)	17 (10.6)	41 (10.4)
No of trips per day to public source			
upto 4 trips	54 (23.8)	11 (8.0)	65 (17.8)
5-8 trips	62 (27.3)	41 (29.7)	103 (28.2)
9-12 trips	56 (24.7)	35 (35.4)	91 (24.9)
13-16 trips	26 (11.4)	25 (18.1)	51 (14.0)
17-20 trips	16 (7.00	15 (10.9)	31 (8.5)
21 trips or more	13 (5.7)	11 (8.0)	24 (6.6)

	Hissar	Panipat	Both districts
Average no of trips	9.3	11.2	10.0
Time spent per trip			
up to 6 minutes	16 (7.3)	32 (23.4)	48 (13.5)
7-10 minutes	36 (16.4)	41 (29.9)	77 (21.6)
11-14 minutes	-	4 (2.9)	4 (1.1)
15-16 minutes	31 (14.2)	19 (13.9)	50 (14.0)
11-20 minutes	32 (14.6)	23 (16.8)	55 (14.2)
21-15 minutes	13 (5.9)	2 (1.5)	15 (4.2)
26-30 minutes	60 (27.4)	15 (10.9)	75 (21.1)
31 minutes	31 (14.2)	1 (0.7)	32 (9.0)
Average time per trip	**20.2**	**13.0**	**17.4**
Average time spent per day	**188. min**	**146 min**	**174 min**

6.10 **Quantity of water fetched from public source:** Nine percent of households had collected 320 litres or more water per day from public sources, while, 13 percent of households fetched between 280-320 litres per day. Eleven percent of households had fetched between 200-280 litres per day, while, 12 percent fetched between 161-200 litres per day. Twelve percent of households had fetched 121-160 litres per day, while, 13 percent had fetched between 121-160 litres. Twenty one percent of households had fetched between 81-120 litres per day, while, another 21 percent fetch upto 80 litres of water per day.

An average household had fetched 161 litres of water per day from public source. An average household in Panipat had fetched 200 litres of water per day, while, an average household in Hissar had fetched 137 litres of water per day from public source.

QUANTITY OF WATER FETCHED PER DAY FROM PUBLIC SOURCES



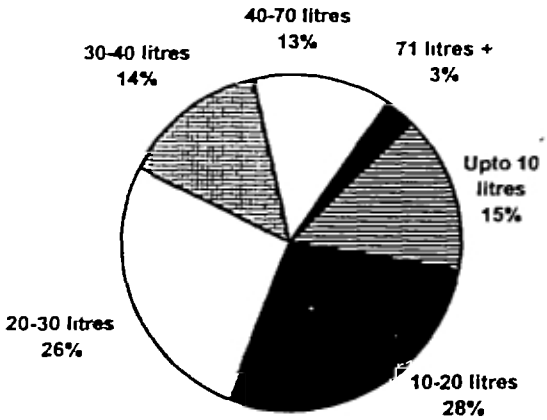
Average quantity fetched per household - 161 litres

Per capita usage was calculated by dividing total quantity of water fetched from public sources by number of members in the households. Per capita usage was 70 litres or more in 3 percent of households, while, it was between 41-70 litres in 13 percent of households. Per capita usage was between 31-40 litres per day in 14 percent of households, while, it was between 21-30 litres in 26 percent of households. Per capita usage was between 10-20 litres in 28 percent of households, while, it was less than 10 litres in 15 percent of households. The average per capita usage was 25.7 lpcd. The per capita usage was higher in Panipat district (31 lpcd) than in Hissar district (22 lpcd).

