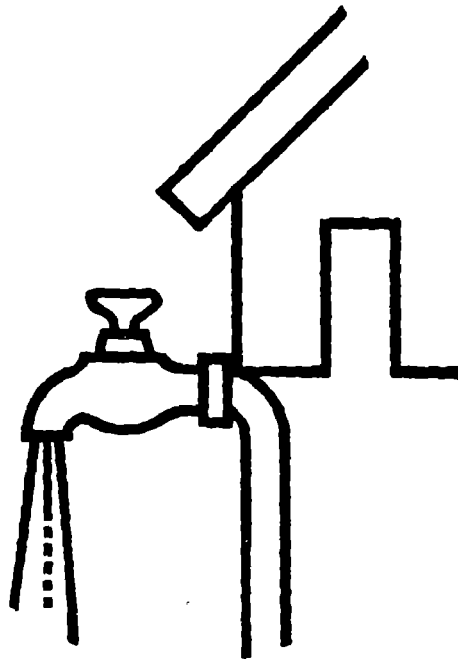


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Evaluation of Sub Project-1
Dutch Credit Programme for
Rural Water Supply in India

822 INUT89

UPDESCO
INTERNATIONAL REFERENCE GENERAL
FOR DEVELOPMENT OF WATER SUPPLY AND
SANITATION (PRO)



Sponsored By : The Royal Netherlands Embassy, New Delhi, India

updesco

**Uttar Pradesh Development
Systems Corporation Ltd.**

JANUARY, 1989

(A U.P. GOVT. UNDERTAKING)
9, Sarojini Naidu Marg, Lucknow 822-89-8755



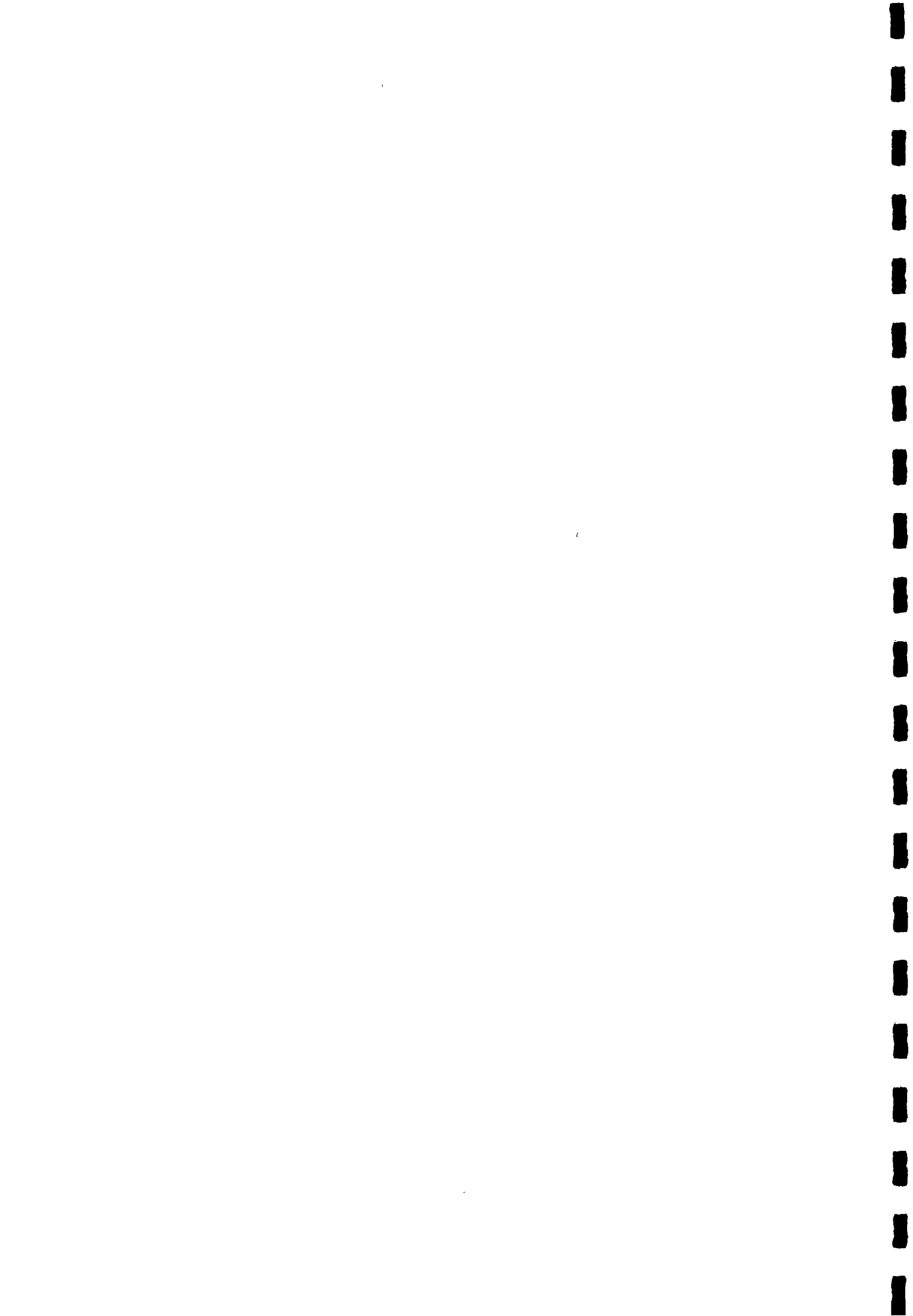
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FOREWORD

The importance of providing safe and adequate drinking water supply to the population is indisputable, specially in rural areas where water scarcity and ground water pollution are common features. India has a predominant rural character with about 85% of its population residing in rural areas. The contribution of the so called Dutch Credit Programme for rural water supply in India has been considerable in providing adequate and safe drinking water to the rural populace in India.

An evaluation of Sub-Project U.P. East - I was carried out by UPDESCO to ascertain the current status of the project which was completed in the year 1986. The study aims at learning from the recently concluded project, so as to improve the planning of future projects. The findings have been presented in this report. The report is divided into two parts, the first part of the volume is the complete report in itself, the second part contains details for the reader who would like to go into specific area-wise information.

We would like to take this opportunity to thank all the officials and staff of U.P. Jal Nigam, Pradhans and village level functionaries and specially the village folk for providing support and valuable insight which has gone into producing this report. Special thanks are also due to the Chairman and the Managing Director of U.P. Jal Nigam for their unstinting help and support to the study.

We are most grateful to the Royal Netherland Embassy, New Delhi for assigning the Evaluation Study of Sub Project - I to UPDESCO and the Mission Teams who have given valuable guidance in the conduct of the study.

Lucknow
May, 1989

DR. KULDIP SAINI
Managing Director

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GLOSSARY OF TERMS

AE	Assistant Engineer
ARWSP	Accelerated Rural Water Supply Programme
CPHEEO	Central Public Health and Environmental Engineering Organisation
CRSP	Central Rural Sanitation Programme
CSIR	Council for Scientific and Industrial Research
DCP	Dutch Credit Programme
HC	House Connection
HP	Hand Pump
IRDP	Integrated Rural Development Programme
LPCD	Litres per Capita per Day
LPM	Litres per Minute
LSGED	Local Self Government Engineering Department
MNP	Minimum Needs Programme
NREP	National Rural Employment Programme
PHED	Public Health Engineering Department
PHC	Primary Health Centre
RLEGP	Rural Landless Employment Guarantee Programme
SC ST	Scheduled Caste Scheduled Tribe
SE	Superintending Engineer
SP	[Public] Stand Post
TW	Tube Well
U.P.	Uttar Pradesh
VP	Vandal Proof
Amani Basis	Construction by the organisation person concerned and not on contract
Bonded Labour	Labour held under monetary bond by effluent members of community. The Government of India has declared the practice as illegal and freed all such labourers.
Diggies	Water storage tank with taps made at ground level with cement and brick lining.

Harijans Caste and tribes classified under Schedule by the Government of India as backward and granted privileges for development purposes.

India Mark II

Hand Pump Deep well hand pump of improved design.

KAVAL Towns Towns of Kanpur, Allahabad, Varanasi, Agra and Lucknow [all in Uttar Pradesh].

Sixth Plan

Period 1979 - 1980, 1980 - 1985

Seventh Plan

Period 1985 - 1987

SUMMARY OF MAJOR CONCLUSIONS AND RECOMMENDATIONS**I. PROJECT AREA**

Sl. No.	District	Village covered	Design population	No. of scarcity villages
1.	Varanasi	370	440,720	271
2.	Rae Bareli	243	312,040	-
3.	Allahabad	93	140,135	36
Total		706	892,895	307

The selection of project area and project sites have been as per the norms of the Government of India. This procedure should be followed for future projects also.

II. POPULATION COVERAGE

The uses of piped water supply form two district groups. The first group uses the piped water supply for all activities except raw water for drinking. These have been classified, as households using piped water supply for 'general use'. The other group uses piped water supply for drinking water use also.

The percentage of households using piped water supply for general use ranges from about 20.0% in Allahabad district to about 50% in Varanasi. The households using piped water supply for drinking purposes is approximately 8.0% to 9.0% of the total households.

It is recommended that a campaign to influence the

people to use piped water supply be utilised to highlight the safety factor of piped water supply vis-a-vis other sources of water. The campaign should use Audio-Visual techniques to convey such a message.

III. COVERAGE OF ECONOMICALLY BACKWARD SECTION OF SOCIETY

The coverage of economically backward section of the society in the Sub-Project I is limited to standposts only. It is recommended that a subsidisation may be considered in connection charges for Harijans and low income groups so that they may be able to participate more effectively in the programme.

IV. INFLUENCE OF URBAN AND SEMI-URBAN POPULATION

Schemes in Allahabad and Varanasi have shown high rate of population growth in the project areas. This has been mainly due to increase in size of nearby urban and semi-urban settlements. These settlements have grown in size to encroach upon area of Rural Water Supply with the result that they monopolise the available water.

It is recommended that it would be advisable in future to identify all such schemes and establish independent schemes to feed the urban population.

V. STANDPOSTS

5.1 The site selection of standposts needs improvement as their sites are often exposed, inconvenient and cause major drainage problems due to water spillage on the village streets. In addition, they are often sited in areas with abundance of secondary sources of water

like wells, hand pumps, etc.

It is recommended that the site selection of standposts should be preceded by a survey of available water sources in the area and an awareness/promotional campaign where women folk should be motivated to involve themselves in site selection and upkeep of the standposts.

- 5.2 The maintenance of existing standposts needs to be intensified with records being maintained for individual standposts for repairs and maintenance. The standposts may also need shifting in case they are in exposed and remote locations or susceptible to vandalism.

VI. SUPPLY TIMINGS

The supply should be maintained three times a day for a period of about 8 hours a day. Direct supply should be made, to be augmented by supply from overhead tanks during peak load period. Currently the daily supply timing is about 5 to 6 hours a day.

VII. POWER SITUATION

The installation of direct feeders to the schemes should be completed immediately. The feeders should be monitored by installation of power availability meters and if the supply is found to be less than 18 hours a day average over a month the matter should be taken up firmly with electricity authorities.

VIII. WATER QUALITY

Daily tests of residual chlorine content are being done. It would also be advisable to have periodic chemical and bacteriological tests of all schemes done at least

once a month from randomly selected three or four locations in each scheme.

IX. MAINTENANCE ASPECTS

- 9.1 Chlorination should be done in all schemes specially during and after the rainy season as the ground water is highly susceptible to pollution during this period.
- 9.2 Failure of tube wells has been observed in Rae Bareilly and Varanasi. It is recommended that periodic tests of tube wells yield and depression be taken and maintained so that corrective steps can be taken in time.
- 9.3 Discharge of pumping plants should be measured periodically and maintained.
- 9.4 A schedule of preventive maintenance should be prepared and implemented.
- 9.5 Small well equipped repair workshop totally dedicated to Dutch Schemes may be started at district level to look after maintenance of pumps etc. The repair has often been reported to take more than a month.

INDIA GENERAL



CHAPTER - 1

SCENARIO OF DRINKING WATER SUPPLY IN UTTAR PRADESH

- 1.1 The incidence of mortality and morbidity in children, particularly in rural areas, is largely attributable to polluted drinking water, poor hygienic practices and unsanitary environment. India has a predominantly rural character and about 85% of the population of Uttar Pradesh resides in rural areas comprising 1,12,561 villages. The total rural population is estimated to be approximately 91 million.
- 1.2 The provision for a safe drinking water supply in the villages is one of the most important and cost effective activity to improve the health of rural population. Considering the importance of a safe drinking water supply, improved hygienic practices and sanitation, suitable programmes have been included under item 7 and 8 of the revised 20 Point Programme [1986].
- 1.3 The United Nations Conference of Human Settlements in June, 1976 stressed the importance of safe drinking water supply and hygienic systems of waste disposal. The U.N. Water Conference in March, 1977 resolved that every person in the developing countries should be provided with safe drinking water supply and safe and adequate sanitation facilities by the year 1990. The decade of 1981-90 was thereupon declared as the International Drinking Water Supply and Sanitation Decade by the U.N. General Assembly in 1980.
- 1.4 In Uttar Pradesh besides heavy funding for the above schemes by the Government of India, assistance has also been provided by the Kingdom of Netherlands and United Nations Children Funds [UNICEF], etc.

- 1.5 The Government of India, in view of the importance and urgency of providing potable drinking water supply to rural areas, have recently established a Technology Mission to coordinate the activities of various departments and agencies involved in the programme, to provide improved impetus to the programme and to pool resources for expediting and improving the work of the programme.
- 1.6 The programme for water supply in the rural areas started in the post-independence era. In 1947, at the time of independence, only 27 water works existed in the State of Uttar Pradesh. The responsibility of establishing and operating water supply and sewerage services was vested, at that time, with the local bodies. A separate department known as P.H.E.D. [Public Health Engineering Department] was created in 1927, this was later renamed as LSGED [Local Self Government Engineering Department]. The department was engaged in preparing project reports for local bodies after survey and design of water supply, sewerage requirements. Financial assistance for the execution of the project was provided by the State Government whereas, the operation and maintenance remained with the local bodies.
- 1.7 In view of the financial constraints of the State's planned resources, negotiations were started in 1972 with the World Bank for assistance in speeding of this programme. The World Bank advised that drinking water facilities should be run on modern commercial lines so that they are self supporting and the work of execution, operation and maintenance of the services should be entrusted to a central organisation with statutory powers. In June, 1975 an autonomous Corporation "The Uttar Pradesh Jal Nigam" was created by an Act of legislation and LSGED was merged with it. The Act also created Jal Sansthan's for operating and maintenance of water supply and sewerage operations in Garhwal, Kumaun and Jhansi

revenue divisions of Uttar Pradesh, covering 13 districts, and five KAVAL towns having Municipal Corporations.

1.8 The department of Rural Development along with Jal Nigam is also engaged in providing drinking water facilities in localities where Harijans and Backward classes predominate. This programme is financed by the Uttar Pradesh Government.

1.9 The Jal Nigam plans, executes, operates and maintains rural water supply and sewerage operations under the following categories :

1.9.1 **Accelerated Rural Water Supply Programme**

A centrally sponsored scheme, outside the State Plan, is being financed by the Government of India as grant-in-aid. A large number of villages have been covered under this scheme.

1.9.2 **Minimum Needs Programme [MNP]**

This programme is fully financed by the State Government covering draught prone area as declared by the State Government. Under this programme 75% of the finance is provided as a grant and 25% as loan. The programme covers district of Banda, Hamirpur, Jhansi, Allahabad, Ghazipur, Jaunpur, Mirzapur and Varanasi.

1.9.3 **Dutch Credit Programme**

This programmes is initiated with assistance from the Kingdom of Netherlands. Several schemes have been initiated as sub-projects covering construction of piped water supply, installation of hand pumps and construction of community and private latrines in project area. The funds under Dutch Government Programme are channelised through Minimum Needs Programme.

1.9.4 **World Bank Programme**

This programme was started in 1975-76 under assistance from International Bank of Reconstruction and Development [World Bank]. Water supply schemes were constructed

in Bundelkhand region under this programme but this assistance was subsequently discontinued due to unacceptable terms.

1.9.5 Technology Mission for Water Supply

This important programme for drinking water supply in villages and related water management has been recently taken up, consequent to the directive of the Prime Minister of India as a result of his appraisal about the slow progress of rural water supply scheme. The Mission provides for the necessary cooperation from the concerned departments and from the National Laboratories under CSIR who may undertake necessary research to suggest appropriate technology to find out cheaper solutions to resolve the Indian pattern. They are :

[a] To ensure that drinking water is made available to the declared problem villages at the rate of 40 LPCD by the year 1990.

[b] Chemical and bacteriological problems be identified and solved by 1990. For this, the Scientific Institutes and Laboratories are to give their research advice.

Keeping in view the scarcity conditions etc., some mini-mission areas have been decided by the Government of India, where intensive scientific inputs will be given. These technique will be replicated later by the State Government for other areas.

All over the country 50 such project areas duly financed by the Government of India have been taken up for completion by 1989-90. In Uttar Pradesh Stage - I covers Mirzapur, Stage - II Agra and Unnao and the Stage - III envisages Sultanpur district. In Mirzapur district the work has already been started.

CHAPTER - II

TARGETS AND ACHIEVEMENTS

- 2.1 International/National targets and directives.
- 2.1.1 The United Nations Conference on Environment held in Stockholm in 1972, first gave International expression to the problem pertaining to provision of safe drinking water and adequate sanitation in developing countries. The United Nations Conference on Human Settlement [HABITAT] held in Vencouver, Canada in 1976 reiterated it. The recommendations of the HABITAT Conference were adopted in the United Nations Water Conference at Mardel-Plata, Argentina in March, 1977 and it was decided that 1981-90 would be known as International Drinking Water Supply and Sanitation Decade. The 31st U.N. General Assembly has approved the above recommendation which India has accepted in principle.
- 2.1.2 The targets of the International Drinking Water Supply and Sanitation Decade are as follows :
- [a] Urban Water Supply
100 percent of the population to be covered with basic minimum need of safe water supply.
- [b] Rural Water Supply
100 percent of the rural population to be covered with basic minimum need of safe water supply.
- [c] Urban Sanitation
100 percent of the urban population to be covered in respect of Class - I cities and other towns. Overall coverage in each State should be 80 percent of the urban population by means of the sewerage or simple sanitary method of disposal.

[d] Rural Sanitation

25 percent of the rural population to be covered with provision of sanitary toilets.

2.1.3 A National Conference on deepwell hand pumps, sponsored by the Ministry of Works and Housing, Government of India, Central Public Health and Environmental Engineering Organisation [CPHEEO] and the United Nations Children Fund [UNICEF] was held at Madurai from July 10 to 13, 1979. The theme of the Conference was "Deepwell Hand Pump" installation, maintenance and regeneration aspects.

2.1.4 The main recommendations/resolutions lay down for :

[i] That providing potable water supply to all the inhabitants of India before the end of 1990 must be declared as one of the primary goals of the Central and State Governments in India. As already resolved by the United Nations and its member nations, the goal should not be down graded at any time for financial reasons and should be taken as a "Core" subject under plan schemes on par with irrigation, power and agriculture. The resources required for the programme should be made available by the Governments through further tax measures, if necessary.

[ii] The data regarding the status of rural water supply in various States needs to be updated by a methodical survey. This survey should be completed as early as possible to identify the problem fully.

[iii] The success of the programme depends very much on the facilities available for analysis of water. Each State must, therefore, establish,

laboratory facilities adequate for chemical and bacteriological analysis of water samples of all the villages periodically, preferably at the district level research and development facilities must be created in each State.

- [iv] There should be an adequate technical personnel at the Block and District level to undertake maintenance of hand pumps. The communication time lag between the villages and the technical repair personnel, should be kept to a minimum, if the maintenance is to be effective.
- [v] There should be a proper monitoring system to enable a good feed back on all aspects of the hand pumps functioning and its maintenance, i.e., time lag between failure reporting and repair, periodicity of routine inspection, daily use hours etc.
- [vi] To achieve uninterrupted monitoring and feed back, on Urban/Rural water supply schemes and of physical performance of deepwell hand pumps, at the level of the Chief Engineer, a suitable monitoring cell, preferably headed by an Executive Engineer, at least, is created under each Chief Engineer immediately. The monitoring cell would also ensure coordination and feed back on training programme for technicians, mechanics, drillers, etc.
- [vii] A begining should now be made also to tackle the closely linked sanitation problem in villages, instead of postponing it to future, sullage disposal and disposal of human and other wastes is essential if the potable water supply programmes are

to help in improving the health of villages. A massive health education programme to improve the knowledge and change in the health attitudes of villagers in this respect alongwith necessary programmes for construction of waste disposal facilities by the Government and the provision of materials necessary for construction of private sanitary facilities, is an urgent need of present.

[viii] The post of a State Government full time project coordinator of the level of a Superintending Engineer also be created immediately to ensure effective coordination of the activities of district level. Coordination dealing with all aspects of the tubewell, hand pump care taking, sanitation, mass education programme and training of mechanics, mobile teams and drilling teams.

2.2 Coverage of problem villages.

2.2.1 The Government of India laid down the following criteria for identifying the number of villages having water supply problems :

[i] Where source of water supply is 1.6 Km. away from the village in the plain areas and 0.8 Km. in case of hilly areas.

[ii] Where source is 100 meters up from the villages in hilly areas.

[iii] Where water level is 15 meters below ground level in plain areas.

[iv] Where the sources of water supply are susceptible to water borne diseases like cholera, typhoid,

guineaworm, etc., or where water sources contains excessive salinity, iron or flourides.

According to the survey conducted in the year 1971-72, the number of such villages having drinking water problems in Uttar Pradesh were 35,506.

2.2.2 The Government of India launched Accelerated Rural Water Supply Programmes [ARP] as a centrally sponsored programme in 1977-78 with a view to cover all the problem villages by 1981-82. This programme envisages sanctioning of 100% grant-in-aid to the States for providing potable water supply to these problem villages. The ARP was initiated as a catalyst, and assists the State Government to make concerted efforts to cover all the problem villages as early as possible, preferably before 1981-82. The Government of Uttar Pradesh however decided ultimately to cover all the problem villages by the end of Sixth Five Year Plan [1984-85].

2.3 Achievements under Rural Drinking Water Supply.

2.3.1 Out of the 35,506 problem villages for water supply, identified in 1971-72, 8,783 villages were reported to be covered with piped water supply upto 1981-82 [Draft Seventh Five Year Plan documents]. Installation of India Mark II hand pump was decided to be taken up from the year 1982-83 onward and piped water supply only at places where hand pumps were not feasible. It was also decided to provide maximum of only two hand pump in the problem villages out of which one hand pump was decided to be provided in Harijan Basti. Accordingly, the coverage of villages in 1982-83 and 1983-84 was 5,619 and 1,544 respectively. Thus at the end of March, 1984, 9,550 problem villages remain to be provided with safe water supply. During 1984-85,

i.e. by the end of Sixth Plan it was expected to cover 8,800 more problem villages leaving only 750 problem villages due to various reasons, such as disputes at the source of supply etc. However, the progress achieved at the end of Fifth Plan [i.e. upto March, 1980] and later during Sixth Plan period is summarised below :

Item	Upto March, 1980	During VI Five Year period
1. Target		
[No. of problem villages]	-	12,600
2. Achievement		
[a] No. of problem villages	7,001	27,143
[b] No. of other villages	3,055	2,871
[c] Total No. of villages covered	10,056	30,014

2.3.2 Thus out of 112,561 villages in Uttar Pradesh 1,362 problem villages against the 35,506 problem villages as identified in 1971-72 and 71,129 of other villages remained to be covered with water supply by the end of Sixth Five Year Plan. As per the decade targets, all the villages are to be provided with the basic minimum need of safe water supply by the year 1990. According to the U.P. Jal Nigam Authorities as per the discussions with them financial constraint is the only bottleneck in achievement of this target.

2.3.3 New Problem Villages

The last survey for problem villages was carried out in 1971-72 since then, due to a number of ecological changes, such as droughts, deforestation, etc., a large number of other villages have also come under the category

of problem villages, and they are reported to be facing severe problem of water scarcity. The list of problem villages was revised in 1985 and later, a supplementary list was prepared. The additional problem villages thus listed were 42,544 bringing the total list to 78,050 [as per discussion with the Jal Nigam authorities]. It is assumed that in plains, 30% of the problem villages will be required to be covered by piped water supply and the rest by the hand pump. Besides the new problem villages some non-problem villages will also be covered by piped water supply which fall on the route or in the near vicinity of the problem villages.

2.3.4 In the Seventh Five Year Plan there is a provision of Rs.4520 million under [MNP + ARP] for covering 26,337 problem villages. The progress achieved during the Seventh Plan period upto January 31, 1988 is given below :

Period	Target No. of P.V.	Achievements		
		No. of P.V.	No. of other villages	Total No. of villages
1985-86	3,854	8,827	327	9,154
1986-87	9,501	11,997	141	12,138
1987-88	9,700	10,326	192	10,518
		[Upto [January 31,88]		

Source : Jal Nigam.

2.3.4.1 Thus by the end of January, 1988, a total of 65,294 problem villages and 6,586 other villages were reported to have been covered, the total comes to 71,880. Among the 65,294 problem villages, 17,061 have been covered through piped water supply and rest 48,233 through

hand pumps. Out of those covered by hand pumps, only 15,816 villages are stated to be saturated. Now, 40,681 more villages remain to be covered.