TABLE 6.10
QUANTITY OF WATER FETCHED FROM PUBLIC SOURCES

Quantity of water fetched from sources	Hissar	Panipat	both districts
upto 40 litres	30(13.6)	-	30 (8.3)
41-80 litres	35 (15.8)	9 (6.5)	44 (12.2)
81-120 litres	54 (24.4)	23 (16.5)	77 (21.4)
121-160 litres	27 (12.2)	21 (15.1)	48 (13.3)
161- 200 litres	25 (11.3)	19 (13.7)	44 (12.2)
201-240 litres	14 (6.3)	13 (9.4)	27 (7.5)
241- 280 litres	4 (1.8)	8 (5.8)	12 (3.3)
281-320 litres	14 (6.3)	31 (22.3)	45 (12.5)
321- 360 litres	2 (0.9)	1 (0.7)	3 (0.8)
361- 400 litres	8 (3.6)	10 (7.2)	18 (5.0)
401 litres +	8 (3.6)	4 (2.9)	12 (3.3)
Average qty. of water fetched	137 litres	200 litres	161 litres
Per capita usage			
upto 10 litres	46 (24.5)	5 (3.5)	51 (15.4)
11-20 litres	68 (36.2)	26 (18.2)	94 (28.4)
21-30 litres	36 (19.1)	50 (35.0)	86 (26.0)
31-40 litres	16 (8.5)	31 (21.7)	47 (14.2)
41-50 litres	10 (5.3)	20 (14.0)	30 (9.1)
51-60 litres	4 (2.1)	3 (2.1)	7 (2.1)
61-70 litres	2 (1.1)	3 (2.1)	5 (1.5)
71 litres +	6 (3.2)	5 (3.5)	11 (3.3)
Average per capita usage	21.8 litres	30.8 litres	25.7 litres

PER CAPITA USAGE OF WATER FROM PUBLIC SOURCES



Average per capita usage - 25.7 litres per day

6.11 OPINION ABOUT QUALITY OF WATER:

Households respondents were asked to give their opinion about quality of water available at public sources. **An analysis of responses shows that 83 percent of respondents (public source users) had said that the quality of water available of public source was good.** Seventeen percent, however, felt that the water available at public sources was not worth drinking.

QUALITY OF WATER AT PUBLIC SOURCES

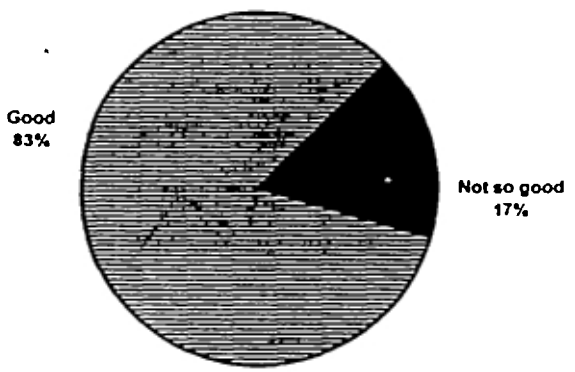


Table 3.11
QUALITY OF WATER AT PUBLIC SOURCES

Source/quality of water	Hissar	Panipat	Both districts
Quality of water at stand post :			
Good	167 (72.9)	150 (92.6)	317 (81.1)
Not good	62 (27.1)	12 (7.4)	74 (18.9)
Hand pumps :			
Good	52 (77.6)	43 (95.6)	95 (84.8)
Not good	15 (22.4)	2 (4.4)	17 (15.2)
Tube well :			
Good	12 (100.0)	29 (90.6)	41 (93.2)
Not good	-	3 (9.4)	3 (6.8)
All three sources :			
Good	231 (75.0)	222 (92.9)	543 (82.8)
Not good	77 (25.0)	17 (7.1)	94 (17.2)

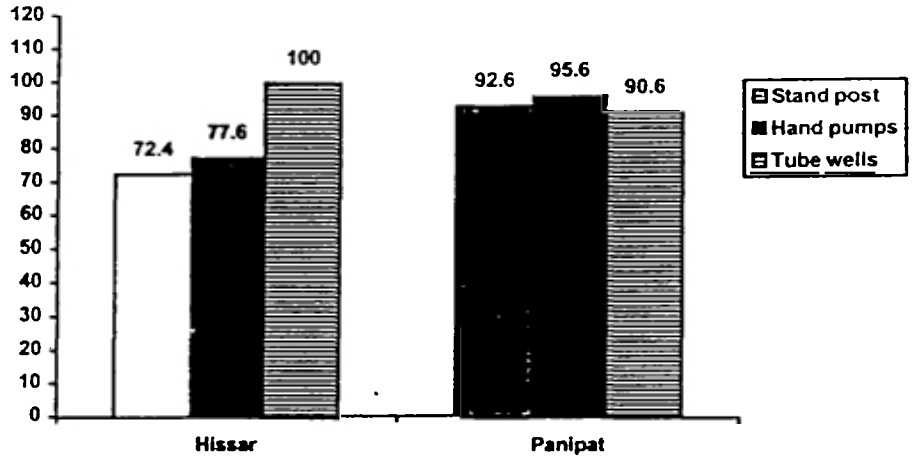
Note : The figures in parenthesis indicate percentage to be respondents in respective districts.

Seventy five percent of public source users in Hissar district were satisfied with the quality of water available at public sources, while, 25 percent were dissatisfied. Comparatively more users of tube wells (100 percent) were satisfied then the users of hand pumps (78 percent) and stand posts (73 percent).

Ninety three percent of public source users in Panipat district were satisfied with the quality of water, while, 7 percent were dissatisfied. The

quality of water available at hand pumps (96 percent) was perceived to be better than water available through stand posts (93 percent) and tube-wells (91 percent).

PERCENT OF USERS WHO PERCEIVED QUALITY OF WATER AS GOOD



6.12 CONTRIBUTION MADE BY VILLAGE COMMUNITY:

Six of 17 operators/functionaries interviewed in two districts had said that villagers were contributing towards private PWS connection installed. An average of Rs.20/- per source was paid per month by private source subscribes.

Households having own private stand posts were asked whether they were contributing towards the supply of water through PWS or net. Seventy of 106 respondents (66 percent) having private stand posts in these two districts had said that they were contributing towards the cost of water supply. One-third of stand post owners, however, were not contributing. An average of Rs.10/- per source per month was paid by stand post subscribers. More subscribers in Hissar were contributing as compared to in Panipat district.

TABLE 6.12
CONTRIBUTIONS MADE TOWARDS COST OF PIPED WATER SUPPLY

	Hissar (N=370)	Panipat (N=347)	Both districts (N=717)
Whether contribute to PWS:			
Yes	53 (85.5)	17 (38.6)	70 (66)
No.	9 (14.5)	27 (61.4)	36 (34)
Whether willing to contribute towards PWS :			
Yes	213(67.2)	166 (50.3)	379 (58.6)
No.	104 (32.8)	164 (49.7)	268 (41.4)
If yes, what amount per month			
Upto Rs.10/-	60	59	119 (31.;4)
Upto Rs.15-20	110	87	197 (52.0)
Upto Rs.25-30	43	20	63 (16.6)

Presently only 10 percent of total respondents were contributing towards the cost of piped water supply. Ninety percent of respondents who are either not subscribing or contributing presently were asked, whether they were willing to pay towards the cost of subscription to water supplies through PWS. An overwhelming 51 percent had responded in affirmation and showed their keenness to pay towards the cost of piped water supply. Comparatively, more respondents in Hissar were willing to contribute (67 percent) than in Panipat (50 percent). Those who were not willing to contribute had cited their poor economic condition as the reason for their response.

Of those who were willing to pay for private stand posts, 33 percent were willing to pay upto Rs.10 per month, while, 52 percent were willing to pay between Rs.15-20 per month. Seventeen percent were willing to pay upto Rs.25-30 per month.

6.13 CO-OPERATION RECEIVED FROM GRAM PANCHAYAT AND VILLAGE COMMUNITY:

Eight of 17 operators/functionaries interviewed in two districts has said that they had received good co-operation from gram panchayat/ its members, while, two operators had opined that their co-operation was so-so. Seven operators, however, had said that panchayat members did not co-operate in operation and maintenance of rural water supply scheme.

Nine of 17 operators had said that they had received good co-operation from village community/people in general, while, five operators had said that their co-operation was so-so. Three operators, however, had felt that village community did not cooperate with them.