2.3.5 Saturation of hand pumps in problem villages

During the Sixth Five Year Plan about 21,000 problem villages out of 1972 list of 35,506 problem villages were expected to be covered through India Mark - II hand pumps. But due to limitation of financial resources, maximum of only two hand pumps were provided in each villages irrespective of the size of village or number of hamlets. During the Seventh Plan period, it was planned to saturate these village with the hand pumps so that the entire village including hamlets is provided with the required number of hand pumps, and the whole population of the village is benefited with the potable water supply. This work is estimated to cost about Rs.100 crores.

2.3.6 Piped water supply

These schemes are being executed on the basis of rate of water supply as 40 litres per capita per day [LPCD]. No house connections can be given in such schemes. The Government of India has been approached to approve the schemes increasing the rate of water supply to 70 LPCD at the minimum, besides this, the old water supply systems need immediate, augmentation/improvement/rehabilitation due to drying up of the sources, increase in population, etc. The estimated cost of this work may be of the order of Rs.500 million.

2.3.7 The total requirement of funds for covering the balance villages and saturating the remaining villages [at 40 LPCD] was stated to be of the order at Rs.7500 million. This amount also includes the cost of augmentation/improvement/rehabilitation of the old piped water supply system [as assessed in February, 1988].

2.3.8 Special Component Plan

In the Sixth Five Year Plan, an outlay of Rs.580 million was earmarked for the special component plan. With this outlay, 2,749,950 Harijan population was targeted to be benefited by potable water supply and sewerage. By the end of March, 1984, 2,367,070 population was benefitted with an expenditure of Rs.487.6 million [according to the Draft Seventh Plan documents]. During 1984-85, as expenditure of Rs.124.7 million was proposed to be incurred by which 550,000 Harijan population was expected to be benefited. During the Seventh Five Year Plan, an outlay of Rs.1650 million has been proposed for the special component plan. With this outlay 7,512,400 Harijan population is expected to be benefitted.

2.3.9 Tribal Sub-Plan

In the Sixth Five Year Plan it was targeted to cover 630 villages by drinking water supply facilities with an outlay of Rs. 128.5 million. By March, 1985, 371 villages were covered and an expenditure of Rs.82.3 million was incurred [according to the Draft Seventh Plan documents] during 1984-85, further 81 villages were envisaged to be covered with an investment of Rs.24.2 million. During the Seventh Five Year Plan it is proposed to cover 640 Tribal villages with an outlay of Rs.16million

2.3.10 Harijan Drinking Water Supply Scheme [Rural Development Deptt.]

2.3.10.1 The drinking water programme of the rural development department aims at providing drinking water facilities to Harijan Bastis in the rural areas of the State. It is a welfare scheme of the State Government to meet the basic requirement of drinking water for the Harijans residing in villages. Under the scheme drinking water sources are provided through constructing wells and hand pumps in the plains and diggies in hill areas, wholly at Government cost. Before April 1, 1984 the

works for construction of wells, hand pumps and diggies were undertaken by the Rural Development Department through the Block agency on 'amani basis'. Due to the subsequent decision of the State Government the work of hand pumps from 1.4.1984 onwards in the plain areas is being done by the U.P. Jal Nigam while the other works are still being executed by the Rural Development Department as before. This scheme was introduced in the year 1971-72 and later it was included in the Fifth Five Year Plan under the minimum needs programme. Selection of locations for works under this schemes is based on the survey of problem villages/habitations carried out during 1971-72 and also subsequently from time to time to enlist new problem villages. The wells are constructed according to the improved design for sanitary wells. The hand pumps being provided at present are India Mark II type. Since inception of the scheme in 1971-72, 53,187 wells, 15,544 hand pumps and 4,684 diggies in hills have been constructed upto 1986-87 at a cost of Rs.631.6 million. During 1987-88 there is a target of constructing 825 wells, 2,742 hand pumps and 250 diggies at a cost of Rs.45.3 million. Against this target the progress upto December, 1987 has been 160 wells, 1,200 hand pumps and 77 diggies and Rs.12.6 million have been spent. For the coming year 1988-89 an outlay of Rs.54.2 million is proposed for constructing 910 wells, 3,270 hand pumps and 125 diggies.

2.4 Achievements Under Rural Sanitation

2.4.1 According to the target of the U.N. Decade 25% of the rural population is to be covered with sanitary toilets. No provision was made in the Sixth Five Year Plan for this programme. Due to limited financial resources an outlay of Rs.190 million was proposed for the Seventh Five Year Plan in order to cover 5,000 villages as

indicated under para 20.2.43 of the Draft Seventh Plan documents.

2.4.2 The total rural population of the State of Uttar Pradesh is about 91 million. Taking an average 5 members per family the total number of the families in the village comes to 16 million. The number of Scheduled Castes population is 23.4 million and that of the population of the Scheduled Castes and the Scheduled Tribes comes to 26.8 million. Total number of families of Scheduled Castes and Scheduled Tribes are 4.7 million and 0.68 million respectively.

2.4.3 The various programmes of rural sanitation are being implemented through the Panchayat Raj Department because their infrastructure exists down to the village level. The scheme of sanitary latrines have been only recently started. The progress under various schemes is summarised in the following paragraphs.

2.4.4 Under the RLEGP there was a target of constructing 30,000 sanitary latrines during 1985-86 and 1986-87, under NREP, a target of 15,000 units was kept for 1986-87. Against these programme, construction of 45,000 latrines was completed by the end of 1986-87, for the year 1987-88 a target of 15,000 units was kept under each of these programmes. Against this target the progress under RLEGP was 5,000 units and that under NREP 4,000 units upto December, 1987. Thus a total of 54,000 units were stated to be completed by December 31, 1987.

2.4.5 Under the Central Rural Sanitation Programme [CRSP] construction of 12,987 sanitary latrines was proposed during 1987-88, sanction of the Government of India was received for the project submitted by the Panchayat

Raj Department but, perhaps, due to delay in receipt of funds, the work could not be started upto the end of December, 1987.

2.4.6 The work of the UNICEF - assisted schemes was started in the year 1984-85 for construction of the sanitary latrines in 11 district of the State. Since inception, about 3,000 units were completed by December, 1987 for the individual households. In addition, 140 latrines were provided in the village schools.

2.4.7 Indira Avas Yojna

Under this scheme sanitary latrines were also constructed alongwith houses for individual households. This scheme is being implemented under RLEGP for the benefit of Scheduled Caste/Tribe and freed bonded labours. The scheme was started in 1985-86 and during this year a target of 18,346 houses was fixed, for construction of 30 to 32 houses in all the blocks of the districts throughout the State. Against this year target, 16,467 houses were completed alongwith sanitary latrines. During this year 1986-87, 25,191 houses were constructed against a target of 22,608. For the year 1987-88, a target of 27,580 houses was fixed which 8,486 house were completed by the end of October, 1987.

2.4.8 To summarise, it may be mentioned that the total number of families in the village of Uttar Pradesh comes to 16 million. According to the U.N. Decade targets sanitary toilets are to be provided to 25 percent of the rural population i.e., about 4 million families in U.P. The progress in this regard upto end of March, 1988, considering that, actual achievements upto March, 1987 and targets for 1987-88, works out to nearly 160,000 units which comes to only 4 percent. For the balance work, even if 200,000 units [costing about Rs.200 million, without

providing door and roof] are constructed per year, it will take over 19 years to complete the decided targets. Therefore, unless there is substantial contribution from the public, and unless they are properly motivated through mass education to construct sanitary latrines at their own cost, the programme can not be successfully implemented.

2.4.9 Under the scheme for pavement of streets/lanes and construction of drains through public co-operation for environmental sanitation, the physical progress achieved during the various years is given below :

[Figures in Km.]

Year	Physical Progress	Targets	Achievement
1983-84	1,874		1,874
1984-85	883		883
1985-86	2,047		2,047
1986-87	2,000		2,000

For the year 1987-88, a target of 2,215 Km. was fixed against which the progress upto the end of December, 1987 was started to be 146 Km. The physical progress under this important programme has been very nominal and, as such, it hardly serves any purpose, the Gram Sabhas have to make sincere efforts to mobilise their resources to push through this programme which is so essential for rural sanitation.

CHAPTER - III

SUB-PROJECT-I ITS EVALUATION

I. INTRODUCTION

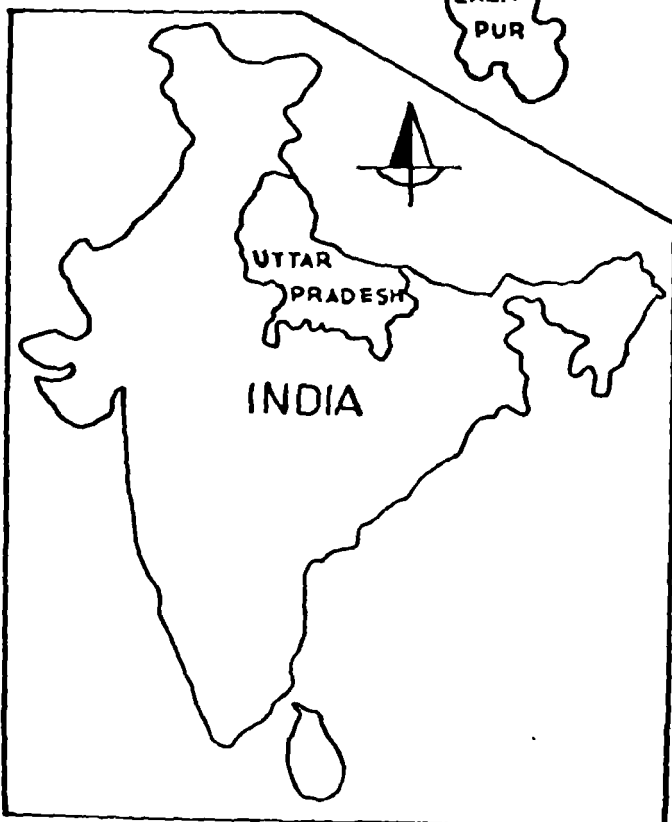
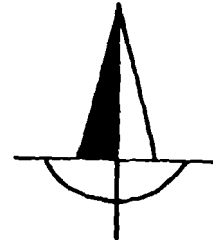
India was a signatory to the U.N. Water Conference at Mar del Plata, Argentina in March, 1977. The Conference for the first time brought to the world's notice the importance concern and methodology for improving the water supply and sanitation for every person in the developing countries.

India with about 85% of its total population residing in villages started on an ambitious project to implement in spirit the resolve of the above Conference. The task was gigantic, in view of the fact that the villages were at that stage orthodox and rural in character, but considerable resources were mobilised by the Government of India for the rural development. Additional resources were then required for Water Supply and Sanitation activity. The Minimum Needs Programme and Accelerated Rural Water Supply Programme were therefore started.

In view of the limited financial resources available with the State, negotiations with the World Bank, UNICEF and the Royal Government of the Netherlands, were started for helping in speeding up such projects.

Uttar Pradesh is the most populous State in India. The coverage of rural population with safe and adequate drinking water supply was quite poor. Out of the 57 administrative districts [now 62 districts], 19 were suffering from scarcity of drinking water supply. The Government of India proposed to provide adequate potable

UTTAR PRADESH - REVENUE DIVISIONS



 Sub-project I

water to about 35,000 villages in Uttar Pradesh by the year 2000 A.D.

The Dutch Government started funding of Rural Water Supply Programmes in the year 1979 with the initiation of Sub-Project I of the so called Dutch Credit Programme. The Sub-Project I was for piped water supply to water scarcity villages where availability of safe and adequate drinking water supply was in acute shortage.

Under the Sub-Project I, piped water supply has been made available to 22 clusters of villages in the districts of Varanasi, Allahabad and Rae Bareli. Each cluster of villages has been provided with facilities to produce, pump, treat, store and distribute safe drinking water to the villages in nearby vicinity. Each such facility has been termed as a 'SCHEME'.

A Scheme therefore contains :

- [i] Bore wells
- [ii] Pump houses with pumps
- [iii] Chlorinators
- [iv] Overhead tanks
- [v] Main distribution pipe line
- [vi] Secondary pipe lines for supply
- [vii] Standposts [for community use]
- [viii] Private house connections
- [ix] Stores and supplies for support etc.

The contribution of the Sub-Project I in providing drinking water to rural populace has been substantial. The coverage of the Sub-Project I is as given on next page :

Sl. No.	District	No. of schemes	No. of villages covered	Design population
1.	Varanasi	8	370	440,720
2.	Allahabad	4	93	140,100
3.	Rae Bareli	10	243	312,040
Total		22	706	892,860

The Sub-Project I covers approximately 706 of villages with a design population of 0.9 million. According to 1981 Census the rural population of Uttar Pradesh is estimated to be approx. 91 million living in 112,566 villages. The Sub-Project I covers administrative districts with an acute shortage of clean and safe drinking water and about 2% of the 35,506 problem villages initially identified.

Considerable investments in improved water supply and sanitation facilities have been made under Sub-Project I they need to be supported by allocation of adequate technical manpower and financial resources for operation and maintenance. An evaluation was therefore thought as necessary to derive feedback from the recently implemented project, so as to ensure that past experience is taken into account when new projects are to be planned.

Evaluation is a systematic way of learning from past experience and of using the lessons learned to improve the planning of future projects and also to take corrective action to improve the operations, utilizations and impact of existing projects. The evaluation does not by itself improve anything. It should not be just a listing of problem and their possible courses, but should also

include suggestions and remedial measures of the following types :

Action needed to :

- [i] Get a non-functioning facility into functional status
- [ii] Improve a functioning facility
- [iii] Improve the utilisation of facilities at the users level
- [iv] Ensure that lessons learned are conveyed to other programmes and other agencies.

The recommendation can be arrived at without an evaluation of impact of the project under study

The Sub-Project I was launched in the year 1979 and was completed by the end of the year 1986. The broad objective of the project was to provide adequate and safe drinking water to the residents of 22 clusters of villages in the districts of Varanasi, Rae Bareli and Allahabad. The purpose of the evaluation was to:

- To assess the socio-economic status, family size and extent of demand and consumption of water being used by the rural population
- To assess the usage of water supply as installed under Sub-Project I
- To assess the attitude opinion and awareness of beneficiaries, women folk and local resource persons regarding the location and functioning

of the system, availability of water, hygiene practices and usefulness of the system

- To assess the extent of equitable distribution of water under the project to various strata of the rural society
- To assess the accessibility of water supply facilities
- To check the water pressure/discharge rate available at various points of delivery
- To check the quality of water available under the new and traditional sources of water
- To check the repairs and maintenance facility available and to assess the frequency and time lag in maintenance
- To assess the existing status of installation, condition of works and cleanliness of surroundings under the piped water supply facility
- To assess the hygiene practices adopted by the community
- To check the quality of records maintained by the project staff
- To identify the problems and constraints of the projects and to suggest measures for improvement.

The main emphasis of the evaluation was to get the current picture about the operation of the water supply from the users view point. As the women folk of the

household are the main users of water supply, emphasis was laid on getting their opinion about the water supply and its operation. It is envisaged that the lessons learned from this evaluation will help in increasing the efficacy of the future projects as planned under Dutch Credit Programme. The details of projects under implementation/planning phase are :

Sl. No.	Sub-project	Cost [Rs. in millions]	Type
1.	Sub project III	110.438	Hand pump
2.	Sub Project IV	107.855	Piped water supply
3.	Sub Project V	23.000	Sanitation and health education
4.	Sub Project VI	*	Hand pump
5.	Sub Project VII	*	Piped water supply

* Under Clearance

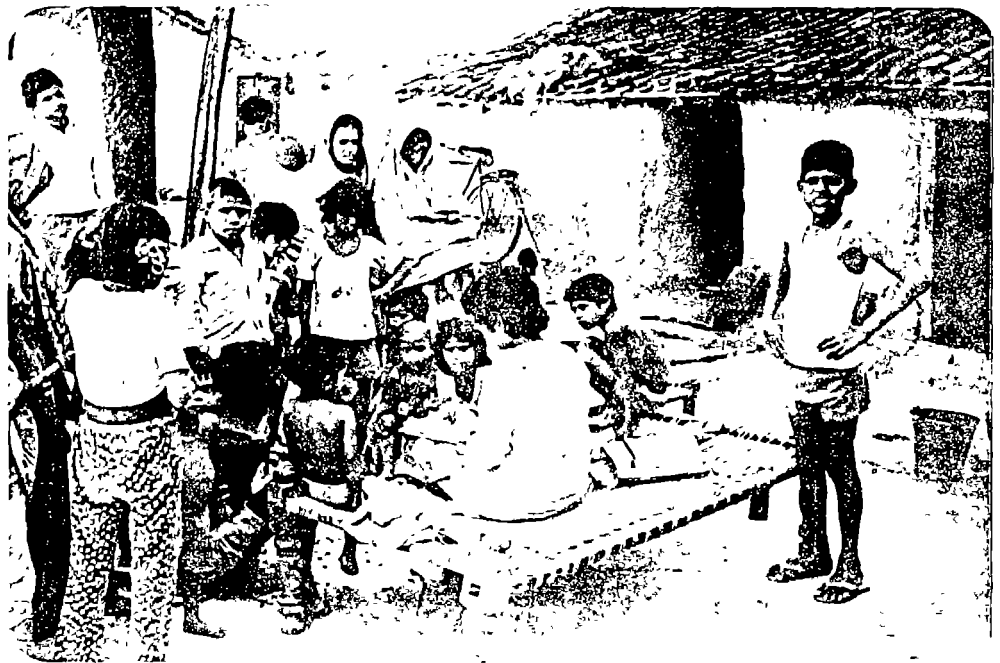
II. METHODOLOGY

The methodology of the final evaluation of Sub-Project I was discussed between Mission UP-17 and UP-18, U.P. Jal Nigam and UPDESCO. The following framework was decided :

- [i] The survey would cover all schemes under Sub-Project I.
- [ii] Two villages will be selected for detailed survey from each scheme. Care will be taken to include small and large villages and also both villages near and distant from the scheme in the survey.



INFORMAL DISCUSSIONS WITH WOMENFOLK



[iii] Physical inspection will be carried out of all the standpost in the selected villages.

[iv] A list of all the households resident in the village will be drawn separately for general and scheduled caste/scheduled tribe households and of these 15% households will be investigated in detail about water availability and usage. This sample would include both users and non-users of piped water supply.

III. TOOLS OF THE STUDY

Based on the above parameters a data need was defined [Please see Annexures]. The data need was then broken into :

- [i] Primary data collection
- [ii] Secondary data collection
- [iii] Water tests

3.1 Two questionnaires were developed for the primary data collection. They were first pre-tested in district Rae Bareli for applicability and delivery and then finalised. They are :

[a] **The Village Listing Schedule :**

To collect the households profile of all households resident in the villages. The information collected was about the size of the family, household income [estimated], primary source of water utilized, whether the household has any latrine facilities or not, etc. A record of selection of households for survey was also maintained.

[b] The Household Schedule :

To collect detailed information on the water usage, preferences, awareness and the households perception about the water supply.

3.2 The secondary data collection was in two forms :

[i] Reports, plans, etc. of U.P. Jal Nigam

[ii] Village Information Schedule - to collect the information about geographic and infrastructural details of the villages under survey.

3.3 Water samples were drawn from standposts, private connection, house storage, wells and hand pumps to crystallise the framework of available water sources.

3.4 The household interviews were conducted by women research investigators specially of the women folk in the household. These interviews were conducted in the presence of men folk as far as possible.

3.5 Informal group meetings were also held with the women folk and their views sought on the convenience of water supply etc.

3.6 Adequate representation has been given to Scheduled Caste and Scheduled Tribe households by listing them separately and their interviewing 15% of the households.

3.7 Informal group discussions were also held with villagers, opinion leaders, Jal Nigam authorities and village level functionaries, etc. They were recorded and have been presented in the report.

IV. LIMITATIONS

The discussions with the villagers, opinion leaders, village level functionaries were quite frank and free, held in the presence of the officials of the Uttar Pradesh Jal Nigam. The villagers were generally able to indicate the quantum of water used by them and their annual income in a rough manner. This information was then discussed with them and approximate assessment has been done in data collection taking into account the family size and status, occupation, farm produce, size of land etc. of the villagers. It is not possible to be exact about the figures.

Data on water supply schemes has been collected from the records of U.P. Jal Nigam, specially in Rae Bareli where information from regional Headquarters has not been received. Information about Varanasi and Allahabad has been confirmed by the offices concerned.

However, despite the limitations the study seeks to bring out the success and failures of water supply as installed under the so called Dutch Credit Programme in the over all Rural Water Supply Programme of the Indian Government.

CHAPTER - IV

FINDINGS OF THE SURVEY : DISTRICT VARANASI

4.1 INTRODUCTION TO WATER SUPPLY FOR DRINKING IN THE DISTRICT

4.1.1 Distribution of villages in the district according to available water sources:

Under the Rural Water Supply Programme the district Varanasi has 1,150 [1986-87] villages which are covered by water supply [922 villages are covered by piped water supply and rest under hand pump programme]. The other villages have conventional means of water supply like wells etc.

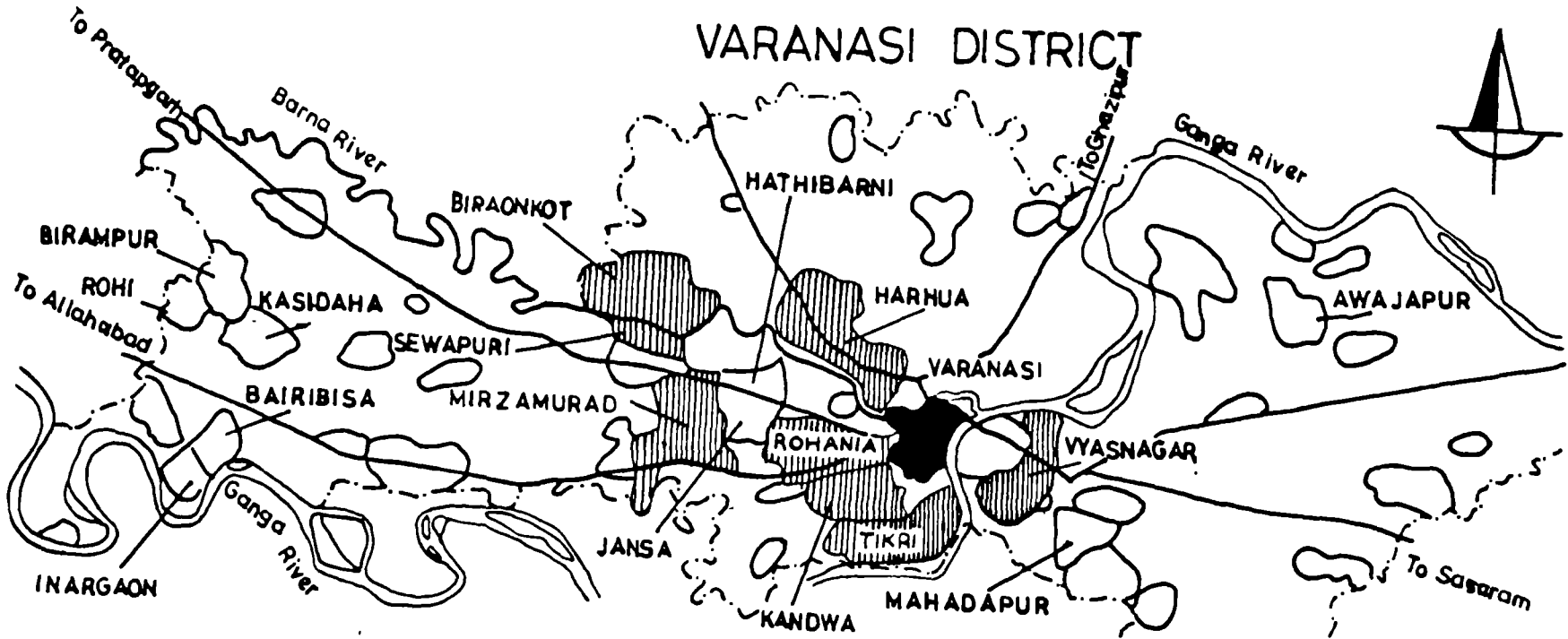
4.1.2 Coverage of district under piped water supply through Indo-Dutch Rural Water Supply Project :

The Dutch Credit Programme under Sub-project - I has installed 8 schemes in the district at Tikri, Khandwa, Vyasnagar, Rohania, Harahua, Birankot, Sewapuri and Mirza Murad cluster of villages. The 8 schemes cover a total of 370 villages of which 271 are in water scarcity area. The schemes are designed to supply a design population of 440,720 with 70 lpcd of water by year 2011.


4.1.3 Network established under Indo-Dutch Rural Water Supply Project:

The 8 schemes with two tubewell each have storage capacity of 7,600 Kl. in overhead tanks, have a network of 1,578 standposts [1,270 single tap and 308 double tap] and 5,002 private connections already established.

VARANASI DISTRICT



Rural Water Supply Projects in Varanasi District

 Sub-project 1

4.1.4 Brief description of schemes installed under Dutch Credit Programme:

- 4.1.4.1 The Tikri scheme on the outskirts of the town Varanasi was constructed at a cost of Rs.9.4 million and covers 47 revenue villages. The scheme has a network of 160 Kilometers of main pipe line delivering water through 215 standposts and 797 private connections. The villages Khanaon and Dafi were selected from the scheme for evaluation.
- 4.1.4.2 The Khandwa scheme constructed at a cost of Rs.8.7 million covers a group of 40 villages of which 26 are in water scarcity area. The scheme has a network of 87 Kilometers of pipeline with 323 standposts. The villages Jagatpur and Gaura were selected from this scheme.
- 4.1.4.3 The Vyasnagar Scheme is situated on Varanasi-Mughalsarai road approximately 8 Kilometers from Varanasi. The scheme costing Rs.8.9 million covers 52 villages out of which 35 are in water scarcity area. The scheme has a network of about 99 Kilometers main pipeline with 141 single tap and 60 double tap standposts, Bhisundi and Dariyapur were the villages selected from the scheme for survey.
- 4.1.4.4 The Rohania Scheme covers 41 villages a majority of which, about 37, are in water scarcity area. The scheme costing Rs.11.37 million has a network of 68 Kilometers of pipeline with 173 standposts [134 single tap and 39 double tap]. Permandpur and Lakhanpur were the two villages selected from the scheme for the survey.
- 4.1.4.5 The Harahua Scheme is a fairly large scheme covering 75 villages, 32 of which are in water scarcity area and

43 in non-scarcity area, with a design population of 57,585. The scheme constructed at a cost of Rs.8.72 million has 169 standposts, 85 of which are single tap and 84 double tap. Ramsinghpur and Ganeshpur are the villages selected for survey from the scheme.

4.1.4.6 The Birankot Scheme covers 46 villages, 20 of which are in water scarcity area. Installed at a total cost of Rs.7.94 million, the scheme has a network of 178 single tap and 76 double tap standpost and 538 private connections. The villages of Hasanpur and Ishwarpur were selected for survey from the scheme.

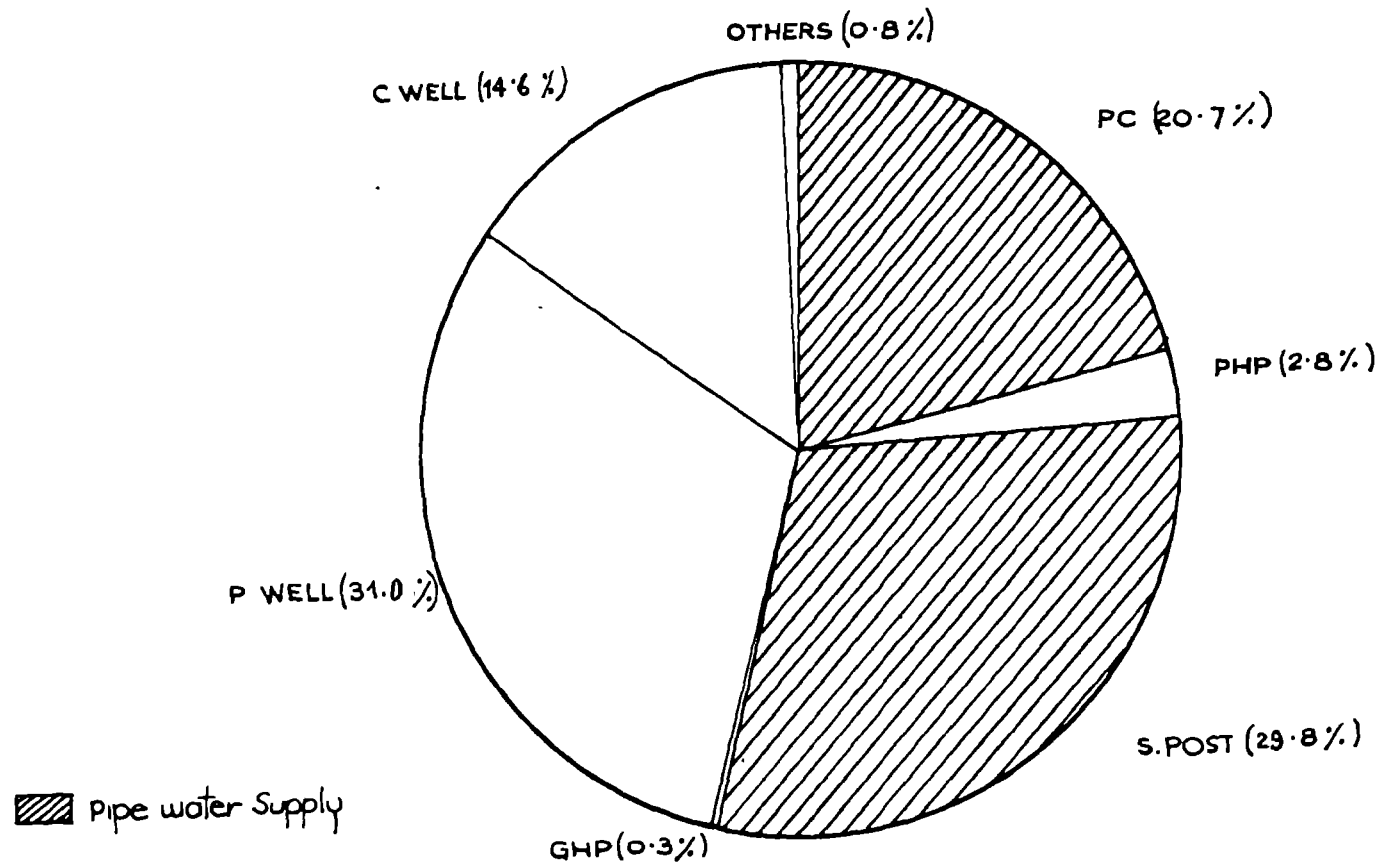
4.1.4.7 The Sewapuri Scheme covering 31 villages, 29 of which are in water scarcity area was installed at a total cost of Rs.5.0 million, the scheme has a network of 47 Kilometers of the main pipeline and 119 standposts. The villages of Banauli and Khillupur were selected for survey from the scheme.

4.1.4.8 The Mirzamurad Scheme covers 50 villages, 45 of which are in water scarcity area. The scheme installed at a cost of Rs.8.7 million has a network of 100 Kilometers of main distribution pipeline and has 124 standpost, 75 of which are single tap and 49 double tap. The villages Khalispur and Purandarpur were selected for survey from the scheme.

4.1.5 Summary of number of villages and households covered under survey and percentage of coverage:

The survey of 8 schemes of Varanasi district, covering 2 villages in each scheme, yielded a total of 1,928 households of which 307 were taken up for detailed investigation through household questionnaires. The total population, therefore, surveyed is 15.9% of the households

DISTRICT VARANASI CONSUMER PREFERENCES FOR SOURCE OF WATER



resident in the villages [details at Table 1 & 2].

4.2 AVAILABLE WATER SOURCES AND USER PREFERENCES

Detail	Total Households	Source of water used						
		Private connection	Stand-post	Handpump		Wells		Others
				Pvt.	Comm.	Pvt.	Comm.	
No. of Household	1,928	401	575	55	5	598	283	11
Percentage	100	20.7	29.8	2.8	Neg	31.0	14.6	Neg

Pvt. - Private

Comm. - Community

4.2.1 Percentage of households using piped water supply for general use and drinking:

The number of households using water from different water source [details at Table 3.1] shows that an average of 20.7% households use private connections and 29.8% households use standposts for their daily requirements of water yielding a total of 50.5% of the population using piped water supply. On the other hand the percentage of households using piped water supply for drinking purposes yields a different picture. The percentage varies from 3.1% of the households in Tikri to 12.6% households in Birankot Scheme. The overall percentage of household using piped water supply for drinking water purposes is 8.4% [details at Table 3.2].

4.2.2 Percentage of households using other sources of water:

Among individual sources of water 31.0% households

households used private wells, 14.6% used community wells, 2.8% used private hand pumps and rest use other sources like pumpsets, tubewells and hand pumps installed under State sponsored programme.

4.3 WATER REQUIREMENTS AND COLLECTION

4.3.1 Quantum of water collected per household;

The quantum of water collected by the households varied from scheme to scheme [details at Table 3.3]. All the the households using private connection installed in their own houses reported the quantum of water used by them depended on their need and therefore quantification was not possible. However, investigations of households using water from community or other sources not installed in their house showed that an average households collects approximately 130 litres of water during summer, 108 litres during winter and 112 litres during monsoons [details at Table 3.3].

4.3.2 Requirement of water per consumer per day :

Considering an average family size of 5 adults and 4 children per household [details at Table 3.4] the requirement for water per consumer per day is approximately 14 litres during summers, 12 litres during winters and 12.5 litres during monsoons. This water requirement can not be considered absolute because the members of the household have also reported that the requirement for bathing and washing of clothes was fulfilled at site. The above water requirement fulfills the households requirements for drinking, cooking, washing of food and utensils. Watering of livestock is usually done at village ponds.

THE HAPPY
CONSUMERS



THE HAPPY
CONSUMERS

4.3.3 Adequacy of 70 lpcd as designed for the schemes:

The provision for 70 lpcd of water therefore seems to be reasonable to meet the requirements of water for the consumers. The systems design for 40 lpcd water is not feasible as mentioned by Jal Nigam under para 20.2.34 draft 7th Five Year Plan document [January, 1985].

4.3.4 Requirements for the design population:

The design population for 16 villages surveyed is 23,144 whereas the current population as assessed during the survey was 16,115. The design population for Harahua, Mirzamurad and Vyasnagar has already been exceeded by the current population. The growth of population in these area, alongwith that of Tikri and Khandwa Schemes which have not exceeded the design population as yet, will be of concern when more and more population shifts to piped water supply for their complete daily requirements [details at Table 3.4]. As the schemes are located on the outskirts of the town inmigration of population has also been observed.

4.3.5 Who collects water?

In an average household the collection of water is the duty of the women folk. the responses from data collection as to who collects water are as follows:

[MR]

Detail	Persons collecting water				Total
	Men	Women	Children	Hired person	
No. of Respondants	203	231	108	2	544
Percentage	37.3%	42.5%	19.9%	0.37%	

The total respondents in the survey were 307 and they were given multiple choice to identify the persons collecting water. It was observed that in more than 200 [77.0%] households the duties of water collection were shared between women and men, and women and children in the households. The sharing of water collection duty was more frequent in places where water point were far from the households.

4.4 CONVENIENCE OF WATER POINTS

4.4.1 Site selection and convenience :

Detail	Total households	Piper water supply		Reasons for not using			
		Users	Non-users	Distance	Taste not to liking	Supply unreliable	No reply
Households	307	156	151	90	57	3	1
Percentage	100	50.81	49.18	59.6	37.8	1.98	Neg

Of the 151 households which were not using piped water supply for drinking purposes, 59% reported that as the standpost were too far from their house and it was not convenient for them to draw water from the piped water supply, 38.0% reported that the taste of water was not to their liking and only 3 respondents reported that the supply was unreliable. This clearly indicates that convenience and taste play a major factor in influencing the consumer decision. However, in some village it was observed that households insists on using pipe water supply, wherever they have been informed of possible health hazards associated with drinking unsafe water.

The easy accesability to the water point has a direct relationship with the utilization [details at Table 3.5]. In villages where water points or standposts were distant from average households the number of users was reduced considerably. The inconvenience of water point was stated as a major reason for non-acceptability of piped water supply. The siting of standposts have been done by Jal Nigam on recommendation of Pradhans of the village. It has been observed that at times the actual sites of standpost was found to be inconvenient or too exposed for women folk to use these regularly. It is therefore recommended that the procedure of site selection for standposts should take into account the above two factors in addition to locating it at a place where secondary sources like wells and hand pumps are not in abundance.

4.4.2 Coverage of Hamlets :

While selecting sites for standposts proper distribution of facilities in the village should be taken into account. All hamlets should be covered with piped water supply, specially if the hamlets do not have adequate secondary sources like wells or hand pumps etc.

4.4.3 Period of water supply and adequacy :

The supply hours for all schemes in Varanasi district are 6:0 A.M. to 8:0 A.M. in the morning 12:0 to 1:0 P.M. in the afternoon and 5:0 P.M. to 8:0 P.M. in the evening, thus giving an effective supply of approximately 6 hours. It was observed that the distant village suffered lesser supply because of rapid decrease in pressure towards the end of supply timing [details at Table 3.6].

4.4.4 Distance travelled by average household to collect water from piped water supply:

The average consumer travelled approximately 50 metres to draw water from the standpost. The distance varied from scheme to scheme ranging from 200 metres in Lakhanpur village of Rohania Scheme and 175 metres in Gaura village of Khandwa Scheme to hardly 10 metre in small village like Dariyapur in Vyasnagar [details at Table 3.5].

4.4.5 Average time taken to collect water :

The average time taken by the villagers to collect water ranges from about 7 minutes to 20 minutes depending upon the distance of the facility [details at Table 3.5].

4.5 WATER SUPPLY : RELIABILITY

4.5.1 Breakdown and frequency of breakdowns:

The supply was quite stable and was maintained daily. Breakdowns in power and pilferage from PVC pipe lines by cultivators for irrigating their fields was mentioned by Jal Nigam authorities as well as the villagers. The frequency of breakdown in the supply is as given in the following table :

Detail	Frequency					Total	No reply	Grand total
	Never	Weekly	Monthly	In summer	Indeter- minate			
No. of respondents	2	21	49	31	9	112	195	307
Percentage	1.8%	18.7%	43.7%	27.6%	8.0%	100%		

A majority of households considered the frequency of breakdowns to be about once a month. The breakdowns were more frequent in summers. About 8% of the households reported that the breakdowns occurred at infrequent intervals and therefore could not be fixed within time parameters.

4.5.2 Length of breakdowns :

It is quite evident that the breakdowns are a rare occurrence more frequent in the dry season and the breakdowns last for one or two days. The maximum breakdown period was observed to be five to six days.

4.5.3 Consumer perception about reasons for breakdown :

As per the perception of the respondents the reasons for breakdown are follows :

Detail	Reasons					Total No res- ponce	No reply	Grand total
	Power Pipe failure	Pipe damage	Water pilferage	Low press- ure	Indeter- minate			
No. of respondents	80	45	17	8	5	155	152	307
Percentage	51.6%	29.0%	11.0%	5.1%	3.2%	100%		

The major reasons therefore for breakdown, as per perception of consumers, are power failure, damage to pipe line and pilferage of water for irrigation purposes. Though the damage to pipe line and water pilferage have been taken separately, the damage to pipe line

may have been effected for pilferage purposes. It was difficult at the time of survey to identify individual cases of pipe line damages due to natural causes.

4.5.4 What do consumers do in case of breakdown in piped water supply?

The consumers resort to traditional sources of water during breakdown with 90% households shifting to private well and community wells.

4.5.5 Water pressure - observation :

Water pressure checked at different villages and was found to be adequate in all schemes, except in some tail end villages like Dafi in Tikri Scheme and Gaura in Khandwa Scheme.

4.5.6 Time to fill a bucket - observation :

Investigation was also carried out to assess the time required to fill one bucket of approximately 12 litres capacity with water. It took approximately one minute to fill the bucket in all villages except in Dafi where it took seven minutes and Gaura where it took 5 minutes.

4.6 STANDPOSTS

4.6.1 Number of standposts reported and found :

There were 84 standposts in the village surveyed. About 29.8% of the households used water from the standposts whereas only 3.47% use it for drinking water supply [details at Table 3.5]

4.6.3 Condition of the standpost found:

4.6.3.1 Condition of pillars :

About 15.4% of the standposts were found to have their pillars damaged or missing though it did not effect the water supply considerably.

4.6.3.2 Condition of base :

About 12.0% of the standposts in the area did not have any base and nearly 12.0% had their base damaged.

4.6.3.3 Condition of drains :

No drain were found in 31.0% of the standposts surveyed and about 3.0% of them had their drains broken.

4.6.3.4 Locational aspects :

Standposts were found to be in very inconvenient locations in the following villages :

Dafi [Tikri]
Gaura [Khandwa]
Lakhanpur [Rohania]
Ramsinghpur and
Ganeshpur [Harhua]
Ishwarpur [Birankot]
Khalispur [Mirzamurad]
Banauli [Sewapuri]

4.7 PERCEPTION OF VILLAGE HOUSEHOLDS ABOUT PIPED WATER SUPPLY

4.7.1 Reasons of households for not using piped water supply :

Of the 307 households investigated in detail the position of household using pipe water supply and the perception of any problems in collecting water from standposts by those who do not use piped water supply is given as follow :

Detail	Households		Households		Total
	Using piped water	Not using piped water	Problem in collection	No problem	
Households	156	151	83	68	151
Percentage	51.0%	49.0%	55.0%	45.0%	100%

It is evident that a majority of the households not using piped water supply do perceive problems in collecting water from the standposts, as a natural consequence the availability, convenience and other factors play a role in households not using piped water supply.

4.7.2 Consumer suggestions for improvements in supply :

230 households out of the 307 surveyed have made suggestions towards improving the efficacy and acceptability of piped water supply, their suggestions are as follows:

Detail	Suggestions						No Response
	More stand posts	More private connections	Regular supply	Increase in supply hours	More pressure	Total	
Households	104	14	50	54	8	230	77
Percentage	45.0%	6.0%	22.0%	23.0%	4.0%	100%	

45.0% of the households believe that an increase in the number of the standposts, 6.0% an increase in the number of private connections, 22.0% a regularisation in the supply, 23.0% an increase in supply hours and 4.0% an increase in pressure will result in the usage of piped water supply being more utilized. It is evident that apart from the convenience of water points being near the house the consumers are concerned about the timings of supply hours being increased and the supply being regular.

4.7.3 Consumer perception about cleanliness of surroundings around standposts :

About 89.0% of the households consider that the standposts and surrounding are kept reasonably clean and only in cases where standposts were in a broken condition with continuous water discharge resulting in water logging etc., were the households concerned about the dirtiness of the standposts and its surroundings. Vague replies were received for the role they play in keeping the standposts and its surroundings clean, and therefore, no relevant inferences are drawn from the same.

4.7.4 Perception of village residents about piped water supply and their willingness to use the facility :

Opinion of the villagers was sought on their willingness to have piped water supply. About 95.0% of the villagers were willing to have piped water supply and were willing to pay between Rs.5 to Rs.10 for private connections.

4.7.5 Reactions of the users to metered connections :

Attitude of villagers was investigated about metered private connections. Out of 50 villagers interviewed [drawing water from their own private connections or that of their neighbours], 90.0% of the respondents favoured flat rate systems as in existence today, 6.0% agreed to metering and rest were non-committal. The main reason given for not accepting metered supply by the households was that it will prevent sharing of water by other members of village and neighbours.

4.8 AWARENESS ABOUT DISEASES ASSOCIATED WITH WATER

Detail	Total	Awareness		Incidence						Total No Reply	Grand Total	
		Yes	No	Ma	Dr	Ja	Ty	Ch	Ga			
House- holds	307	222	85	85	38	8	8	13	2	154	153	307
%age	100%	72.0%	28.0%	27.68%	12.37%	2.6%	2.6%	4.23%	0.65%			

Ma - Malaria

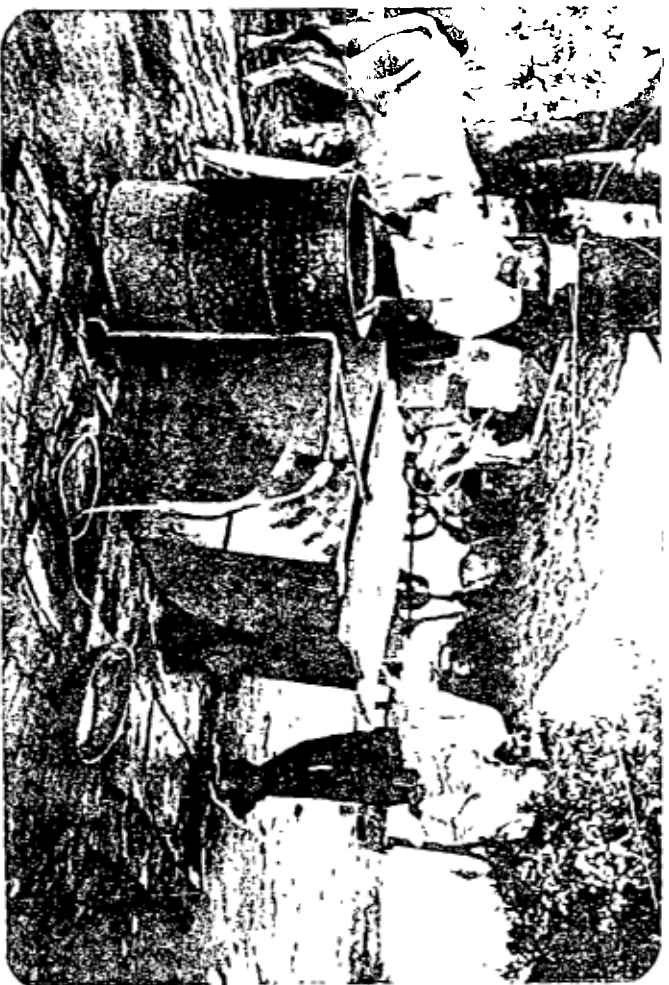
Dr - Diarrohea/
Dysentry

Ja - Jaundice

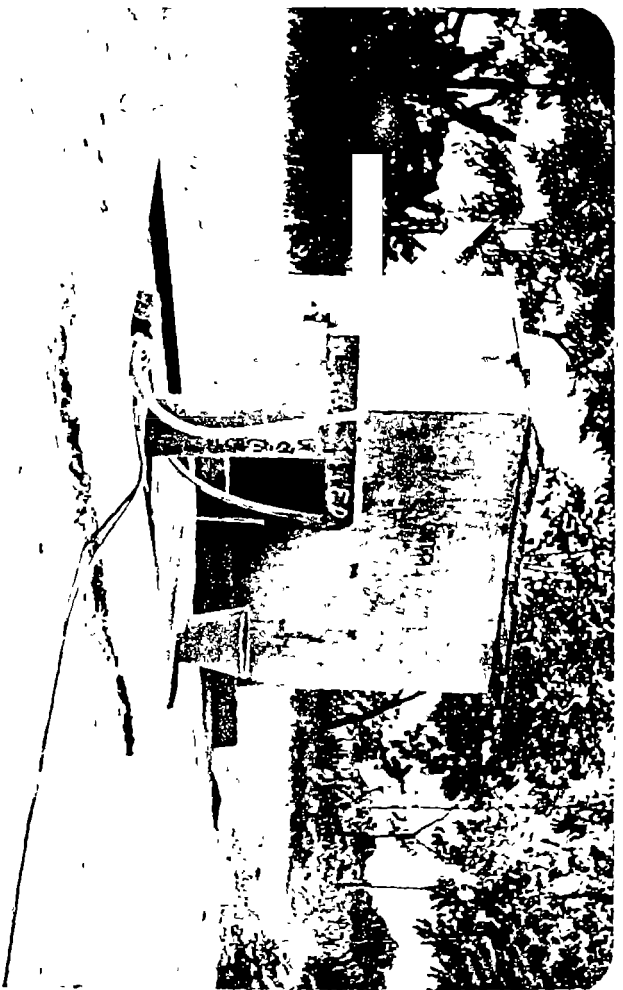
Ty - Typhoid

Ch - Cholera

Ga - Gastroenteritis

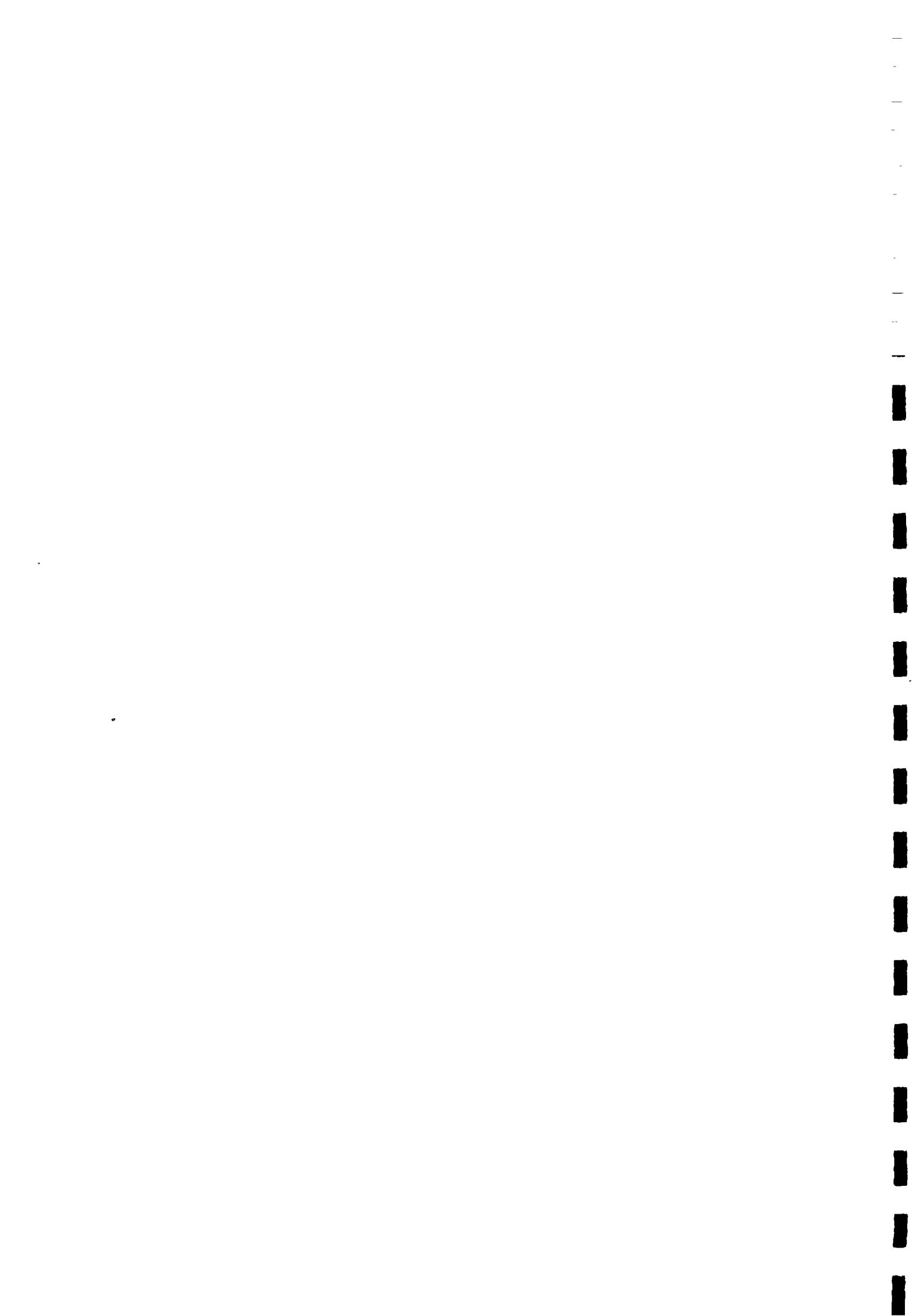


STORAGE DEVICES FOR STORAGE OF WATER



About 72.0% of the households have displayed awareness about diseases which are water borne or associated with water stagnation. The incidence of these diseases in the family was also investigated About 27.68% households have reported incidence of Malaria, 12.37% of Diarrhoea, 2.6% of Jaundice in the last six months. The information about last one year was very sketchy. The study shows high incidence of Malaria in the selected areas which may be due to mosquito infestation in water stagnations.