TABLE 6.13
CO-OPERATION RECEIVED FROM GRAM PANCHAYAT AND VILLAGE COMMUNITY

Co-operation received from	Hissar	Panipat	Both districts
Gram panchayat/members			
Good	5	3	8
So - so	1	1	2
Not good	4	3	7
Village community/people in general			
Good	6	3	9
So - so	1	2	5
Not good	1	2	3

The following reasons were cited for not getting good co-operation:

- Panchayat members had private connections and therefore were not bothered about the operation and maintenance of public source (2 operators)
- Political conflicts in the village (3 operators)
- Villagers create problems/illegal connection/pilferage (2 operators)
- Panchayat members create problems (3 operators).

CHAPTER VII

AVAILABILITY OF SANITARY LATRINES

7.1 SANITARY LATRINES IN HISSAR DISTRICT:

Development and Panchayat Department looks after the construction of sanitary latrines in Haryana. According to the Executive engineer, Development and Panchayat, the scheme for construction of sanitary latrines was started in December 1991. The cost of construction of a sanitary latrine is Rs.3,400. The subsidies given are as follows:

* **In case of general categories about 50 percent of cost of constructing sanitary latrine is borne by the government (both central and state) and the rest** 50 percent is borne by the beneficiary themselves.

* **In case of SC/ST, 90 percent of the cost of construction is borne by the government, while, 10 percent is borne by the beneficiary themselves.** If SC/ST families agree to put in manual unskilled labour, even the 10 percent is waved off.

About 80 percent of sanitary latrines were provided for general castes (including OBC), while, 20 percent were for scheduled Castes. Most sanitary latrines constructed were of pit types and based on the design provided by UNICEF.

During 1991-93, some 9,768 sanitary latrines were constructed in the following district. In the following years, an average of 6,000-7,000 latrines were constructed every year. A total of 42,902 sanitary latrines were constructed in Hissar district till March 1998. According to MRG's estimates, there were 2.37 lakh households in undivided Hissar district. Thus, 18 percent of households had sanitary latrines constructed with support from Development and Panchayat department. Though number of privately constructed latrines is not known, the percent of households having sanitary latrines must be much higher than 18 percent.

TABLE 7.1
CONSTRUCTION OF SANITARY LATRINES IN HISSAR DISTRICT

Year	No. of latrines constructed
1991-1993	9,768
1993-94	8,010
1994-95	7,202
1995-96	8,312
1996-97	6,959
1997-98	2,651
Total upto 1997-98	42,902
1998 (1.4.98 - 31.7.98)	2,053

Note: Information till 1997 is for Undivided Hissar district, while, information for 1998 is for new Hissar district only.

7.2 SANITARY LATRINES IN PANIPAT DISTRICT:

According to the Development and Panchayat Department officials in Panipat district, most sanitary latrines constructed are 2-pit type and on the lines of UNICEF design. The average cost of construction of sanitary latrines was Rs.3,400. For general population, 50 percent subsidy (Rs.1700/- per latrine) is given by the government (both central and state), and the balance 50 percent is met by the beneficiary themselves. A subsidy of 90 percent (Rs.3060/- per latrine is given) to SC population (both central and state), and balance 10 per is put in by the beneficiary themselves.

Some 3,627 sanitary latrines were constructed during March 1996 - July, 1998 period. Of these, 90 percent were among general population (including OBC), and 10 percent were among schedule caste population. No information was available about the sanitary latrines constructed in earlier years.

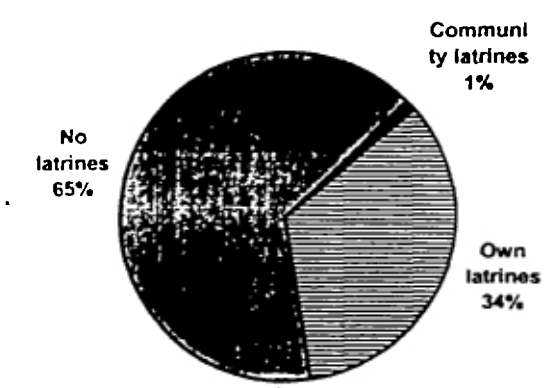
TABLE 7.2
SANITARY LATRINES CONSTRUCTED IN PANIPAT DISTRICT

Population Type	No. Sanitary latrines constructed
General population (including OBC)	3,278 (90.4%)
Scheduled caste	349 (9.6%)
Total	3,627

7.3 AVAILABILITY OF SANITARY LATRINES IN HOUSEHOLDS SURVEYED:

Survey constructed among households in 15 selected villages each in Hissar and Panipat revealed that 34 percent of households had own latrines. One percent used community latrines constructed in their village, while, 65 percent of population were going to open fields/jungle for disposing excreta defecation. A higher population of household in Hissar had access to own latrines (37 percent) than in Panipat district (31 percent).