Incidence of water borne diseases is also worth noting though not in alarming proportions. This may be due to villagers using open wells [untreated] for drinking purposes. These wells are normally full of dead and decaying matter.



CHAPTER - V

FINDINGS OF THE SURVEY ; DISTRICT RAE BARELI

5.1 INTRODUCTION TO WATER SUPPLY FOR DRINKING IN THE DISTRICT

5.1.1 Distribution of villages in the district according to available water sources :

Under the rural water supply programme the district Rae Bareli has 640 of the 1,731 villages covered by piped water supply. The remaining 854 villages are covered by hand pumps and 221 villages covered by other sources like wells etc.

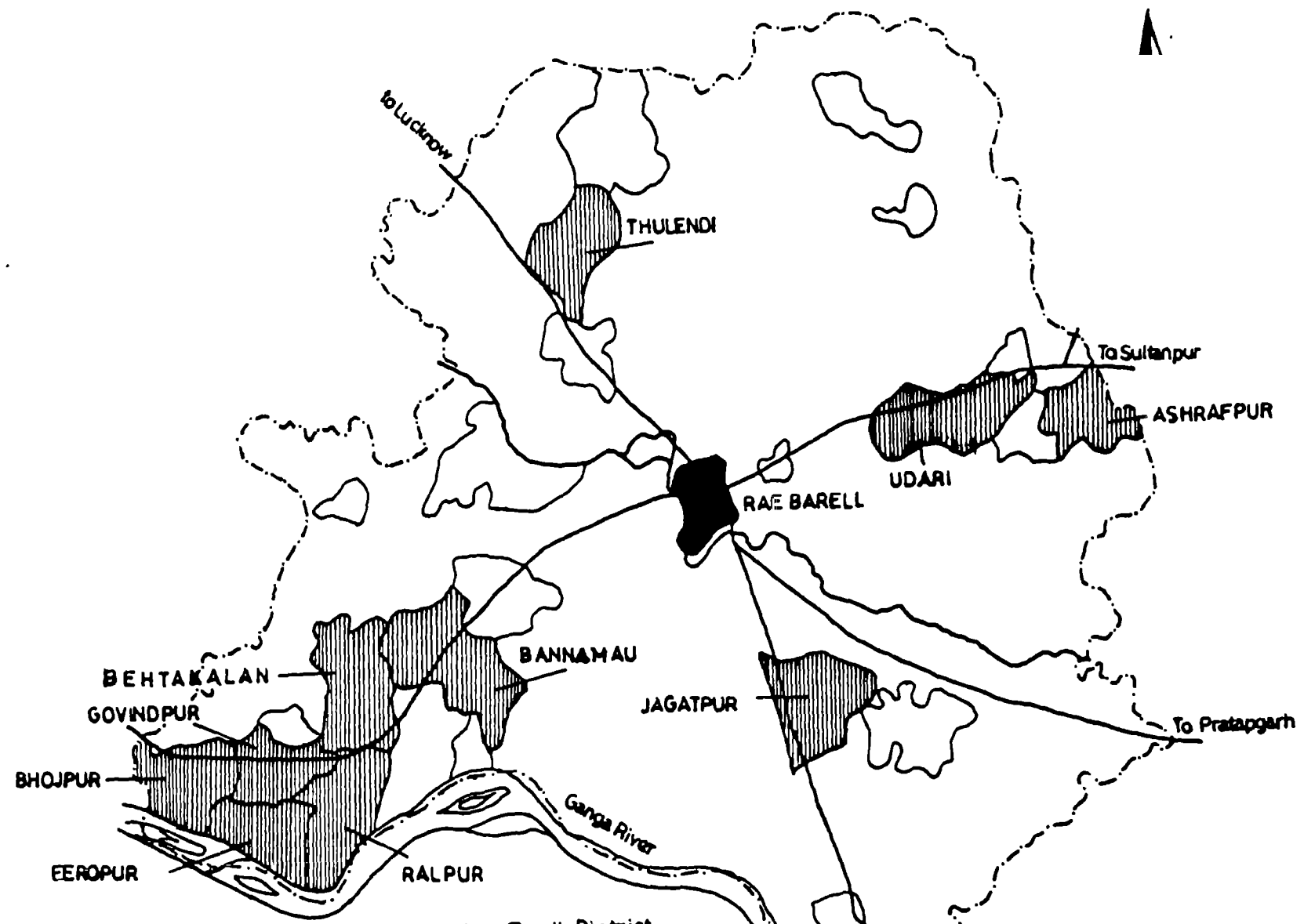
5.1.2 Coverage of district under piped water supply through Indo-Dutch Rural Water Supply Project :

The Dutch Credit Programme under Sub-project - I has installed 10 schemes in the district at Ashrafpur, Bannamau, Bhojpur, Firozpur, Govindpur, Jagatpur, Ralpur, Thulendi and Udari cluster of villages. The 10 schemes cover a total of 243 villages. The schemes are designed to supply a design population of 312,040 with 70 lpcd of water by the year 2011.

5.1.3 Network established under Indo-Dutch Rural Water Supply Project :

The 10 schemes with 22 tubewells [Govindpur and Udari having 3 tubewells each and rest two each] have a storage capacity of 5,600 Kl. in overhead tanks and a network of 1,839 standposts and 2,122 private connections already established.

RAE BARELI DISTRICT



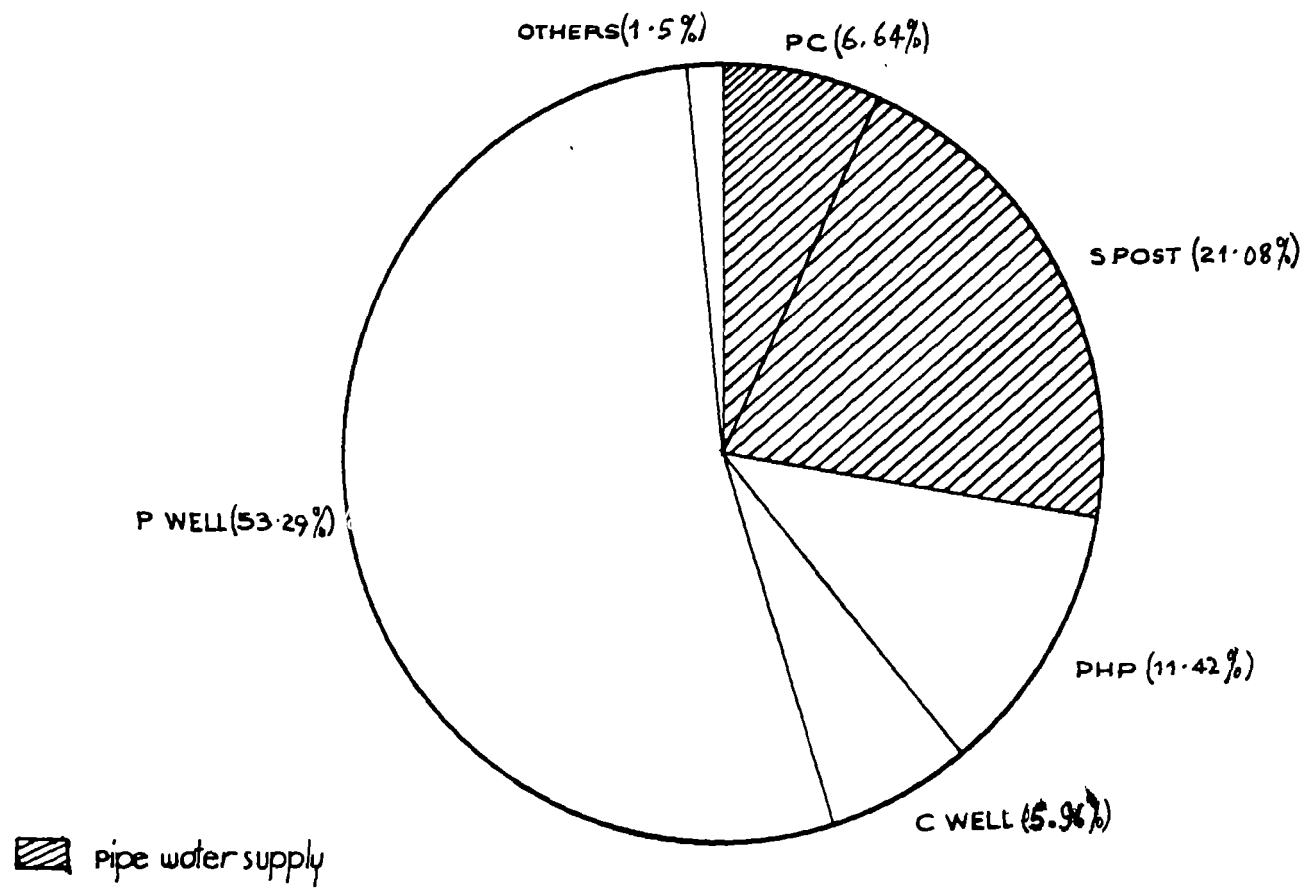
Water Supply Projects in Rae Bareilly District

5.1.4 Brief description of schemes installed under Dutch Credit Programme :

- 5.1.4.1 The Firozpur Scheme covers 16 revenue villages through a network of 55 Kilometers distributions main pipe line delivering water through 110 standposts and 310 private connections. The scheme installed at a cost of Rs.5.06 million is serving a population of 13,700. The villages of Dudhwan and Firozpur were selected this scheme for survey.
- 5.1.4.2 The Bhojpur Scheme covering 34 revenue villages was installed at a cost of Rs.6.17 million serving a population of 20,300 villagers. The scheme has a network of 75 Kilometers distribution pipe line delivering water through 99 standposts and 618 private connections. The villages of Katikaha and Daulatpur were selected for survey from the scheme.
- 5.1.4.3 Ralpur Scheme was constructed at a cost of Rs.6.55 million covering a population of 14,900 people. The scheme covers 26 revenue villages through a network of 89 Kilometers of pipe line delivering water through 182 standposts and 225 private connections. The villages of Sagarkheda and Chakchauraia were selected from the scheme for survey.
- 5.1.4.4 Govindpur Scheme covers 19 villages through a network of 82 Kilometers distribution pipe line delivering water through a network of 101 standposts and 275 private connections. The scheme was installed at a cost of Rs.6.2 million serving a population of 19,900. The villages of Govindpur and Passan Kheda were selected for survey from the scheme.
- 5.1.4.5 The Udari Scheme was installed at a cost of Rs.7.6 million serving 16 revenue villages with a population of 17,200. The scheme has a network of 92 Kilometers pipe line delivering water through 195 standposts and 13 private collections. The villages of Baghail and Mewai Alampur were selected for survey from the scheme.

- 5.1.4.6 The Thulendi Scheme is about 30 Kilometers from Rae Bareli town. The group of 19 villages under Thulendi Scheme, have a population of 20,100. The Scheme, installed at a cost of Rs.7.78 million has a distribution pipe line of 78 Kilometers delivering water through a network of 169 standposts and 125 private connections. The village of Rasulpur and Haswa were selected from the scheme for survey.
- 5.1.4.7 The Bannamau Scheme was completed in the year 1981 at a cost of Rs.9.4 million covering 27 revenue villages with a population of 28,500. The scheme has a distribution network of 133 Kilometers delivering water through 240 standpost, and 189 private connections. Survey was conducted in villages Bannamau and Fakhruddinpur in the scheme.
- 5.1.4.8 Completed in 1981, the Behtakalan Scheme was installed at a cost of Rs.10.5 million. The scheme covers 34 revenue villages with a distribution network 110 Kilometers of pipe line, 235 standposts and 217 private connections. Villages of Mubarakpur and Rewari were surveyed in the scheme.
- 5.1.4.9 Ashrafpur Scheme is situated on Rae Bareli - Sultanpur Road, east of Rae Bareli town. The scheme constructed at the cost of Rs.6.6 millions covers 20 revenue villages with population of 17,600. The scheme has 65 Kilometers of main distribution pipe line, 198 standposts and 43 private connections. The village of Bhelia and Kashimpur were surveyed in this scheme.
- 5.1.4.10 The Jagatpur Scheme is to the south-east of Rae Bareli town on Rae Bareli - Allahabad highway. The scheme was completed in the year 1981 at a cost of Rs.8.6 million. The scheme covers 32 revenue villages with

DISTRICT RAE-BARELI CONSUMER PREFERENCES FOR SOURCE OF WATER



111 Kilometers pipe line and a network of 310 standposts and 77 private connections. The villages Sidhor and Zingna were surveyed in the scheme.

5.1.5 Summary of number of villages and households covered under survey and percentage of coverage :

The survey of 10 schemes of Rae Bareli district covering 2 villages in each scheme yielded a total of 3,116 households of which 502 household were taken up for detailed investigation through household questionnaire. The total household population therefore surveyed is 16.11% of the households resident in the villages [details at Table 1 & 2].

5.2 AVAILABLE WATER SOURCES AND USER PREFERENCES

Detail	Total Household	Source of water used						
		Private connection	Standpost	Hand pump		Wells		Other Source
				Pvt.	Comm.	Pvt.	Comm.	
No. of Household	3,116	208	657	356	1	1,661	186	47
Percentage		6.64%	21.08%	11.42%	0.03%	53.3%	5.96%	1.51%

Pvt. - Private

Comm. - Community

5.2.1 Percentage of households using piped water supply for general use and drinking :

The number of households using water for different sources for their daily requirement [details at Table 4.1] shows that an average of 6.7% households use private connection and 21.0% use standposts yielding

a total of 27.7% of the total population using piped water supply. On the other hand the percentage of households using piped water supply for drinking purposes [details at Table 4.2] yields a dismal picture. The percentage of households using piped water supply for drinking purposes varies from the maximum of 8.1% in Firozpur Scheme to 1.1% in Thulendi.

5.2.2 Percentage of households using other sources of water :

Among the individual sources of water about 53.8% households use private wells, 11.4% use private handpumps, approximately 6.0% use community wells and 1.8% use other sources like pump sets, tubewells and handpumps installed under State sponsored programme.

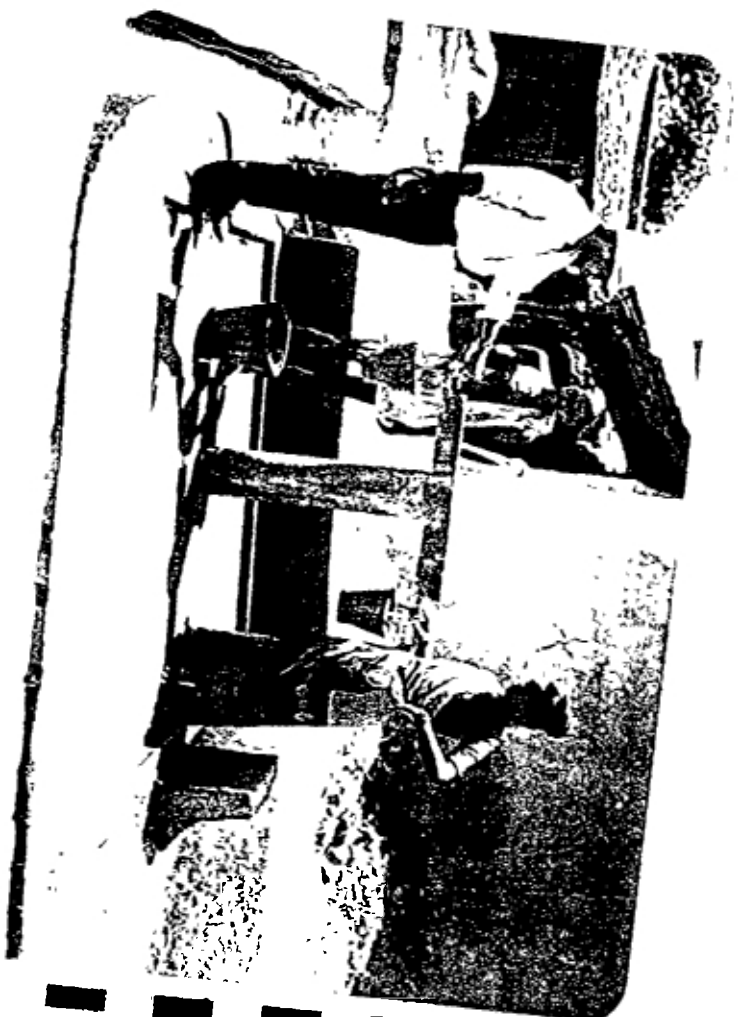
5.3 WATER REQUIREMENTS AND COLLECTION

5.3.1 Quantum of water collected per household :

The quantum of water collected by the households varied from schemes to scheme [details at Table 4.3]. All of the households using private connections installed in their own houses reported quantum of water used by them as indeterminate. The investigation of households using water from community or other sources [not installed in their own house] showed that an average household collects approximately 130 litres of water during summer, 108 litres during winter and 114 litres during monsoons [details at Table 4.3].

5.3.2 Requirement of water per consumer per day :

Considering an average family size of four adults and two children per household in the area [details at Table 4.4] the requirement of water per consumer per



CHECKING DISCHARGE OF WATER



WASHING LIVESTOCK

day is approximately 22 litres during summers, 18 litres during winters and 19 litres during monsoons. This water requirement can not be considered as absolute because households have reported that their requirements for bathing, washing of clothes etc., are fulfilled at site. The above requirement fulfills the households needs for drinking, cooking and washing of food and utensils. The watering of livestock is usually done at village pond, etc.

5.3.3 Adequacy of 70 lpcd as designed for the scheme :

The provision for 70 lpcd of water therefore seems adequate to meet the daily requirements of the consumer.

5.3.4 Requirements for the design population :

The design population for the 20 villages surveyed is 22,851 whereas the current population assessed during the survey was 12,247 adults and 7,903 children [below 14 years] yielding a total population of 20,150. The design population therefore seems to be adequate for the schemes [details at Table 4.4].

5.3.5 Who collects water?

In 46.0% of the households women were responsible for collection of water. The break up is as follows :

[MR]

Detail	Person collecting water				Total
	Men	Women	Children	Hired person	
No. of Respondents	340	456	179	7	990
Percentage	35.1%	46.0%	18.1%	0.7%	

It was found that in nearly all the households the duty of water collection was shared between either women and men or women and children. In very few households the duty rested with men and children or hired person.

5.4 CONVENIENCE OF WATER POINTS

5.4.1 Site selection and convenience :

Details	Total Households	Piped water supply			Reasons for not using			
		Users	Non-users	Distance	Taste not to liking	Supply unreliable	Water point dirty	No reply
No. of Households	502	129	373	144	190	32	2	5
Percentage	100%	25.69%	74.30%	38.6%	50.93%	8.6%	Neg	1.3%

Of the 373 households [total 502 surveyed] who have reported as not using piped water supply for drinking purposes, nearly 51.0% of the households have reported that taste of water was not to their liking, 39.0% found that the standposts were not located at convenient places, 8.6% have reported that the supply was unreliable and only two respondents found that the water point was dirty. As in the case of Varanasi district the awareness of polluted water supply causing health hazards was found in some pockets in Rae Bareli also.

The easy availability of water points to the consumers has a marked relationship with the number of users [details at Table 4.5]. The siting of standpost in all the schemes of Rae Bareli was found to be quite satisfactory

A PANORAMIC VIEW
OF VILLAGE



THE WAIT FOR WATER

though isolated pockets where standposts are required were found.

5.4.2 Period of water supply and adequacy :

The supply hours in all schemes ranged between 6:0 to 8:0 A.M. in the morning, 12:0 to 1:0 P.M. during day and 5:0 to 7:0 P.M. in the evening. This gives an effective supply of approximately 5 hours a day. It was observed that distant villages like Fakrudeenpur, Passankhera suffered lesser hours of supply because of rapid decrease in pressure towards the end of the supply timing [details at Table 4.6]. Ashrafpur Scheme has no afternoon supply.

5.4.3 Distance travelled by average household to collect water from piped water supply :

The average consumer travelled approximately 20 metres to draw water from the standposts. The distance varied from scheme to scheme ranging from about 43 metres in Passankheda village in Govindpur Scheme to less than 10 metres in Baghel village in Udari Scheme [details at Table 4.5].

5.4.4 Average time taken to collect water :

The average time taken by the villages to collect water ranges from about four minutes to fifteen minutes dependings on the distance of the facility [details at Table 4.5].

5.5 WATER SUPPLY : RELIABILITY

5.5.1 Breakdown and frequency of break downs :

The supply was quite stable and was maintained daily.

Breakdowns in power and in pipe line were mentioned as the main reasons for breakdowns in supply. The frequency of breakdown in supply is as given in the following Table :

Detail	Frequency					Total	No Reply	Grand Total
	Never	Weekly	Monthly	In summer	Inderminate			
No. of Respondents	-	54	44	40	3	141	361	502
Percentage	-	38.2%	31.2%	28.3%	2.1%	100%		

The breakdown in Rae Bareli district were a more frequent occurrence with nearly 38.0% households reporting weekly breakdowns 31.0% monthly and 28.0% households reporting an increase in frequency of breakdown during summer. Major breakdowns in Rae Bareli lasted for 5 to 6 days.

5.5.2 Consumer perception about reasons for breakdown :

As per the perception of the respondents the reasons for breakdown are as follows :

Detail	Reasons					Total	No reply	Grand tota
	Power failure	Pipe damage	Water pilferage	Low pressure	Indeterminate			
No. of Respondents	57	40	3	3	3	124	378	502
Percentage	60.4%	32.2%	2.4%	2.4%	2.4%	100%		

The major reasons for breakdown as per understanding of the consumers are power failure [60.0%] and damage to pipe line [32.2%]. The pipe line damage was also reported by Jal Nigam and villagers to be a willfull act by cultivators for irrigating the fields.

5.5.3 What do consumers do in case of breakdown in piped water supply :

During breakdown period 90.0% of the households have reported that they resort to private wells and community wells for supply of their water requirements.

5.5.4 Water pressure - observation :

Water pressure was checked at all village surveyed and was found to be inadequate in Bannamau and Behtakalan Schemes.

5.5.5 Time to fill a bucket - observation :

It took approximately one minute to fill a bucket of 12 to 15 litres in all schemes except Bannamau and Behtakalan where it took six to seven minutes during peak load period.

5.6 STANDPOSTS

5.6.1 Number of standposts reported and found :

Detail	R e p o r t e d	F o u n d	Condition											
			Pillars			Taps			Base			Drains		
			D	M	OK	D	M	OK	D	M	OK	D	M	OK
Stand- posts	140	145	28	17	100	22	45	78	24	8	113	21	21	103
Percentage			19.3	11.7	68.9	15.1	31.0	53.8	16.6	5.5	77.9	14.4	14.4	71.0

D - Damaged

M - Missing

OK - In full working
condition

The reported standpost in the area were inspected, 140 standpost were reported to be installed in the selected villages, 145 were found on inspection [42 single tap and 103 double tap]. The details of the condition of pillars taps, base and drains are given in Table 4.7.

5.6.2 Percentage of households using standposts for general and drinking water use :

Detail	Villages surveyed	Standpost users	
		General	Drinking
Households	3,116	657	91
Percentage	-	21.08%	2.92%

There were 145 standpost found in the villages surveyed.

About 21.0% of the households use water from standposts for their daily requirements but only 2.9% use the water for drinking purpose [details at Table 4.5].

5.6.3 Condition of the standpost found :

5.6.3.1 Condition of pillars :

About 31.0% of the standposts were found to have pillars damaged or missing.

5.6.3.2 Condition of base :

About 22.0% of the standpost had their bases damaged or missing.

5.6.3.3 Condition of drains :

About 29.0% of the standpost were found to have their drains either missing or damaged.

5.6.3.4 Condition of taps :

About 46.0% of the standposts found in the area had their taps either damaged, or missing. Nearly all standposts in villages Fakrudeenpur [Bannamau], Rewari and Mubarakpur [Behtakalan] were found to have their taps damaged or missing.

5.7 PERCEPTION OF VILLAGE HOUSEHOLDS ABOUT PIPED WATER SUPPLY

5.7.1 Reasons of households for not using piped water supply :

Of the 502 household survyed 26.0% use piped water supply for drinking. Among the balance 74.0% not using

piped water supply, the perception of the households of any problem in collection of water is given as below :

Detail	Households		Households	
	Using piped water	Not using piped water	Problem in collection	No problem
No. of Households	129	373	303	70
Percentage	25.7%	74.3%	81.2%	18.8%

It is evident that a majority of households do perceive problems in collection of water from standposts. Adverse availability, convenience and other factors like taste, etc., play a deterrent role in their not using piped water supply.

5.7.2 Consumer suggestions for improvement in supply :

355 households out of a total 502 [70.7%] have suggested measures to improve the efficacy and acceptability of piped water supply. Their suggestions are as follows :

Detail	Suggestions					Total
	More standposts	More private connections	Regular supply	Increase in supply hours	More pressure	
No. of Households	160	80	62	92	23	355
Percentage	45.0%	5.1%	17.4%	25.9%	6.5%	

45.0% of the households believe that an increase in the number of the standposts, 5.1% and increase in number of private connections, 17.0% in regularisation of supply, 25.9% an increase in supply hours and 6.5% an increase in pressure will result in an increase in the usage of piped water supply. The major reasons quite clearly, are an increase in the network and a regularisation of supply which should result in a better utilisation of the piped water supply.

5.7.3 Consumer perception about cleanliness of surroundings around standposts :

About 23.0% of the households consider that the standposts and the surroundings are kept clean, but only 4 respondents were willing to keep the facility clean themselves.

5.7.4 Perception of village residents about piped water supply and their willingness to use the facility :

The opinion was sought of 50 villagers about their willingness to have piped water supply. 75.0% of the villages were willing to have piped water supply but were interested in standposts rather than private connection.

5.7.5 Reaction of the users to metered connections.

50 village residents who use water from private connections were interviewed to investigate their reaction to having metered connections. About 38 [76%] respondents favoured the flat rate system, 7 [14.0%] respondents favoured metered connections as that will give them valid reason for refusing supply facilities to their neighbours and 5 [10%] respondents were non-committal.

5.8 AWARENESS ABOUT DISEASES ASSOCIATED WITH WATER

Detail	Total	Awareness				Incidence				Total	No reply	Grand Total
		Yes	No	Ma	Di	Ja	Ty	Ch	Ga			
No. of Households	502	274	228	159	42	1	15	9	-	226	276	502
Percentage	-	-	54.58	45.42	31.67	8.36	0.19	2.98	1.79	-	-	-

Ma - Malaria

Ja - Jaundice

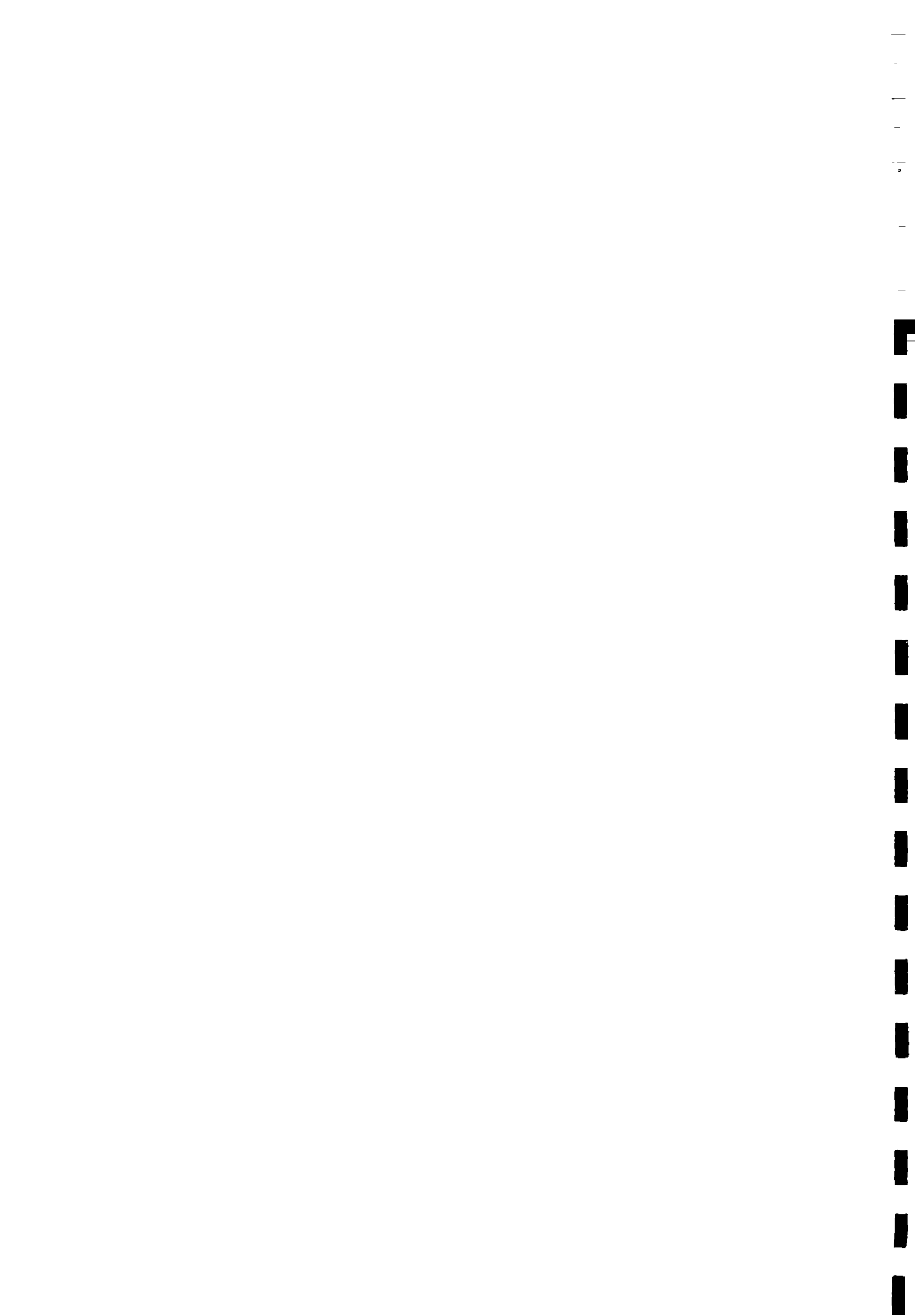
Ch - Cholera

Di - Diarrhoea, Dysentry

Ty - Typhoid

Ga - Gastroenteritis

About 55.0% of the households surveyed displayed awareness about water borne diseases like diarrhoea, dysentry and jaundice or diseases associated with water stagnation like malaria. The incidence of malaria in the region was found to be quite high 31.67% in the households reporting such diseases.



CHAPTER - VI

FINDINGS OF THE SURVEY : DISTRICT ALLAHABAD

6.1 INTRODUCTION TO WATER SUPPLY FOR DRINKING IN THE DISTRICT

6.1.1 Distribution of villages in the district according to available water sources :

Under rural water supply programme the district Allahabad, which has pockets of water scarcity areas, has 1,833 villages which are covered by the water supply programme. About 154 villages are covered by piped water supply and 427 villages are covered under handpump programme the other villages have conventional sources like wells etc.

6.1.2 Coverage of district under piped water supply through Indo-Dutch Rural Water Supply Project :

The Dutch Credit Programme under Sub-project - I has installed 4 schemes in the districts at Pratappur, Nidura, Saidabad and Urwa clusters of villages. The four schemes cover a total of 93 villages having a population of 88,509 according to 1981 Census. The schemes are designed population of 140,135 with 70 lpcd of water by year 2011.

6.1.3 Network established under Indo-Dutch Rural Water Supply Project :

The 4 schemes with 2 tubewells each having a storage of 2,600 Kl. in overhead tanks of 191.7 Kilometers pipe line with water distribution established through 475 standposts and 2,052 private connection already established.

6.1.4 Brief description of schemes installed under Dutch Credit :

The Nidura Scheme situated North-West of town Allahabad was completed in the year 1983-84. It covers 20 revenue villages [a revenue village is a parent village plus hamlets and classified as the smallest unit for development purposes]. The scheme has a network of 44 Kilometers of pipe line delivering water through.

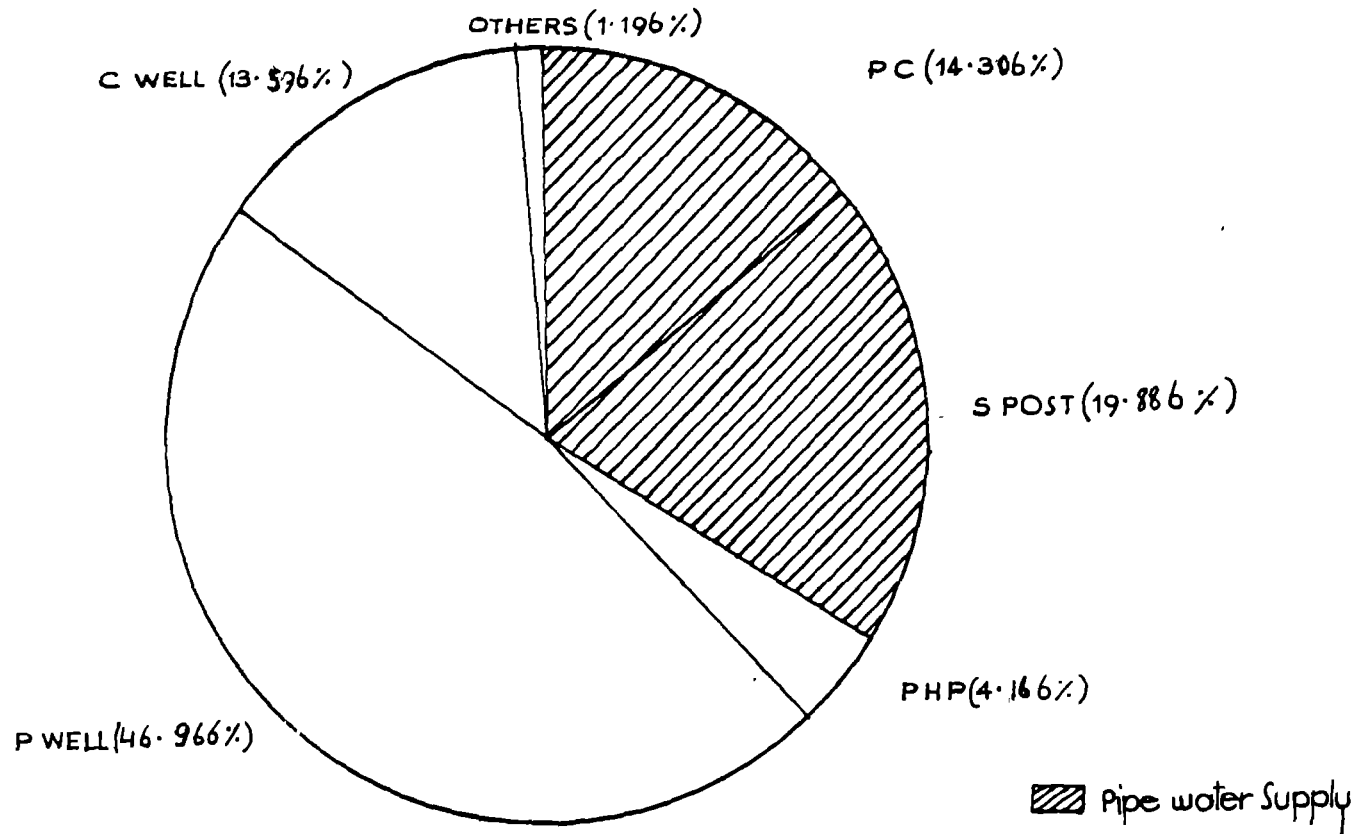
120 standposts [86 single tap and 34 double tap] and 540 private connections, constructed at a cost of Rs.5.50 million. Two villages Daniyalpur and Andhiyari were selected in this scheme for survey.

The Urwa Scheme covering the Urwa group of villages is situated South-East of town Allahabad on Allahabad - Mirzapur road. The scheme was completed in year 1985-86 at a cost of Rs.5.90 million and covers 23 revenue villages. The scheme has a network of 55.7 Kilometers of pipeline, 132 standposts [97 single tap and 35 double tap] and 570 private connections. The two villages selected for survey in this scheme were Chaukhata and Sikra.

The Saidabad Scheme covering a group of 19 revenue villages is situated East of town Allahabad at a distance of about 30 Kilometers from the town. The scheme completed in the year 1981-82 at a cost of Rs.6.06 million, has a network of 48 Kilometers of pipe line with 138 standposts and 675 private connections. The villages selected for survey from this scheme were Hakimpatti and Jamshedpur.

The Pratappur group of villages are situated North-East of town Allahabad. The scheme constructed for Pratappur group of villages at a cost of Rs.8.7 million and was

DISTRICT ALLAHABAD CONSUMER PREFERENCES FOR SOURCE OF WATER



completed in the year 1980-81. The scheme has been in operation for the longest period among the schemes at Allahabad. The scheme has a network of 44 Kilometers of pipe line 85 standposts and 267 private connections. The village Ghurdauli and Meerpur were selected from the scheme for survey.

6.1.5 Summary of number of villages and households covered under survey and percentage of coverage :

The survey of the 4 schemes at Allahabad district covering 2 villages in each scheme yielded a total of 986 households of which 159 were surveyed. The total households therefore, surveyed through detailed questionnaires is 16.12% of the total households resident in the villages [details at Table - 1 & 2].

6.2 AVAILABLE WATER SOURCES AND USER PREFERENCES

Detail	Total household	Source of water used						
		Private connection	Standposts	Hand pump		Wells		Others
				Pvt.	Comm.	Pvt	Comm.	
No. of Households	986	141	196	41	-	46.3	134	11
Percentage		14.30%	19.88%	4.16%	-	46.96%	13.59%	1.1%

Pvt. - Private

Comm. - Community

6.2.1 Percentage of households using piped water supply for general use and drinking :

The number of household using water from different

sources their daily requirements [details at Table 5.1] shows that an average of 14.3% households use private connections and 19.8% use standposts. A total of 34.1% households use piped water supply for their daily requirement. The number of household using piped water supply for drinking water is 5.8%. The average varies from scheme to scheme with 9.0% households using piped water supply for drinking water in Urwa Scheme. 4.0% households using piped water supply for drinking in Nidura Scheme. It was the impression of the research team that the acceptability of piped water supply for drinking purposes was more in Allahabad than the other two districts.

6.2.2 Percentage of households using other sources of water :

Among the individual sources of water 47.0% households use private wells, 13.6% community well, 4.16% use privately owned handpumps and 1.0% pump sets and tubewells. No hand pumps installed under Government sponsored programme were observed in Allahabad.

6.3 WATER REQUIREMENTS AND COLLECTION

6.3.1 Quantum of water collected per household :

The quantum of water collected for the households varied between scheme ranging from about 11 litres to 24 litres per consumer per day. The average consumption of water per household in all the four schemes is 159 litres during summers and 127 litres during winter and monsoons [details at Table 5.3].

6.3.2 Requirement of water per consumer per day :

Considering an average family size of 5 adults and



BATHING AT STANDPOSTS



3 children per household in the area [details at Table 5.4]. The requirement of water per consumer per day is approximately 20 litres during summers, and 16 litres during winters and monsoons. This requirement is supplemented by use of water facility at site for bathing, washing of clothes etc. Watering of livestock is done at village ponds etc.

6.3.3 Adequacy of 70 lpcd as designed for the schemes :

The provision of 70 lpcd of water therefore seems adequate for daily use of the consumer.

6.3.4 Requirements for the design population :

The design population for the eight villages surveyed is 6,895 whereas the current population assessed during the survey was 4,793 adults and 3,338 children working to a total of 8,131. The design population therefore, has already been exceeded in the villages surveyed. The design population for Pratappur Scheme only seems to be adequate to meet the future requirement. In the rest of the three schemes population has increased beyond estimates and may create short supply of water when more and more people start using piped water supply [details at Table 5.4].

6.3.5 Who collects water?

In about 70.0% of the households the duty of water collection is shared between women, men and children of the household, though women still remain as the major agency for collection of water. In 1.5% households traditional help or hired person were use for collecting water, the details are given on next page.

Detail	Person collecting water				
	Men	Women	Children	Hired person	Total
No. of Households	106	120	43	4	273
Percentage	38.8%	43.9%	15.7%	1.5%	

6.4 CONVENIENCE OF WATER POINTS

6.4.1 Site selection and convenience :

Detail	Total households	Piped water supply		Reasons for not using				
		Users	Non-users	Distance	Taste not to liking	Supply unreliable	Water facility dirty	Not Resp
No. of Households	159	61	98	68	16	11	2	
Percentage		38.4%	61.6%	69.38%	16.32%	11.22%	Neg	Ne

Of the 159 households surveyed [total households 986] 98 households [61.6%] are not using piped water supply for drinking. About 69.4% of the households not using piped water supply for drinking found that the location of water points was not convenient for them to draw water, 16% found that the taste was a deterring factor. 11.0% reported that the unreliability of the supply deterred them from using water supply [all cases reported from Nidura and Pratappur Schemes] and only two respondents found the water facility dirty.

6.4.2 Timings of water supply :

The supply hours in the scheme were between 6.0 to 8.0 A.M. in the morning, 12.0 to 1.0 in the afternoon and 5.0 to 7.0 P.M. in the evening an average supply of approximately five hours. Meerpur village in Pratappur Scheme has reported only morning supply. Distant village like Jamshedpur in Saidabad Scheme have reported lesser hours of supply due to rapid decline in pressure at the start and end of pumping time.

6.4.3 Period of water supply and adequacy :

The supply timings of approximately 5 hours was found to be less by the consumers.

6.4.4 Distance travelled by average household to collect water from piped water supply :

The average consumer travelled approximately 17 metres for collecting water from water points. The distance varied from scheme to scheme ranging from an average of 7 metres in Andhiyari village Nidura Scheme to 32 metres in Daniyalpur to the same scheme [details at Table 5.5].

6.4.5 Average time taken to collect water :

The average time taken by a villager to collect water from standpost varies from about 9 minutes in Andhiyari to 16 minutes in Hakimpatti.

6.5 WATER SUPPLY : RELIABILITY

6.5.1 Breakdown and frequency of breakdowns :

The supply was maintained every day with 38.0% of

the respondents [total 145 who have responded] mentioning weekly breakdown, 36.0% reporting monthly breakdown and 11.0% found breakdown a more common feature in the summers, 15.2% of the households have reported that frequency of breakdown is not determinate and occurs at infrequent intervals. The break up of reasons as given by the households is as below :

Detail	Frequency					No reply	Grand total	
	Never	Weekly	Monthly	In summers	Indeterminate			Total
No. of Respondents	-	55	52	16	22	145	14	159
Percentage	-	37.9%	35.8%	11.0%	15.2%			

6.5.2 Length of breakdowns :

The breakdown as reported by the respondents last for two to four days.

6.5.3 Consumer perception about reasons for breakdown :

Reasons for breakdowns as perceived by the respondents are as given below :

Detail	Reasons					total
	Power failure	Pipe damage	Water pilferage	Low pressure	Indeterminate	
No. of Respondents	82	51	13	8	5	159
Percentage	51.6%	32.0%	8.1%	5.0%	3.1%	

Again power failure and breakdown in pipe line remain the two major factors for non-availability of water supply. Households in the distant villages have reported low pressure also as a reason for breakdown in supply. Independent feeders have been sanctioned for all schemes in Allahabad district but installed only in Saidabad Scheme. At the time of inspection the feeder was out of order.

6.5.4 What do consumers do in case of breakdown in piped water supply :

During breakdown 80.0% of the population have reported using private wells, 15.0% community wells and the rest other sources like hand pumps, etc.

6.5.5 Water pressure - observation :

Water pressure was checked at all the villages and was found adequate except at Jamshedpur in Saidabad Scheme.

6.5.6 Time to fill a bucket - observation :

It took approximately one minute to fill a bucket of about 12 to 15 litres in all the schemes except Saidabad where it took 2 minutes during peak load period.

6.6 STANDPOSTS

6.6.1 Number of standposts reported and found :

About 20.0% of the household use water from the standposts for their daily requirement but only 3.0% use the water from standpost for drinking [details at Table 5.5].

6.6.3 Condition of the standpost found :

6.6.3.1 Condition of taps :

About 44.0% of the standpost found in the area had their taps damaged or missing. In Andhiyari out of the 15 standpost found, only 3 were in working order the rest had either their taps damaged or missing.

6.6.3.2 Condition of pillars :

About 29.0% of the standposts were found to have their pillars damaged or missing.

6.6.3.3 Condition of base :

41.0% standposts were found to have their base damaged or missing.

6.6.3.4 Condition of drains :

20 standposts out of 41 found had no drains [39%], 4 had their drains damaged.

6.6.3.5 Locational aspects :

The accessibility of water points to the consumers varies from an average of 7 metres in Andhiyari to nearly 30 metres in Daniyalpur. Andhiyari is a distant village approximately 6 to 8 Kilometre from the scheme whereas Daniyalpur is adjacent to the scheme. The average distance of standpost from the households is 7 metre in Andhiyari and 32.4 metres in Daniyalpur [details at Table 5.5]. The percentage of users at

Daniyalpur are 6.0% of the households whereas at Andhiyari they are 23.0%. This is an ideal illustration to prove that convenience plays an important role in the acceptability of the water point. The pressure at Daniyalpur is better than at Andhiyari because of Daniyalpur being adjacent to the scheme. The population at Daniyalpur use community wells more frequently than any other source whereas at Andhiyari private wells are more popular [details at Table 5.1].

6.7 PERCEPTION OF VILLAGE HOUSEHOLDS ABOUT PIPED WATER SUPPLY

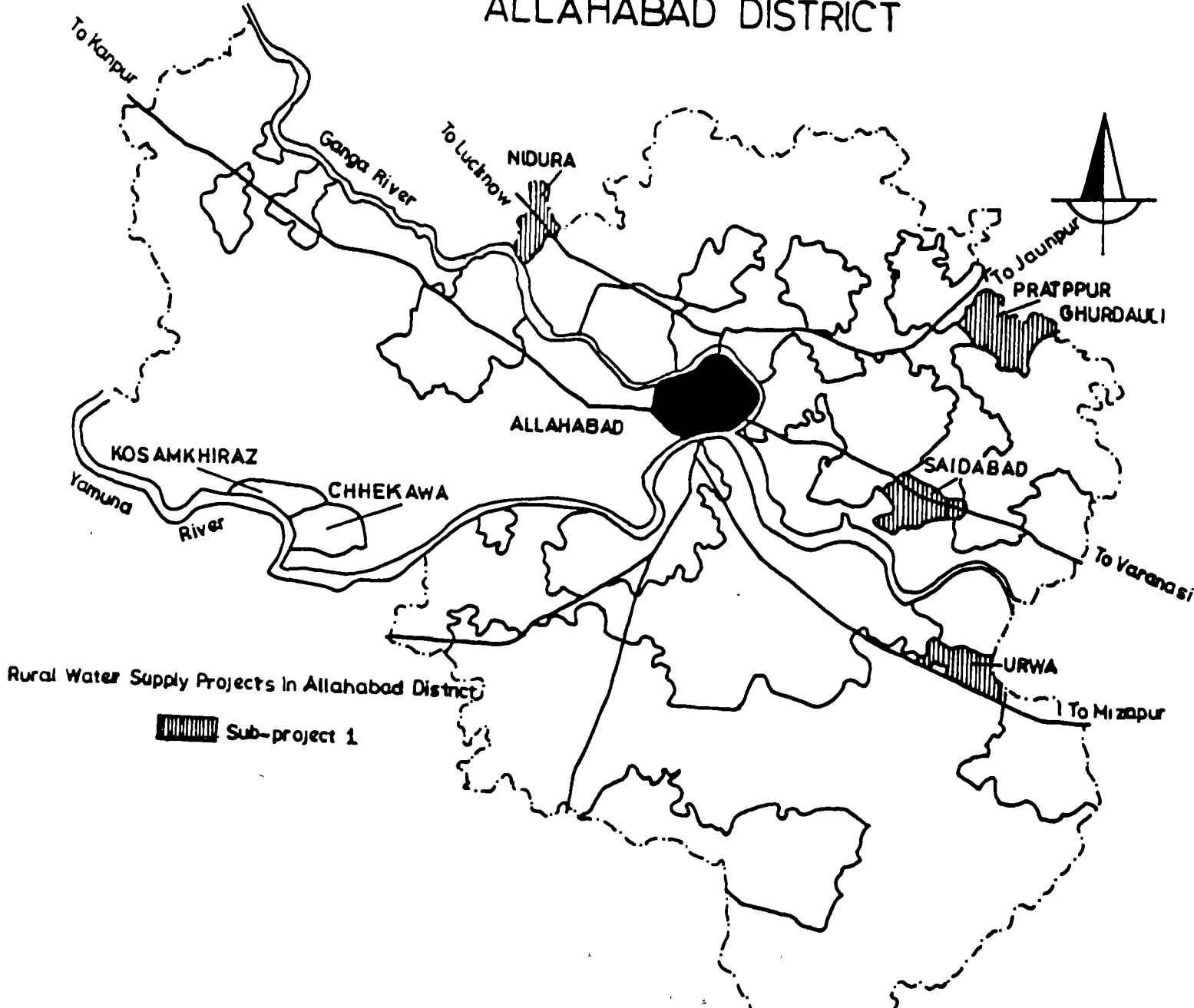
6.7.1 Reasons of households for not using piped water supply :

Of the 159 households surveyed 38.0% were using piped water supply and the balance 62.0% not using piped water supply. The perception of the households, not using piped water supply, about any problems in collecting water is as given below :


Detail	Households		Households	
	Using piped water	Not using piped water	Problem in collection	No problem
No. of Respondents	61	98	52	46
Percentage	38.4%	61.6%	53.0%	47.0%

About 53.0% of the households not using piped water supply feel there are problems in collection of water from standposts and availability, convenience and other factors like taste etc., play an important role in their not using piped water supply for drinking.