AVAILABILITY OF SANITARY LATRINES



It has been observed that the availability of latrines was higher among genera. population (47 percent of households) than among OBC (20 percent) and

scheduled castes (20 percent). Similar patterns were observed in both Hissar and Panipat districts.

TABLE 7.3
AVAILABILITY OF SANITARY LATRINES

	Hissar (N=370)	Panipat (N=347)	Both district (N=717)
Where do you go for disposing of faeces/ excreta)			
Own private latrine	137 (37.0)	107 (30.8)	244 (34.0)
Community latrine	4 (1.1)	6 (1.7)	10 (1.4)
Open field/ jungle	229 (61.9)	234 (67.4)	463 (64.6)
Ownership of sanitary latrines among: (%)			
General population	57.8	39.8	46.9
Other backward classes (OBC)	22.1	14.0	19.9
(Scheduled casts (SC)	16.8	14.1	20.0

Note: The figures in brackets indicate percentage to total respondents in each district.

7.4 OVERALL CLEANLINESS IN THE VILLAGE:

MRG's researchers had made observations about the cleanliness in the villages, and sought opinion of opinion leaders about garbage disposal to study overall cleanliness in the villages

Of the 30 villages covered in two districts, drains were observed to be clean only in three villages. Drains were not so clean in 11 villages. while. these were observed to be dirty having stagnant water in 16 villages. Interviews with opinion leaders show that there was a demand for pucca drains in villages.

and for continuous draining off stagnant water. There was also a demand for spray of DDT in villages to ward off mosquitoes and malaria.

Interviews with village opinion leaders revealed that household garbage was generally thrown by housewives in the village streets in seven villages, while, garbage was disposed off in the backyard of houses in 11 villages. It was thrown out in pits located in the outskirts of 12 villages.

TABLE 7.4
CLEANLINESS IN THE VILLAGES

Observations/ Response	Hissar (N=15)	Panipat (N=15)	Both district (N=30)
Condition of drainage in village:			
Clean	1	2	3
Not so clean	7	4	11
Dirty/stagnant water	7	9	16
Garbage disposal:			
On the street	6	1	7
In backyard of houses	7	4	11
In a pit in outskirts of village	2	10	12

7.5 PREVALENCE OF WATER BORNE DISEASE:

Household respondents were asked whether any household member had fallen within last 12 months, and its causes. One third of household respondents had reported that their household member(s) had fallen ill during last 12 months. More respondents in Hissar (41 percent) had reported that their family member had fallen ill, then in Panipat district (25 percent).

An analysis of causes shows that a majority (73 percent) had suffered due to prevalence of water borne diseases. The prevalence of Malaria (51 percent) was higher than diarrhoea (11 percent), typhoid (7 percent), skin infection, (3

percent), cholera (1 percent) etc. The prevalence of malaria was much higher in Hissar district, where, 25 percent of total respondents had fallen sick due to malaria.

PREVALENCE OF WATER BORNE DISEASES

Prevalence of Water Borne disease

TABLE 7.5
PREVALENCE OF WATER BORNE DISEASES

	Hissar (N=370)	Panipat N=347	Both districts N=717
Did any family member fell ill during last 12 months			
Yes	150 (40.5)	86 (24.8)	236 (32.9)
No	220 (59.5)	261 (75.2)	481 (67.1)
If yes, which disease			
Diarrhoea	21	14	35 (14.8)
Cholera	-	2	2 (0.8)
Typhoid	8	9	17 (7.2)
Skin infection	1	5	6 (2.5)
Malaria	94	27	121 (51.3)
Others	34	31	65 (27.5)