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6.7.2 Consumer suggestions for improvement in supply :

139 out of 159 households surveyed [87.0%] have suggested measures to improved the acceptibility of water supply. Their suggestion are as follows :

Detail	Suggestions						Total	No. of repl
	More standposts	More private connections	Regular supply	Increase in supply hours	More presure			
No. of Households	63	13	35	23	5	139	20	
Percentage	45.3%	9.3%	25.1%	16.5%	3.6%	100%		

45.0% of the households believe that more standpost, 9.0% more private connection, 25.0% a regularisation in supply of water, 16.0% an increase in supply hours and 3.0% an increase in pressure will result in an increased acceptance and utilisation of piped water supply.

6.7.3 Consumer perception about cleanliness of surroundings around standposts :

Only 4.0% of the households surveyed [6 households] feel that the standposts and the surroundings are dirty but only 2 household have reported that they would clean the standpost and the surroundings themselves. The rest are non-commital.

6.7.4 Perception of village residents about piped water supply and their willingness to use the facility :

The opinion of the villagers was sought about their willingness to have piped water supply. 92.0% of the villagers were willing to have piped water supply and were willing to pay between Rs.5 to Rs.10 for private connections.

6.7.5 Reaction of the users to metered connections :

Opinion of 50 villagers was sought about metered connection. About 80.0% [40] reported that the flat rate system was most preferred. The rest 10 [20%] were non-committal.

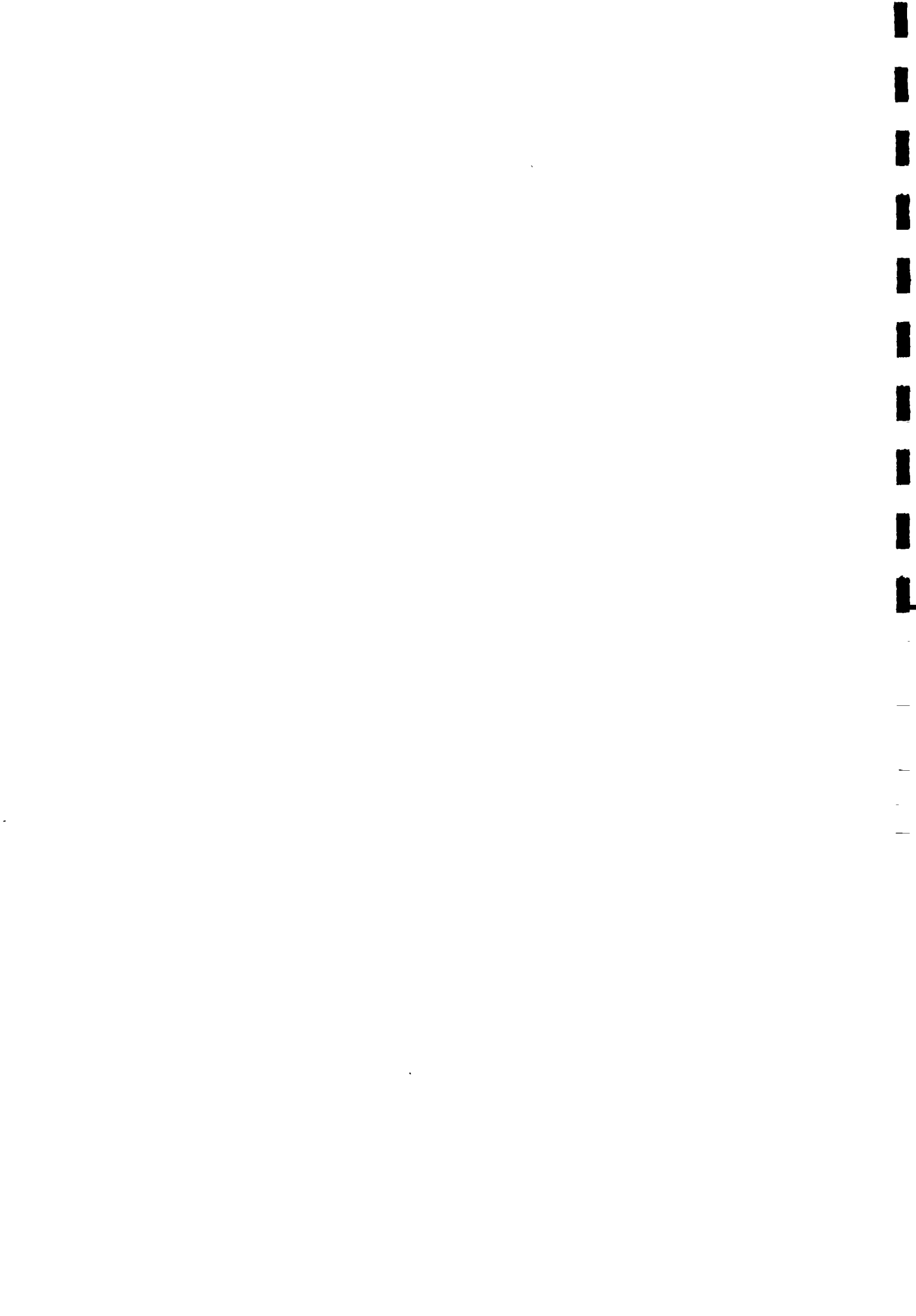
6.8 AWARENESS ABOUT DISEASES ASSOCIATED WITH WATER

Detail	Total	Awareness		Incidence					Total	No reply	Grand total	
		Yes	No	Ma	Di	Ty	Ch	Ga				Ja
No. of Households	159	85	74	72	25	9	8	-	-	114	45	159
Percentage		53.45	46.54	45.28	15.72	5.66	5.31	-				

Ma - Malaria
Ty - Typhoid
Ga - Gastroenterities

Di - Diarrhoea/Dysentry
Ch - Cholera
Ja - Jaundice

About 53.0% of the households surveyed displayed awareness about diseases associated with drinking unsafe water or promoted by water stagnation etc. Among the households reporting diseases about 45.0% households had incidence of Malaria, 15.0% diarrhoea and and dysentry and 5.0% of Typhoid or Cholera. No incidence of Jaundice and Gastroenterities was reported from the area.



CHAPTER - VII

TECHNICAL OBSERVATIONS

Tubewells, chlorinating arrangements, overhead tanks part of distribution system and maintenance records of the 22 water supply schemes of the 3 districts namely Allahabad, Varanasi and Raebareli [see Annexures] presently being maintained by U.P. Jal Nigam under the Sub-Project I of Dutch Credit Programme were inspected between 22nd July and 19th October, 1988. Evaluation of the scheme districtwise, observation and suggestions in general are given below :

7.0 DISTRICT ALLAHABAD

7.0.1 Nidura :

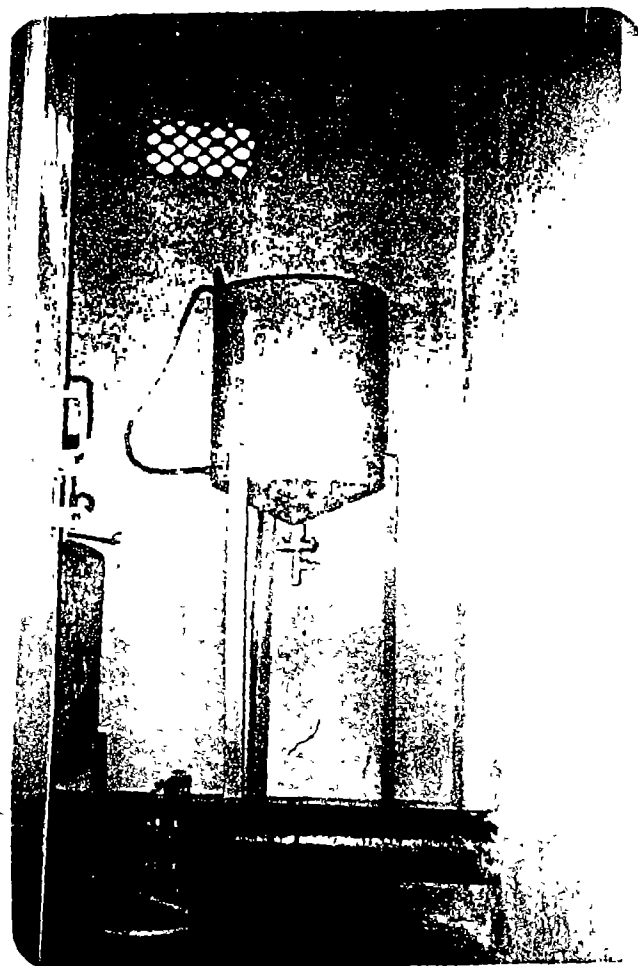
The scheme was prepared to serve 27 revenue villages with 1981 population of 20,400 and 2011 population of 30,600 in view. Two tubewells have been bored to a depth of more than 80 meters with recommended discharges of 1800 lpm and 2100 lpm. The pumping plants installed are rated at 1800 lpm and 2100 lpm respectively. The capacity of tubewells is more than required. Independent power feeder exists.

7.0.1.1 Bleaching powder dozer was found in working order the fittings in the room and the vessel are in a corroded state.

7.0.1.2 The height of the 650 Kl. overhead tank is 20 metre and the length of distribution system is 52 Kilometers.

7.0.1.3 No records regarding planned maintenance of the plants

A WELL MAINTAINED
CHLORINATOR



A CHLORINATOR WITH
FITTINGS CORRODED

is being maintained. In spite of the supply through a 20 metre overhead tank, complaints of low pressure water supply at tail ends and leakages in the distribution system were reported.

7.0.2 Urwa :

The scheme has been prepared for 23 villages with projected population in 1981 and 2011 as 20,300 and 30,400. Two tubewells have been bored to depths of 65 metre and 60 metres with recommended discharges of 2300 lpm and 2300 lpm respectively. Against a total requirement of 1500 to 2000 lpm for a period after 15 years, the capacities are more than adequate. The pumping plants installed are of 1500 lpm and 1650 lpm capacity. The meter installed at the bypass was utilised to measure the discharge of the pumping plant at tubewell No. 1. It showed a discharge of 1500 lpm at the required head. Independent power feeder exists.

7.0.2.1 Bleaching power dozer was working but the fittings were found to be in a poor shape.

7.0.2.2 This scheme is located at a long distance from the headquarters as such the maintenance in general is poor. Complaints of ignoring repairs in distribution system for months were recorded by consumers.

7.0.2.3 Even 14 metre high 500 Kl. overhead tank is unable to supply water at proper pressure at tail ends because of 70 Kilometres distribution system with frequent breakages of pipe line on the way for irrigation or other purposes.

7.0.2.4 No records of repairs and maintenance of plants are being maintained.

7.0.3 Saidabad :

The scheme has been prepared for 19 villages whose projected population in 1981 and 2011 was assumed as 23,600 and 35,400 respectively. The total requirement of water for the scheme for a period after 15 years is 1800 lpm to 2400 lpm. Two tubewells have been bored to depths of 84 metre and 128 metre respectively. Discharges of the tubewells are 2500 lpm and 3600 lpm respectively. 1900 lpm pumping plants have been installed at both the tubewells. Although there is a weir at the bypass of tubewell No. 1, the discharge could not be measured because the outlet pipe was badly choked and when bypass was opened it flooded the place.

7.0.3.1 Independent power feeder was installed but it was out of order for more than a year and at present the tubewells are being run as per rural feeder timings.

7.0.3.2 Bleaching powder dozer is working.

7.0.3.3 16 metre high 650 Kl. capacity overhead tank is being utilised. The length of distribution system is 70 Kilometers. Power supply being erratic, population being urban in nature and long distribution system have their effect on the availability of water at the tail ends.

7.0.3.4 No records are being maintained to show the frequency of break downs, repair schedule or proper upkeep of the plants.

7.0.4 Pratappur :

This scheme has been prepared for 31 villages with projected population of 29,200 and 43,800 in 1981 and

A VIEW OF OVERHEAD
TANK AT VARANASI



A VIEW OF OVERHEAD
TANK AT VARANASI

2011 respectively. The water requirement for a period after 15 years can be taken as 2250 lpm and 3000 lpm. The two tubewells bored for this scheme are to a depth of 90 metres with recommended discharge of 3000 lpm. The pumping plants installed are of 3000 lpm and 2000 lpm capacity and are adequate for projected requirements. Independent power feeder arrangement has not been made so far, as such the supply position is poor.

7.0.4.1 Bleaching powder dozer was working but was in a very poor state of maintenance.

7.0.4.2 20 metre high 800 Kl. overhead tank is feeding the system. The length of distribution system is 105 Kilometers. There is acute scarcity of water in this scheme.

7.0.4.3 No record of maintenance of plants is being maintained.

7.1 DISTRICT VARANASI

7.1.1 Tikri :

The scheme was prepared for 27 villages. The projected population was 41,050 in 1981 and 61,560 in 2011. Total water requirements after 15 years would be 3000 lpm to 4500 lpm. Two tubewells have been bored to a depth of 95 metre and 100 metre. Recommended discharges are 2500 lpm and 3400 lpm respectively. The capacity of plants installed is 2100 lpm and 2750 lpm respectively. The existing bulk water meter is out of order since long. Subsequently another meter was fixed for testing the discharge of the plants and the observation was that the plants were working at their rated capacity. Independent power feeder is working.

7.1.1.2 Bleaching powder doser is working.

7.1.1.3 The capacity of overhead tank is 1200 Kl. at staging of 18 metre. The distribution system is 61 Kilometers long.

7.1.1.4 Part of population is urban and the demand for private water connections has gone up resulting in scarcity of water.

7.1.1.5 Keeping in view the increase in demand higher capacity plants according to the capacity of tubewells can be installed. A better alternative would however be to cater for urban population by a separate scheme.

7.1.1.6 No records are being maintained for planned maintenance of plants.

7.1.2 Khandwa :

The scheme was prepared for 67 villages whose projected population for 1981 and 2011 are 38,170 and 57,255 respectively. Total water requirement for a period after 15 years would be 2800 lpm to 3500 lpm. Two tubewells have been bored to a depth of 120 metre and 105 metre with recommended discharges of 2800 lpm and 3700 lpm respectively. The capacity of pumping plants installed is 1850 lpm and 2000 lpm respectively. The existing bulk meter is out of order. Testing was done by another meter which showed that the installed plants are giving rated discharge. Independent power feeder is working.

7.1.2.1 Though the bleaching powder doser is working the fittings nearby are corroded.

7.1.2.2 18 metre staging 1000 Kl. overhead tank is feeding the system of 110 Kilometers distribution.

7.1.2.3 No records of maintenance and repairs of plants is being maintained. The division in charge of maintenance is not empowered to take up the required additions in distribution system.

7.1.3 Vyasnagar :

This scheme has been prepared for 55 villages where projected population in 1981 and 2011 was 40,650 and 62,000 respectively. The total water demand after a period of 15 years would be 3000 lpm to 4000 lpm. Two tubewells have been bored to a depth 142 metre and 147 metre with recommended discharge of 3300 lpm and 3100 lpm respectively. Pumping plants of 1900 lpm and 1650 lpm capacity are installed. They cannot give any indication of the present capacity of the tubewells because they are much smaller than the yield of tubewells. Independent power feeder is working.

7.1.3.1 Bleaching powder doser is working.

7.1.3.2 The capacity of overhead tank is 1000 Kl. with 18 metre staging. The length of distribution system is 88 Kilometres. Maintenance of this scheme was found satisfactory. There is need for maintaining records of repairs of plants.

7.1.4 Rohania :

This scheme was prepared for 49 villages with projected population in 1981 and 2011 as 41,670 and 62,500 respectively. The total water demand for a period after 15 years would be 3000 lpm to 4500 lpm. Two tubewells have been bored to a depth of 142 metre and 130 metre with recommended discharges of 2400 lpm and 3200 lpm respectively. Pumping plants of 1800 lpm and 1950 lpm

have been installed. Independent power feeder is working.

7.1.4.1 Bleaching powder doser is working.

7.1.4.2 18 metre staging 1000 Kl. overhead tank is feeding a distribution system of 90 Kilometers.

7.1.4.3 There is a great demand of private water connections. The scheme is feeding urban population to a great extent at the cost of rural demand. In order to meet this demand, pumping plants of higher capacity could have been installed.

7.1.4.4 The division responsible for maintenance should be empowered to take up necessary additions in the distribution systems.

7.1.4.5 A schedule of preventive maintenance has to be maintained. Ultimately the urban population should be fed by a separate scheme.

7.1.5 Harahua :

This scheme was prepared for 82 villages with projected population of 38,400 and 57,600 in 1981 and 2011 respectively. The total demand of water for a period of 15 years would be 2800 lpm to 4200 lpm. Two tubewells have been bored to depths of 113 metre and 145 metre with recommended discharges of 2000 lpm and 2500 lpm respectively. Pumping plants of 1840 lpm and 1660 lpm capacity have been installed. Independent power feeder is not working and there is acute shortage of water at tail end points. Probably a higher capacity plant could have been installed in tubewell No. 2 to meet the increasing demand.

7.1.5.1 Bleaching powder doser is working.

7.1.5.2 1000 Kl. overhead tank with 18 metre staging is feeding the distribution system of 130 Kilometers.

7.1.5.3 This scheme needs to be split into manageable units.

7.1.6 Birankote:

This scheme has been prepared for 46 villages with projected population of 42,000 and 63,000 in 1981 and 2011. The total demand for a period after 15 years would be 3000 lpm. to 4500 lpm. Two tubewells have been bored to depths of 109 metre and 104 metre with recommended discharge of 2500 lpm and 1800 lpm respectively. Pumping plants of 1550 lpm and 1500 lpm capacity have been installed which indicate that either the yield of tubewell No. 1 has gone down or lower capacity plants have been installed in higher capacity bore wells. The existing tubewells are insufficient to meet the demand of 46 villages with a distribution system of 133 Kilometers, therefore it is reasonable to assume that the yield of tubewell No. 1 has gone down.

7.1.6.1 Bleaching powder doser is working.

7.1.6.2 18 metre high 1000 Kl. overhead tank is feeding the system. There is leakage near the overhead tank and the valve of tubewell No. 1 is not working satisfactorily.

7.1.6.3 There is a scarcity of water in the tail end villages and the scheme definitely needs reorganisation.

7.1.7 Sewapuri :

This scheme has been prepared for 30 villages with projected population of 21,450 and 32,300 in 1981 and 2011 respectively. The total demand of water for a

period after 15 years would be 1600 lpm to 2400 lpm. Two tubewells have been bored to depths of 135 metres and 137 metres with yields of 2800 lpm and 3000 lpm respectively. Pumping plants of 1300 lpm and 1200 lpm have been installed. Independent power feeder is working.

7.1.7.1 Bleaching power doser is working.

7.1.7.2 Overhead tank of 600 Kl. capacity and 16 metre staging is feeding 47 Kilometers of distribution system.

7.1.7.3 This scheme is giving satisfaction to the consumers and is well maintained.

7.1.8 Mirzamurad :

This scheme has been prepared for 43 villages with projected population of 38,600 and 52,900 in 1981 and 2011 respectively. The total demand for a period after 15 years would be 2800 lpm to 4200 lpm. Two tubewells have been bored to depths of 133 metre and 92 metre with yields of 2800 lpm and 3000 lpm respectively. Pumping plants of 1700 lpm and 1600 lpm capacity have been installed. Here also, lower capacity pumping plants have been installed in high capacity bore well, thereby not exploiting the bore potential fully inspite of the water shortage. Independent power feeder is working.

7.1.8.1 Bleaching powder doser is working.

7.1.8.2 18 metre staging 1000 Kl. overhead tank is feeding 100 Kilometers of distribution system.

7.1.8.3 Urban population very near the overhead tank is drawing a greater share than the remote villages.

7.2 DISTRICT RAEBARELI

7.2.1 Firozpur :

This scheme has been prepared for 16 villages with projected population of 13,733 and 20,600 in 1981 and 2011 respectively. The total water demand for a period after 15 years would be 1000 lpm to 1500 lpm. Two tubewells have been bored to depths of 242 metre with yields of 3450 lpm and 3200 lpm respectively. The capacity of plants installed is 1100 lpm at both tubewells. There is no arrangement to measure discharge of plants. Probably shallow tubewells with lesser discharge would have met the demand of the scheme where the demand is quite low.

7.1.2.1 Bleaching powder doser is working.

7.2.1.2 The capacity of overhead tank is 350 Kl. with 21 metre staging and total length of distribution system is 52 Kilometers.

7.2.1.3 The tubewells of Govindpur Scheme only a few Kilometers away are failing and giving less discharge. It may be desirable to utilise the spare capacity of Firozpur at Govindpur.

7.2.2 Raipur :

This scheme has been prepared for 24 villages with projected population of 21,332 and 32,000 in 1981 and 2011 respectively. The total demand of water for a period after 15 years would be 1550 lpm to 2300 lpm. Two tubewells have been bored to depths of 229 metre and 201 metre with yields of 1500 lpm and 1800 lpm respectively. Pumping plants of 1250 lpm and 1350 lpm

have been installed. There is no arrangement to measure the discharge of plants except by observing the time of filling the overhead tank.

7.2.2.1 Bleaching powder doser is working. The capacity of the tank is 500 Kl. with 22 metre staging. Distribution system is 90 Kilometers long.

7.2.2.2 It is reported that the yield tubewells is going down.

7.2.2.3 There is no record of maintenance of plants.

7.2.3 Bhojpur :

The scheme has been prepared for 34 villages, with projected population of 20,365 and 30,574 in 1981 and 2011 respectively. The total water demand for a period after 15 years would be 1500 lpm to 1800 lpm. Two tubewells have been bored to depths of 240 metre and 217 metre with yield of 800 lpm and 1800 lpm respectively. Pumping plants of 750 lpm and 1500 lpm have been installed but even 750 lpm pump in tubewell No. 1 releases water and is being run throttled. There is no arrangement to measure the discharge. But the scheme is facing acute scarcity of water.

7.2.3.1 Bleaching powder doser is working. 500 Kl. overhead tank with 20 metre staging is feeding 78 Kilometers of distribution system.

7.2.3.2 A schedule of maintenance and record for the same is also desirable.

7.2.4 Thulendi :

This scheme has been prepared for 19 villages with

projected population of 19,940 and 29,911 in 1981 and 2011 respectively. The total demand for a period after 15 years would be 1500 lpm to 2000 lpm. Two tubewells have been bored to depths of 310 metre and 92 metre with yields of 1000 lpm and 1200 lpm respectively. Pumping plants of 1000 lpm have been installed at both tubewells.

7.2.4.1 Bleaching power doser is working.

7.2.4.2 500 Kl. overhead tank with 20 metre staging is feeding 78 Kilometers of pipe line.

7.2.4.3 Records of maintenance of plants is not being maintained.

7.2.4.4 Since the yield from tubewells is little it is desirable to keep the schemes small.

7.2.5 Udari :

The scheme has been prepared for 16 villages with projected population of 17,200 and 25,800 in 1981 and 2011 respectively. The demand of water would be 1250 lpm to 1500 lpm. Two tubewells have been bored to depths of 21 metre and 20.6 metre with yields of 450 lpm and 500 lpm respectively. Pumping plants of 450 lpm and 500 lpm have been installed.

7.2.5.1 Bleaching powder doser is working.

7.2.5.2 Overhead tank of 500 Kl. with 20 metre staging is feeding the system.

7.2.5.3 The supply position is quite unsatisfactory.

7.2.6 Bannamau :

This scheme has been prepared for 27 villages with

the 1981 population of 28,151 and 2011 population of 41,945. The water demand for a period after 15 years will be 2000 lpm to 2500 lpm. Two tubewells have been bored to a depth of 335 metre and 324 metre with discharges of 1500 lpm and 1800 lpm respectively. Pumping plants of 1500 lpm and 1800 lpm have been installed. There is no arrangement for measuring discharge of the tubewells and pumping plants. Independent power feeder is available.

7.2.6.1 Bleaching powder doser is working but the fittings are corroded.

7.2.6.2 Overhead tank with a capacity of 800 Kl. with staging of 24 metre is feeding 140 Kilometers of distribution system.

7.2.6.3 There is acute scarcity of water at the tail ends. No records have been maintained regarding maintenance of plants or a schedule of planned repairs.

7.2.7 Behtakalan :

This scheme has been prepared for 34 villages with projected population of 30,400 and 45,600 in the years 1981 and 2011. The total water demand for a period after 15 years would be 2200 lpm to 2700 lpm. Three tubewells have been bored so far upto depth of 226 metre, 222 metre and 264 metre with yields of 600 lpm, 2600 lpm and 623 lpm respectively. One tubewell has already failed and the performance of others is also doubtful. Pumping plants of 1500 lpm and 600 lpm have been installed at two tubewells and the condition of third is being watched.

7.2.7.1 The water supply position in this scheme is very unsatisfactory.

7.2.7.2 Bleaching powder doser is working. One of the tubewell is in a very bad state of maintenance.

7.2.7.3 Overhead tank of 800 Kl. capacity with 22 metre staging is feeding 126 Kilometers of pipe line.

7.2.7.4 It may be desirable to split this scheme. So that the yield of the tubewells may meet the demand.

7.2.8 Ashrafpur :

This scheme has been prepared for 20 villages with projected population of 17,630 and 26,460 in the years 1981 and 2011. The total demand would be 1300 lpm to 1600 lpm during a period after 15 years. Two tubewells have been bored to depth of 375 metre and 370 metre with yield of 1800 lpm and 1800 lpm respectively. Pumping plants of 800 lpm have been installed in both tubewells. As there is sufficient demand higher capacity pumping plants could be installed.

7.2.8.1 Bleaching powder doser is working. Overhead tank of 500 Kl. with 21 metre staging is feeding 69 Kilometers of distribution system.

7.2.9 Govindpur :

The scheme has been prepared for 19 villages with projected population of 19,927 and 29,800 in the years 1981 and 2011. The total water demand for a period after 15 years would be 1450 lpm to 1900 lpm. Three tubewells have been bored to depths of 210 metre, 247 metre and 242 metre with discharges of 1500 lpm each. One of the tubewells has failed and another one is in bad shape. The pumping plants installed are of 1400 lpm, 1225 lpm and 1100 lpm capacity.

7.2.9.1 Bleaching powder doser is working. Overhead tank of 500 Kl. capacity with 20 metre staging is feeding 82 Kilometers of distribution system.

7.2.9.2 There is no record of maintenance of plants.

7.2.10 Jagatpur :

This scheme has been prepared for 32 villages with projected population of 21,867 and 38,800 in the years 1981 and 2011. The total water demand for a period after 15 years would be 1500 lpm to 1900 lpm. Three tubewells have been bored upto depths of 270 metre, 270 metre and 296 metre. One of these have failed. The yield of remaining two is 900 lpm and 1350 lpm in which pumping plants of 900 lpm and 1125 lpm have been installed.

7.2.10.1 Bleaching powder doser is working. Overhead tank of 650 Kl. capacity with 20 metre staging is feeding 137 Kilometers of distribution system.

7.2.10.2 There is no records of maintenance of plants.

7.2.10.3 It would be desirable to split this scheme in two or three parts according to availability of underground water.



CHAPTER - VIII

CONCLUSIONS AND RECOMMENDATIONS

8.1 SELECTION OF PROJECT AREA

The Government of India conducted a survey in 1971-72 to identify villages which had problems of water supply. The basic criteria for selection of these villages in plains was :

- [i] Where source of water supply is 1.6 Km. away from the village,
- [ii] Where ground water is 15 metres below ground level.
- [iii] Where the ground water was susceptible to water borne diseases or contained excessive salinity, iron or flourides, etc.

In Uttar Pradesh the eastern portion contributed to a majority of these problem villages. The Dutch Assisted Programme selected three districts of Varanasi, Allahabad and Rae Bareli in congruence with the established norms laid down by the Government of India. The three districts have a majority of villages with shortage of safe drinking water. The selected project area covers about 300 acute water scarcity villages.

8.2 SELECTION OF PROJECT SITES

The selection of project sites under Sub-Project I is in line with the policy of the Government of India. The Sub-Project I emphasises water supply to rural

areas which have water scarcity. The majority of villages covered by Varanasi and Allahabad schemes are in water scarcity area and in Rae Bareli a check of secondary sources of water has revealed that the ground water is not advisable for drinking.

8.3 POPULATION COVERED BY THE SCHEMES

The 22 schemes of the three districts cover a present population of 0.6 million and a design population projected at 0.9 million in the year 2011.

8.4 PERCENTAGE OF USERS

The percentage of rural population using piped water supply defer from district. It ranges from about 20.0% in Allahabad and 28.0% in Rae Bareli to a maximum of 50.5% in Varanasi. The rural population considers piped water supply as an integral part of their water source.

The percentage of households using piped water supply for drinking purposes is very low ranging between 1.0% to 12.6% households. This clearly indicates that people do have reservations in using pipe water supply for drinking purposes.

RECOMMENDATION

In view of the fact that the water taps are available for use and the facility is working satisfactorily in most of the villages with water being supply free of charge from the standposts, the disinclination of consumers to use the piped water facility may be associated with the traditional sources being more convenient and the taste of water from traditional sources being more preferable.

It is therefore recommended that a campaign to influence people to use piped water supply for drinking be utilized. This campaign should highlight the chances of pollution of secondary sources and in some visible terms try to show the difference between the two sources.

8.5 REQUIREMENT OF WATER BY HOUSEHOLDS

The approximate water demand in the three districts studied per household is 70 - 75 litres per consumer per day. This has been calculated on the basis that the average demand for drinking, cooking, washing of food and utensils is 20 lpcd plus bathing etc., 15 lpcd plus watering of livestock at the time of feeding 10 litres [primary data on number of animals per households has worked out to be 1.2 animals per household] plus miscellaneous use 10 - 15 lpcd. The provision for 70 lpcd of water is therefore adequate to meet the consumer requirement.

8.6 ADEQUACY OF INSTALLED CAPACITY OF THE SCHEMES

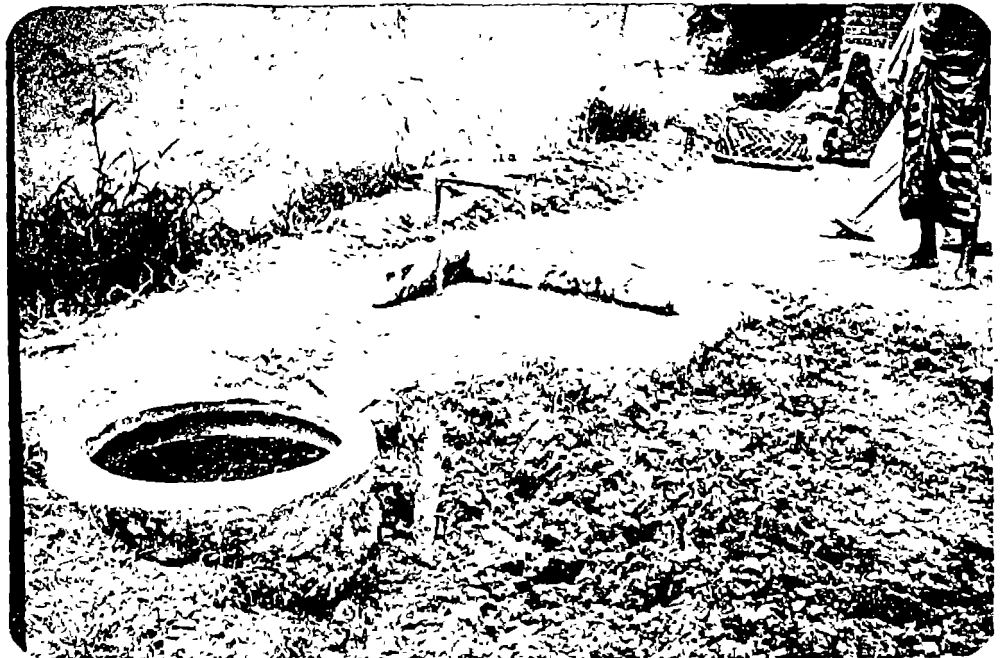
The installed capacity of the schemes under study is adequate to meet the current and projected demand of the population till such time that the actual population exceeds the design population considerably.

8.7 WATER SUPPLY COVERAGE TO ECONOMICALLY BACKWARD SECTION

Harijan Basties with low population have been neglected in the supply of facilities. As minimum population requirement for a standpost is 250 members per standpost these settlements which are small in nature are often neglected.



SOME PRIVATE CONNECTIONS



RECOMMENDATION

It is recommended that the system of private connection be encouraged with possible subsidisation for Harijans and low income groups. This will help in an increase in the number of private connections which are better maintained, will add additional revenue for the scheme and will result in a coverage of all members of the society. A flat rate system of charging should be followed.

8.8 COVERAGE OF HAMLETS

All hamlets of a village should be covered under the scheme. It was observed that in certain villages some hamlets have been neglected [e.g. Mujahir basti in village Dafi].

8.9 PRIVATE CONNECTION

8.9.1 Currently village households in the high income group can only afford to have private connections as the cost of pipe line and security deposit is beyond their means.

8.9.2 There is a large unfulled demand for private connections in Varanasi district [e.g. Tikri and Khandwa schemes].

8.9.3 A majority of the villagers have indicated their preference for a flat rate system of charging for private connection. The system of water meters has not found popular support.

8.10 INFLUENCE OF URBAN AND SEMI URBAN POPULATION

An exceptional load has been put on the schemes in Varanasi and Allahabad district by the urban and semi-

urban population and immigration of rural population to the fringe areas of towns, townships and small urban settlements. In fact it was observed that the urban population was monopolising the schemes in water usage.

The schemes in Varanasi district have been situated very near the town Varanasi [Rohania, Tikri, Vyasnagar, etc.]. The population growth in these areas has been far more than anticipated, and has at places exceeded the demand population [projected for year 2011]. The current population of schemes in Allahabad has also exceeded the design population.

RECOMMENDATION

It would be advisable in future to identify all such schemes which feed urban or semi-urban population and establish independent water facilities for these areas. The site selection of Rural Schemes should also take care to locate them between 15 Kms. to 20 Kms. away from towns, townships or town areas so that the growth of urban areas do not invade the rural schemes.

8.11 STANDPOSTS

Standposts have been installed in the 22 schemes to supply free of charge water to the villagers. The standposts are of 2 design one with a single arm and tap arrangement and the second with double arm and tap arrangement. The standposts have been placed on the premise that are double tap standpost will fulfill requirement of 250 villagers irrespective of the number of households.

8.11.1 Site selection for standposts :

The site selections for standposts was found to lack

imagination. Exposed sites and placement of standposts in areas with abundance of secondary sources of water was found to be a common occurrence.

RECOMMENDATION

Before selection of villages and scheme area a survey of the proposed area should be made and secondary sources of water identified. Areas with the large number of hand pumps, wells, etc. should be given a lower priority. At the start of the construction activity an awareness/promotional campaign should be started specially for the women folk in the area. The campaign should address itself to the following :

- [i] That the facility is being installed in the villages for the benefit of the residents of the village.
- [ii] That the maintenance of the facility will be in their own interest.
- [iii] That they should be involved in the site selection, etc.
- [iv] The concept of sanitation.

This will ensure a higher utilization of the facility by the users and at the same time decrease damage to the facility. This will also promote the concept of sanitation which was found to be missing in the rural households.

8.11.2 Maintenance of standposts :

The number of damaged standposts was found to be very high in all the schemes, resulting in a continuous flow of water with high percentage of wastage and

the added discomfort of low pressure at end line villages. It was observed that at places where the population largely depended on piped water supply, incidence of damage to standposts was very low and at times rudimentary maintenance was done by the villagers themselves [e.g. replacement of taps, mending of leakages, etc.].

The Vandal Proof [V.P.] taps have been found to be damaged. These are two varieties of V.P. observed in the area. The earlier version of taps had a ball at the base which was pushed up for release of water. The whole assembly of ball and piston was susceptible to breakage quite easily. These taps are being replaced by a ring release system. The ring release taps have been recently introduced and therefore could not be evaluated as it will take some time for problems to surface. It was also felt that the V.P. taps should have a system by which if the release assembly is broken or tampered the water flow should be blocked by a spring load mechanism. This will dissuade willful tempering of the taps.

8.12 PERIOD OF SUPPLY

The period of supply is 5 - 6 hours a day. This was found to be less by the consumers.

RECOMMENDATION

The period of supply should be atleast $8\frac{1}{2}$ hours a day with $3\frac{1}{2}$ hours supply in the morning [5:30 A.M. to 9:00 A.M.] 2 hours in the afternoon [12:00 to 2:00 P.M.] and 3 hours in the evening [5:00 P.M. to 8:00 P.M.].

8.13 POWER SITUATION

Power failure in schemes with or without independent

CHECKING WATER
PRESSURE AT VARANASI



WATER SAMPLE BEING
DRAWN AT ALLAHABAD

feeders is a common occurrence. Proper followup with the electricity authorities has not been initiated.

RECOMMENDATION

The power situation needs to be closely monitored with installation of power availability meters. The weekly situation should be reported to the electricity authorities till such time the situation stabilises. Installation of independent feeders in all schemes should be completed immediately.

8.14 WATER QUALITY

An inspection of water used by the rural population in the area under study was done. Samples were drawn from the standposts, private connections, secondary sources like wells etc. and storage devices. These samples were tested at the laboratories and test reports received.

8.14.1 Varanasi :

The samples of wells and hand pump [shallow bore] water collected from the scheme area show iron, hardness and dissolved oxygen beyond acceptable limits. Traces of Nitrates have also been observed though not in alarming limits. The reports show that the ground water is highly susceptible to pollution and inadvisable for drinking.

8.14.1.1 The test of water drawn from standposts show excellent drinking water, though Rohania Scheme has shown hardness and dissolved oxygen beyond acceptable limits, but as the water source is a deep tube well with bore depth greater than 120 feet the chances of surface pollution are remote. In addition chlorination was being

done in the scheme and was observed by the investigators in the test of the water. The treatment of water for hardness would be an expensive proposition.

8.14.1.2 The bacteriological test of water stored by the households has shown that the water drawn from standposts when stored showed marked bacterial activity and was unsatisfactory for drinking. The containers on visual inspection though were found to be clean.

8.14.1.3 Bacteriological test of water drawn from standposts and private connections has been found to be excellent, but that from wells has shown to be unsatisfactory.

8.14.1.4 The samples of well water taken from the area show traces of Nitrate and high dissolved oxygen content. This is a clear indication of susceptibility to bacterial activity and chances of surface pollution, and therefore safe drinking water which is treated, is advisable in the area.

8.14.2 Rae Bareli :

The bacteriological and chemical tests of samples drawn from the piped water supply [private connections and standposts] show excellent quality of drinking water.

8.14.2.1 The test of samples drawn from wells and hand pumps show clear bacterial activity and hardness beyond acceptable limits.

8.14.2.2 Wells in Behtakalan Scheme show excellent drinking water as these wells are deep and brick lined, though all of them are uncovered wells.

8.14.2.3 Wells samples from Kasimpur in Ashrafpur group of

villages are also found to be potable.

8.14.3 Allahabad :

The chemical and bacteriological examination of water from standposts in Allahabad district show -

- [a] The hardness is more than acceptable limits in Nidura, Pratappur and Saidabad Schemes but well within allowable limits.
- [b] Bacteriological test of samples from standposts in Andhiyari [Nidura] and Jamshedpur [Saidabad] were found to be unfit for drinking.*

8.14.3.1 A lot of sand was observed at the time the samples were being drawn at Nidura and Saidabad. Inspection was carried out of the overhead tanks by entering them when empty. The tanks were found to be clean and the water was chlorinated because the taste showed the typical bitterness. It may be possible that there is a leakage in the pipe line in the two villages which allows infiltration of pollutants.

8.14.3.2 The well water samples taken in the area show :

- [a] Hardness beyond acceptable limits in all schemes.
- [b] High nitrates and dissolved oxygen in Saidabad Scheme.
- [c] Bacteriological tests in all schemes show water unfit for drinking.

Note * Jal Nigam vide letter No. 459/ANU DUTCH CREDIT/140 dated 6.4.1989 have informed that the contamination was traced to leakage in the pipe line due to repair work. The repair has since been completed.

The secondary sources in the area are highly susceptible to surface pollution and there is a definite need for treated drinking water supply.

8.15 MAINTENANCE ASPECTS

The maintenance of scheme in general was found to need improvement. The main observations and recommendations are as follows :

8.15.1 Adequacy of available man power to man the schemes :

The man power available at schemes sites was found to be satisfactory for the day to day running of the facility. However, in schemes where the number of villages exceeded 25, the filter was not able to make a complete round of all the villages in a month.

RECOMMENDATION

It is recommended that in schemes which cover more than 25 villages, two filter should be kept so that they can independently make a visit to all the villages at least once a month.

8.15.2 Chlorination :

Some schemes in Varanasi were observed to be having an acute shortage of bleaching powder during the months of July and August.

RECOMMENDATION

It is recommended that chlorination should be done continuously and specially during rainy season when the secondary sources are more susceptible to pollution.

8.15.3 Tubewells :

Tube wells are considered to have a natural life span of about 15 years, specially schemes on banks of major river systems where the cavity is in the path of natural catchment of the rivers and comes in the path of natural flow. The failing of these tube wells has been observed in Rae Bareli and Varanasi Schemes. The schemes have now been in operation for 5 to 7 years. It is recommended that a periodic test of tube wells yield and depression be taken every 4 to 5 years. This can be done because every scheme has at least 2 tube wells. This data should be recorded and maintained for future reference along with recommendatons.

8.15.4 Maintenance of pipe lines and standposts :

The damage to standpost and pipe line has been observed to be very high.

RECOMMENDATION

The maintenance of pipe line and standposts should be intensified. Jal Nigam authorities in Varanasi have reported paucity of fund for maintenance. It is recommended that the records be maintained of sectorwise damage to pipe line in each scheme alongwith a record of replacement/repair done to individual standpost by number. This record will serve as a basis for estimation of requirement of funds under each scheme.

8.15.5 General record keeping and maintenance :

8.15.5.1 Discharge of pumping plants should also be measured and a record maintained.

8.15.5.2 A schedule of planned maintenance should be prepared and recorded for every plant. This schedule should be adhered to.

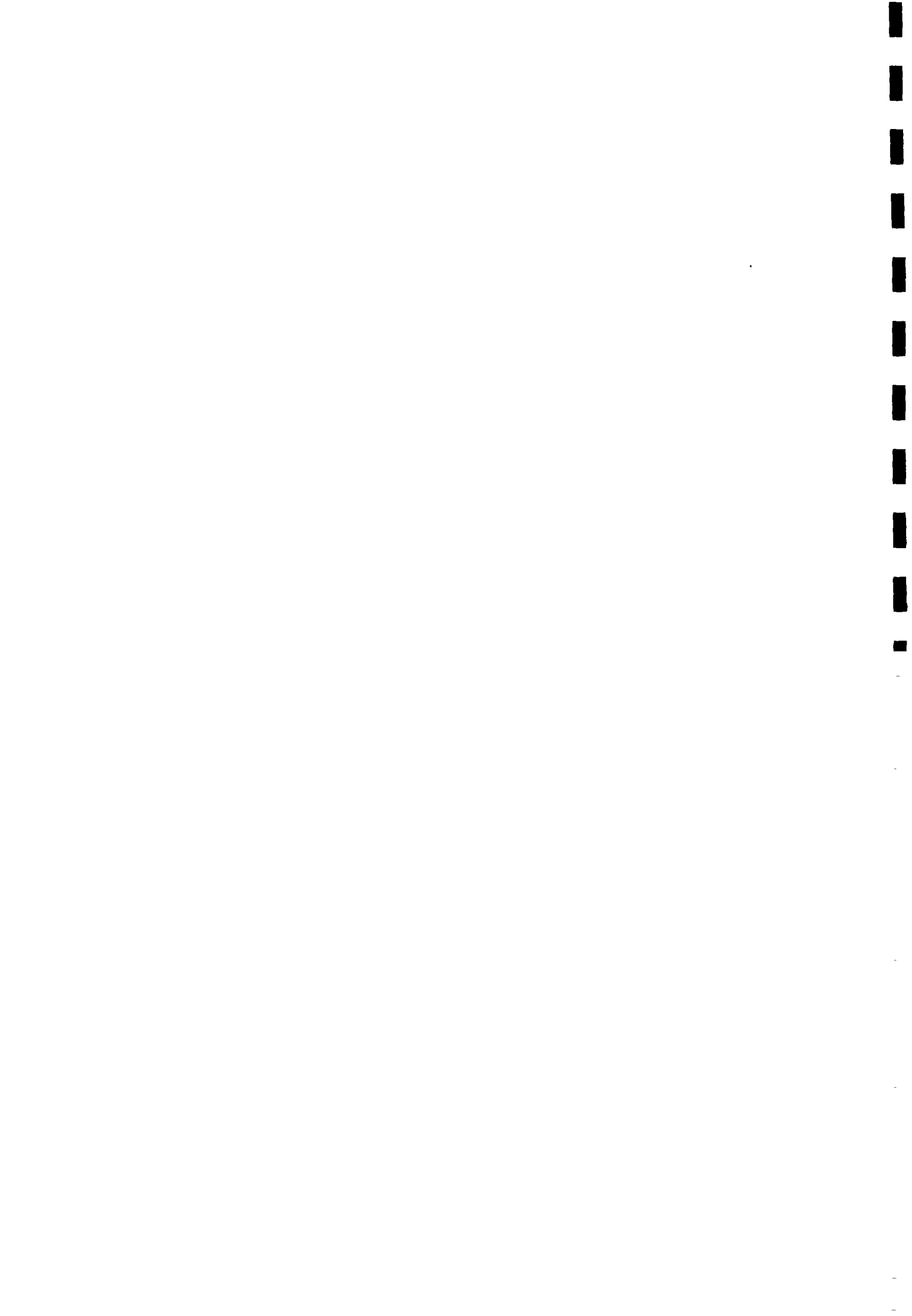
8.15.5.3 Maintenance of plant and equipment was found to be lax. At times it was reported that the repairs took more than a month. It is recommended that a small workshop be established in each district for maintenance of equipment of Dutch Schemes.

8.15.5.4 Separate records of maintenance to pipe lines and standpost should be kept.

8.15.5.5 Replacement of bleaching powder dosers with gaseous chlorinators should be considered.

8.16 An average households makes 10-12 trips per day to collect water, and if the time per trip is 15 minutes, the women of household spend nearly 3 hours every day to collect water for their household needs only, apart from time spent on their own needs of bathing and washing clothes. This is one of the reason why secondary sources of water are preferred over piped water supply. A better maintenance of schemes would cut this period considerably.

8.17 A better placement of standposts in the villages will also result in the distance travelled by average consumer to be reduced. This will help in reducing the carrying distance by women loaded with buckets full of water and result in higher acceptability.



PART - II

TABLES

TABLE - 1

STATEMENT OF VILLAGES SURVEYED AND HOUSEHOLDS

[Villagewise]

Sl. No.	Name of district	Name of scheme	Name of village	No. of Households	No. of households surveyed		
					Scheduled Caste/Tribe	General	Total
1	2	3	4	5	6	7	8
1.	Allahabad	Nidura	Andhiyari	224	14	24	38
			Daniyalpur	138	4	19	23
		Urwa	Chaukhata	79	-	13	13
			Sikra	87	8	6	14
		Saidabad	Hakim Patti	78	7	5	12
			Jamshedpur	139	3	19	22
			Pratap Pur	Ghurdauli	153	10	15
		Meerpur	78	3	9	12	
2.	Varanasi	Tikri	Khanon	92	4	10	14
			Dafi	231	14	24	38
		Khandwa	Gaura	92	4	10	14
			Jagatpur	181	11	18	29

Contd..

Table - 1 [Contd.]

1	2	3	4	5	6	7	8
		Vyas Nagar	Bhaisundi	242	17	23	40
			Dariya Pur	60	-	10	10
		Rohania	Parmanandpur	108	5	12	17
			Lakhanpur	93	-	15	15
		Harahua	Ramsinghpur	107	-	17	17
			Ganeshpur	166	15	11	26
		Birankot	Hasanpur	143	9	14	23
			Ishwarpur	47	2	5	7
		Sewapuri	Banauli	115	9	9	18
			Khillupur	53	1	7	8
		Mirza Murad	Khalispur	150	4	20	24
			Puranderpur	48	2	5	7
3.	Rae Bareli	Firojpur	Dudhwan	265	13	30	43
			Firojpur	54	3	5	8
		Ralpur	Sagarkheda	205	12	22	34
			Chakchaurahia	122	9	10	19
		Bhojpur	Kati Kaha	140	17	5	22
			Daulatpur	86	4	10	14
		Thulendi	Rasoolpur	257	23	19	42
			Hasawa	102	10	6	16

Contd..

Table - 1 [Contd.]

1	2	3	4	5	6	7	8
	Udari	Mewai Alampur	302	23	27	50	
		Baghail	131	12	9	21	
	Bannamau	Bannamau	172	13	15	28	
		Fakhruddinpur	76	5	7	12	
	Behta Kalan	Mubarakpur	106	7	10	17	
		Rewari	130	9	11	20	
	Ashrafpur	Bhelia	287	22	25	47	
		Kasimpur	167	13	14	27	
	Govindpur	Govindpur	195	21	10	31	
		Pasankhera	69	3	8	11	
	Jagatpur	Siddhaur	106	9	8	17	
		Zingna	145	3	20	23	

TABLE - 2

STATEMENT OF VILLAGES AND HOUSEHOLDS SURVYED

[Districtwise]

Sl. No.	Name of district	No. of households	No. of households surveyed
1.	Allahabad	986	159
2.	Varanasi	1,928	307
3.	Rae Bareli	3,116	502
Total		6,030	968

TABLE 3.1

SOURCE OF WATER

District - Varanasi

Sl. No.	Name of scheme	Name of village	No. of households as per survey	Source of water							
				PC	SP	GPH	PHP	PW	CW	VP	Other
1	2	3	4	5	6	7	8	9	10	11	12
1.	Birankot	Hasanpur	143	75	61	1	2	4	-	-	-
		Ishwarpur	47	14	14	-	-	18	-	-	1
2.	Harahua	Ramsinghpur	107	59	21	-	-	26	-	-	1
		Ganeshpur	166	21	2	4	-	136	3	-	-
3.	Khandwa	Jagatpur	181	37	94	-	1	23	26	-	-
		Gaura	92	16	27	-	-	21	24	-	4
4.	Mirza Murad	Khalispur	150	35	44	-	-	68	-	-	3
		Purandarpur	48	4	28	-	2	13	-	-	1
5.	Rahania	Lakhanpur	93	30	6	-	-	57	-	-	-
		Parmanandpur	108	30	71	-	-	5	2	-	-
6.	Sewapuri	Banauli	115	27	88	-	-	-	-	-	-
		Khillupur	53	7	16	-	1	19	9	-	1
7.	Tikri	Dafi	231	30	13	-	11	77	100	-	-
		Khanaon	92	10	13	-	-	55	14	-	-

Table - 3.1 [Contd.]

1	2	3	4	5	6	7	8	9	10	11	12
8.	Vyasnagar	Dariyapur	60	-	9	-	-	7	44	-	-
		Bhaisundi	242	6	68	-	38	69	61	-	-
	Total		1,928	401	575	5	55	598	283	-	11

PC - Private connection

SP - Standpost

GHP - Hand pump installed under Government sponsored programme

PHP - Hand pump private

PW - Private well

CW - Community well

VP - Village pond

TABLE - 3.2

USE OF PIPED WATER SUPPLY FOR DRINKING

District - Varanasi

Sl. No.	Name of scheme	No. of households in villages	User of pipe water supply		Total	Percentage
			Standpost for drinking	Private connection		
1	2	3	4	5	6	7
1.	Birankot	190	6	18	24	12.6
2.	Harahua	273	4	16	20	7.3
3.	Khandwa	273	15	9	24	8.7
4.	Mirzamurad	198	7	11	18	9.1
5.	Rohania	201	10	12	22	10.9
6.	Sewapuri	168	13	7	20	11.9
7.	Tikri	323	3	7	10	3.1
8.	Vyasnagar	302	9	2	11	3.6
Total		1,928	-	-	-	8.4

TABLE - 3.3
QUANTUM OF WATER COLLECTED

District - Varanasi

Sl. No.	Name of scheme	Quantity of water collected each time	Frequency			Quantity of water used per family		
			Summer	Winter	Monsoon	Summer	Winter	Monsoon
1	2	3	4	5	6	7	8	9
1.	Birankot	12	9	10	8	108	120	96
2.	Harahua	13	11	9	10	143	117	130
3.	Khandwa	11	9	7	7	99	77	77
4.	Mirza Murad	13	12	10	11	156	130	143
5.	Rohania	12	12	9	10	144	108	120
6.	Sewapuri	12	11	9	9	132	108	108
7.	Tikri	12	12	9	10	144	108	120
8.	Vyasnagar	12	11	8	9	132	96	108
Total		-	-	-	-	132	108	112

TABLE - 3.4

POPULATION AND FAMILY PROFILE

District - Varanasi

Sl. No.	Name of scheme	No. of households	Actual population			Average family size			
			Adult	Children	Total	Adult	Children	Total	Design population
1	2	3	4	5	6	7	8	9	10
1.	Birankot	190	1139	786	1925	6	4	10	2465
2.	Harahua	173	1,221	837	2,058	7	5	12	1,929
3.	Khandwa	273	1,471	979	2,450	5	3	8	2,837
4.	Mirza Murad	198	1,306	1,035	2,341	6	5	11	2,119
5.	Rohania	201	787	614	1,401	4	3	7	3,512
6.	Sewapuri	168	711	564	1,275	4	3	7	1,719
7.	Tikri	323	1,486	934	2,470	5	3	8	2,674
8.	Vyasnagar	302	1,254	941	2,195	4	3	7	2,289
Total		1,928	9,375	6,740	16,115	5	4	9	23,144

TABLE - 3.5

USE OF STANDPOST

District - Varanasi

Sl. No.	Name of scheme	Name of village	No. of standpost	No. of households	No. of households using standpost		Average distance of standpost from household [in metre]	Time taken for collecting water [in minutes]
					General use	Drinking		
1	2	3	4	5	6	7	8	9
1.	Birankot	Hasanpur	9	143	61	4	23.3	8.6
		Ishwarpur	3	47	14	2	11.5	6.9
2.	Harahua	Ramsinghpur	6	107	21	2	25.0	7.6
		Ganeshpur	1	166	2	2	65.0	11.15
3.	Khandwa	Jagatpur	7	181	94	15	41.8	10.3
		Gaura	3	92	27	-	175.0	9.7
4.	Mirza Murad	Khalispur	5	150	44	4	74.15	6.7
		Puranderpur	6	48	28	3	26.25	8.5
5.	Rohania	Lakhanupur	4	93	6	-	200.00	9.9
		Parmanandpur	7	108	71	10	26.25	11.5
6.	Sewapuri	Banauli	12	115	88	12	48.9	9.7
		Khillupur	3	53	16	1	20.0	9.0

Contd..

Table - 3.5 [Contd.]

1	2	3	4	5	6	7	8	9
7.	Tikri	Dafi	5	231	13	2	32.5	13.2
		Khanaon	4	92	13	1	50.0	9.65
8.	Vyasnagar	Dariyapur	2	60	9	2	10.0	8.1
		Bhaisaundi	7	242	68	7	17.4	8.5
Total			84	1,928	575	67	52.94	

TABLE - 3.6

TIMING OF WATER SUPPLY

District - Varanasi

Sl. No.	Name of scheme	Name of village	Timing of water supply			Hours of supply
			Morning	Afternoon	Evening	
1.	Birankot	Hasanpur	6.00 - 8.30	12.00 - 1.00	5.00 - 7.00	5.30
		Ishwarpur	6.00 - 8.00	11.00 - 12.00	5.00 - 7.00	5.00
2.	Harahua	Ramsinghpur	6.00 - 8.00	12.00 - 1.30	5.00 - 8.00	6.30
		Ganeshpur	6.00 - 8.00	12.00 - 1.00	5.00 - 7.00	5.00
3.	Khandwa	Jagatpur	6.00 - 9.00	12.00 - 1.00	5.00 - 7.00	6.00
		Gaura	6.00 - 8.00	12.00 - 1.00	5.00 - 8.00	6.00
4.	Mirza Murad	Khalispur	6.00 - 8.00	12.00 - 1.00	5.00 - 7.00	5.00
		Purandarpur	6.00 - 8.00	11.00 - 1.00	5.00 - 8.00	7.00
5.	Rohania	Lakhanpur	6.00 - 9.00	12.00 - 1.00	5.00 - 7.00	5.00
		Parmanandpur	6.00 - 8.00	12.00 - 1.00	5.00 - 8.00	7.00
6.	Sewapuri	Banauli	6.00 - 8.00	12.00 - 1.00	4.00 - 6.00	5.00
		Khillupur	6.00 - 8.00	1.00 - 2.30	4.00 - 7.00	6.30

Contd..

Table - 3.6 [Contd.]

1	2	3	4	5	6	7
7.	Tikri	Dafi	6.00 - 8.00	12.00 - 2.00	5.00 - 9.00	8.00
		Khanaon	5.00 - 8.00	12.00 - 1.00	4.00 - 8.00	8.00
8.	Vyasnagar	Dariyapur	5.00 - 8.00	12.00 - 2.00	5.00 - 8.00	8.00
		Bhaisundi	6.00 - 8.00	12.00 - 2.00	5.00 - 7.00	6.00

TABLE - 3.7

STANDPOSTS

District - Varanasi

Sl.No.	Name of scheme	Name of village	Standposts		Type		Condition											
			Reported	Found	Single	Double	Pillar			Tap			Base			Drain		
							D	M	OK	D	M	OK	D	M	OK	D	M	OK
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1.	Birankot	Hasanpur	8	9	9	-	-	1	8	2	4	3	-	2	7	-	3	6
		Ishwarpur	3	3	3	-	-	1	2	-	2	1	-	1	2	-	2	1
2.	Harahua	Ramsinghpur	2	6	5	1	-	1	5	3	2	1	-	3	3	-	4	2
		Ganeshpur	5	1	1	-	-	1	-	-	-	1	-	1	-	-	1	-
3.	Khandwa	Jagatpur	11	7	5	2	1	-	6	3	-	4	-	-	7	1	-	6
		Gaura	6	3	-	3	-	-	3	-	3	-	-	-	3	-	1	2
4.	Mirza Murad	Khalispur	8	5	4	1	-	1	4	1	1	3	2	-	3	1	1	3
		Puranderpur	4	6	6	-	-	-	6	5	-	1	-	-	6	-	-	6
5.	Sewapur ₁	Banauli	4	12	12	-	-	-	12	3	2	7	3	1	8	1	3	8
		Khillupur	2	3	3	-	-	-	3	1	1	1	1	-	2	-	2	1
6.	Rohania	Lakhanpur	3	4	4	-	3	-	1	-	1	3	1	1	2	-	3	1
		Parmanandpur	13	7	5	2	1	-	6	-	3	4	1	-	6	-	-	7
7.	Tikri	Dafi	2	5	3	2	2	1	2	1	1	3	1	1	3	-	1	4
		Khanaon	3	4	3	1	-	-	4	-	3	1	-	-	4	-	2	2
8.	Vyasnagar	Dariyapur	2	2	2	-	-	-	2	-	-	2	-	-	2	-	-	2
		Bhaisundi	7	7	5	2	-	-	7	1	1	5	1	-	6	-	3	4
Total			83	84	70	14	7	6	71	20	24	40	10	10	64	3	26	55

D - Damaged

M - Missing

OK - In working order

TABLE - 4.1

SOURCE OF WATER

District - Rae Bareli

Sl. No.	Name of scheme	Name of village	No. of households	Source of water							
				PC	SP	GHP	PHP	PW	CW	VP	Other
1	2	3	4	5	6	7	8	9	10	11	12
1.	Ashrafpur	Bheliya	287	-	91	-	11	120	65	-	-
		Kashimpur	167	-	32	-	11	115	4	-	5
2.	Bannamau	Bannamau	172	-	8	-	63	81	20	-	-
		Fakhruddinpur	76	-	5	-	7	63	-	-	1
3.	Behta Kalan	Rewari	130	2	22	-	17	80	9	-	-
		Mubarakpur	106	-	2	-	55	35	3	-	12
4.	Bhojpur	Daulatpur	86	29	36	-	-	21	-	-	-
		Katikaha	140	9	42	-	32	55	4	-	1
5.	Firojpur	Dudhwan	265	106	63	-	5	46	45	-	-
		Firojpur	54	4	17	-	5	28	-	-	-
6.	Govindpur	Govindpur	195	1	29	1	55	109	-	-	-
		Passankheda	69	3	25	-	15	15	-	-	11
7.	Jagatpur	Sidhor	106	4	32	-	4	64	2	-	-
		Zingna	145	-	21	-	14	110	-	-	-

Contd..

Table - 4.1 [Contd.]

1	2	3	4	5	6	8	9	10	11	12	
8.	Ralpur	Chakchaurahia	122	-	27	-	-	91	4	-	-
		Sagarkheda	205	42	105	-	11	42	4	-	1
9.	Thulendi	Haswa	102	-	3	-	5	94	-	-	-
		Rasoolpur	257	3	17	-	39	198	-	-	-
10.	Udari	Alampur	301	5	51	-	7	192	29	-	17
		Bhagail	131	-	29	-	-	102	-	-	-
	Total		3,116	208	657	1	356	1,661	186	-	48

PC - Private connection

SP - Standpost

GHP- Hand pump installed under Government
sponsored programme

PHP - Hand pump private

PW - Private well

CW - Community well

VP - Village pond

TABLE - 4.2

USE OF PIPED WATER SUPPLY FOR DRINKING

District - Rae Bareli

Sl.No.	Name of scheme	No. of households in villages	Users of pipe water supply		Total	Percentage
			Standpost	Private connection		
1	2	3	4	5	6	7
1.	Ashrafpur	454	21	-	21	4.6
2.	Bannamau	248	-	-	-	-
3.	Behta Kalan	236	6	-	6	2.5
4.	Bhojpur	226	99	9	18	8.0
5.	Firojpur	319	9	17	26	8.1
6.	Govindpur	264	7	-	7	2.6
7.	Jagatpur	251	6	-	6	2.4
8.	Ralpur	327	17	9	26	7.9
9.	Thulendi	359	3	1	4	1.1
10.	Udari	432	13	2	15	3.4
	Total	3,116	91	38	129	4.13

TABLE - 4.3

QUANTUM OF WATER COLLECTED

District - Rae Bareli

Sl. No.	Name of Scheme	Quantity of water collected each time	Frequency			Quantity of water used per family		
			Summer	Winter	Monsoon	Summer	Winter	Monsoon
1	2	3	4	5	6	7	8	9
1.	Ashrafpur	11	10	8	9	110	88	99
2.	Bannamau	12	10	8	8	120	96	96
3.	Behta Kalan	13	11	10	10	143	130	130
4.	Bhojpur	11	12	10	11	132	110	121
5.	Firojpur	11	12	10	10	132	110	110
6.	Govindpur	12	9	8	7	108	96	84
7.	Jagatpur	12	9	8	9	108	96	108
8.	Ralpur	15	10	8	9	150	120	135
9.	Thulendi	13	11	9	10	143	117	130
10.	Udari	13	12	9	10	156	117	130
Total		-	-	-	-	130	108	114

TABLE - 4.4

POPULATION AND FAMILY PROFILE

District - Rae Bareli

Sl. No.	Name of scheme	No. of households	Actual population			Average family size			Design population
			Adult	Children	Total	Adult	Children	Total	
1.	Ashrafpur	454	1,689	1,092	2,781	4	2	6	3,187
2.	Bannamau	248	1,025	683	1,708	4	3	7	2,018
3.	Behta Kalan	236	1,105	693	1,798	4	3	7	2,040
4.	Bhojpur	226	924	688	1,612	4	3	7	1,861
5.	Firojpur	319	1,476	848	2,324	5	3	8	2,939
6.	Govindpur	264	1,131	735	1,866	4	3	7	2,250
7.	Jagatpur	251	1,001	653	1,654	4	3	7	1,858
8.	Ralpur	327	1,187	755	1,942	4	2	6	1,237
9.	Thulendi	359	1,210	730	1,940	3	2	5	2,371
10.	Udari	432	1,499	1,026	2,525	3	2	5	3,090
Total		3,116	12,247	7,903	20,150	4	2	6	22,851

TABLE - 4.5

USE OF STANDPOSTS
District - Rae Bareli

Sl. No.	Name of scheme	Name of village	No. of standposts	No. of households	No. of households using standpost		Average distance of standpost from household [in metre]	Time taken for collecting water [In minutes]
					General use	Drinking		
1	2	3	4	5	6	7	8	9
1.	Ashrafpur	Bheliya	17	287	91	18	15.35	8.7
		Kashimpur	10	167	32	03	27.50	9.75
2.	Bannamau	Bannamau	10	172	8	-	-	11.45
		Fakhruddinpur	5	76	5	-	-	13.5
3.	Behta Kalan	Rewari	8	130	22	4	35.00	10.15
		Mubarakpur	3	106	2	2	27.50	17.5
4.	Bhojpur	Daulatpur	3	86	36	5	26.65	10.00
		Katikaha	5	140	42	4	42.50	13.95
5.	Firojpur	Dhudhwan	15	265	63	8	14.90	9.65
		firojpur	3	54	17	1	27.50	7.15
6.	Govindpur	Govindpur	8	195	29	4	17.75	4.7
		Passan Khera	4	69	25	3	43.30	11.15

Contd..

Table - 4.5 [Contd.]

1	2	3	4	5	6	7	8	9
7.	Jagatpur	Sidhor	8	106	32	3	17.50	9.2
		Zingna	9	145	21	3	9.15	7.1
8.	Ralpur	Chakchaurahia	3	122	27	3	10.00	11.3
		Sagarkhera	12	205	105	14	34.7	13.15
9.	Thulendi	Haswa	2	102	3	2	21.6	15.4
		Rasoolpur	6	257	17	1	4.0	7.6
10.	Udari	Alampur	11	301	51	11	17.8	11.85
		Baghail	5	131	29	2	7.5	11.95
Total			147	3,116	657	91	20.01	-

TABLE - 4.6

TIMING OF WATER SUPPLY

District - Rae Bareli

Sl. No.	Name of Scheme	Name of village	Timing of water supply			Hours of supply
			Morning	Afternoon	Evening	
1	2	3	4	5	6	7
1.	Ashrafpur	Bheliya	6.00 - 7.00	- - -	5.00 - 7.00	3.00
		Kashimpur	6.00 - 7.00	- - -	5.00 - 7.00	3.00
2.	Bannamau	Bannamau	7.30 - 8.30	12.00 - 12.30	5.00 - 7.00	3.30
		Fakhruddinpur	6.00 - 8.00	- - -	- - -	2.00
3.	Behta Kalan	Rewari	6.00 - 8.00	11.00 - 2.00	5.00 - 8.00	8.00
		Mubarakpur	6.00 - 8.00	- - -	5.00 - 7.00	4.00
4.	Bhojpur	Daulatpur	6.00 - 8.00	- - -	5.00 - 8.00	5.00
		Katikaha	6.00 - 8.00	1.00 - 2.00	5.00 - 7.00	5.00
5.	Firojpur	Dudhwan	6.00 - 8.00	11.00 - 1.00	6.00 - 8.00	6.00
		Firojpur	6.00 - 8.30	11.00 - 2.00	6.00 - 8.00	7.30
6.	Govindpur	Govindpur	6.00 - 8.00	12.00 - 2.00	6.00 - 9.00	7.00
		Passan Khera	7.00 - 9.00	12.00 - 1.00	5.00 - 6.00	4.00

Contd..

Table - 4.6 [Contd.]

1	2	3	4	5	6	7
7.	Jagatpur	Sidhor	6.00 - 8.00	12.00 - 1.00	5.00 - 7.00	5.00
		Zingna	6.00 - 7.00	12.00 - 1.00	5.00 - 7.00	4.00
8.	Ralpur	Chakchaurahia	5.00 - 7.00	11.00 - 1.00	5.00 - 7.00	6.00
		Sagarkhera	6.00 - 8.00	11.00 - 1.00	5.00 - 7.00	6.00
9.	Thulendi	Haswa	7.00 - 10.00	12.00 - 1.30	5.00 - 7.00	6.30
		Rasoolpur	5.00 - 8.00	11.00 - 1.00	5.00 - 8.00	8.00
10.	Udari	Alampur	6.00 - 8.00	12.00 - 2.00	5.00 - 7.00	6.00
		Baghail	6.00 - 8.00	12.00 - 1.30	5.00 - 7.00	5.30

TABLE - 4.7

STANDPOSTS

District - Rae Bareilly

SI.No.	Name of scheme	Name of village	Standposts		Type				Condition									
			Reported	Found	Single	Double	Pillar			Tap			Base			Drain		
							D	M	OK	D	M	OK	D	M	OK	D	M	OK
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1.	Ashrafpur	Bheliya	16	17	-	17	-	-	17	4	4	9	1	-	16	3	-	14
		Kashimpur	8	10	2	8	2	-	8	-	3	7	-	-	10	1	-	9
2.	Bannamu	Bannamau	8	10	-	10	-	-	10	1	5	4	1	-	9	1	-	9
		Fakhruddinpur	4	5	-	5	4	-	1	-	5	-	5	-	-	5	-	-
3.	Behta Kalan	Rewari	7	8	1	7	5	1	2	1	6	1	2	3	3	1	4	3
		Mubarakpur	5	3	-	3	2	-	1	-	3	-	1	-	2	1	-	2
4.	Bhojpur	Daulatpur	3	3	1	2	2	-	1	-	-	3	-	-	3	-	-	3
		Katikaha	5	5	3	2	-	-	5	-	2	3	-	-	5	-	1	4
5.	Firojpur	Dudhwan	10	15	10	5	3	1	11	3	3	9	3	1	11	2	5	8
		Firojpur	3	3	1	2	1	-	2	2	-	1	-	1	2	-	1	2
6.	Govindpur	Govindpur	8	8	6	2	1	-	7	1	1	6	-	-	8	1	-	7
		Passan Khera	3	4	3	1	1	1	2	1	-	3	-	-	4	-	1	3
7.	Jagatpur	Sidhor	3	8	3	5	-	1	7	-	1	7	2	-	6	1	1	6
		Zingna	10	9	-	9	-	9	-	-	4	5	2	-	7	2	1	6
8.	Ralpur	Chakchaurahia	3	3	1	2	-	-	3	1	1	1	-	-	3	-	-	3
		Sayarkhera	10	12	7	5	4	3	5	2	3	7	4	1	7	2	5	5
9.	Thulendi	Haswa	6	2	1	1	-	-	2	-	1	1	1	-	1	1	-	1
		Rasoolpur	7	4	-	4	-	-	4	-	-	4	-	-	4	-	-	4
10.	Udari	Alampur	16	11	1	10	3	-	8	5	2	4	1	1	9	-	2	9
		Bhagail	5	5	2	3	-	1	4	1	1	3	1	1	3	-	-	5
Total			140	145	42	103	28	17	100	22	45	78	24	8	113	21	21	103

D - Damaged

M - Missing

OK - In working order

TABLE - 5.1

SOURCE OF WATER

District - Allahabad

Sl. No.	Name of scheme	Name of village	No. of households	Source of water							
				PC	SP	GHP	PHP	PW	CW	VP	Other
1.	Nidura	Andhiyari	234	3	47	-	17	154	13	-	-
		Daniyalpur	138	29	6	-	12	7	84	-	-
2.	Urwa	Chaukhata	79	35	13	-	-	27	4	-	-
		Sikra	87	11	40	-	-	25	11	-	-
3.	Pratappur	Ghurdauli	153	23	39	-	1	76	8	-	6
		Meerpur	78	1	3	-	10	64	-	-	-
4.	Saidabad	Jamshedpur	139	34	14	-	-	78	9	-	4
		Hakim Patti	78	5	34	-	1	32	5	-	1
Total			986	141	196	-	41	463	134	-	11

PC - Private connection

SP - Stand post

GHP - Hand pump installed under Government sponsored programme

PHP - Hand pump private

PW - Private well

CW - Community well

VP - Village pond

TABLE - 5.2

USE OF PIPED WATER SUPPLY FOR DRINKING

District - Allahabad

Sl. No.	Name of scheme	No. of households in villages	Users of pipe water supply		Total	Percentage
			Standpost	Private connection		
1	2	3	4	5	6	7
1.	Nidura	372	5	7	12	3.2
2.	Urwa	166	6	7	13	7.8
3.	Pratappur	231	6	5	11	4.8
4.	Saidabad	217	10	7	17	7.8
	Total	986	27	26	53	5.88

TABLE - 5.3

QUANTUM OF WATER COLLECTED

District - Allahabad

Sl. No.	Name of scheme	Quantity of water collected each time [In litres]	Frequency			Quantity of water used per family [In litres]		
			Summer	Winter	Monsoon	Summer	Winter	Monsoon
1	2	3	4	5	6	7		
1.	Nidura	11	10	8	8	110	88	88
2.	Urwa	12	12	11	10	144	132	120
3.	Pratappur	12	18	13	13	216	156	156
4.	Saidabad	12	14	11	12	168	132	144
Total		-	-	-	-	159	127	127

TABLE - 5.4

POPULATION AND FAMILY PROFILE

District - Allahabad

Sl. No.	Name of scheme	No. of households	Actual population			Average family size			Design population
			Adult	Children	Total	Adult	Children	Total	
1.	Nidura	372	1,701	1,188	2,889	5	3	8	2,189
2.	Urwa	166	813	584	1,397	5	3	8	1,076
3.	Pratappur	231	1,234	730	1,964	6	3	9	2,230
4.	Saidabad	217	1,045	836	1,881	4	3	7	1,400
Total		986	4,793	3,338	8,131	5	3	8	6,895

TABLE - 5.5

USE OF STANDPOST
District - Allahabad

Sl. No.	Name of scheme	Name of village	No. of standpost	No. of households	No. of households using standpost		Average distance of standpost from household [In metre]	Time taken for collected water [In minutes]
					General use	Drinking		
1	2	3	4	5	6	7	8	9
1.	Nidura	Andhiyari	15	234	47	6	7.0	9.25
		Daniyalpur	4	138	6	2	32.5	13.70
2.	Urwa	Chaukhata	5	79	13	2	22.5	11.00
		Sikra	4	87	40	4	18.25	9.9
3.	Pratappur	Ghurdauli	5	153	39	6	21.65	8.75
		Meerpur	5	78	3	-	8.0	9.05
4.	Saidabad	Jamshedpur	7	139	14	3	8.5	6.8
		Hakimpatti	7	78	34	7	22.5	16.2
Total			52	986	196	30	17.61	

TABLE - 5.6

TIMING OF WATER SUPPLY

District - Allahabad

Sl. No.	Name of scheme	Name of village	Timing of water supply			Hours of supply
			Morning	Afternoon	Evening	
1	2	3	4	5	6	7
1.	Nidura	Andhiyari	6.00 - 10.00	12.00 - 2.00	5.00 - 10.00	11.00
		Daniyalpur	7.00 - 9.00	12.00 - 2.00	5.00 - 8.00	7.00
2.	Pratappur	Ghurdauli	6.00 - 8.00	12.00 - 1.00	6.00 - 7.00	4.00
		Meerpur	7.00 - 8.00	- - -	- - -	2.00
3.	Saidabad	Jamshedpur	6.00 - 7.00	11.00 - 11.30	5.00 - 6.00	2.30
		Hakimpatti	6.00 - 9.00	11.00 - 1.00	4.00 - 7.00	8.00
4.	Urwa	Chaukhata	5.00 - 9.00	11.30 - 12.30	5.00 - 8.00	8.00
		Sikra	5.00 - 7.00	12.00 - 1.00	5.00 - 7.00	5.00

TABLE - 5.7

STANDPOSTS
District - Allahabad

Sl. No.	Name of scheme	Name of village	Standposts		Type						Condition								
			Reported	Found	Single	Double	Pillar			Tap			Base			Drain			
							D	M	OK	D	M	OK	D	M	OK	D	M	OK	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1.	Nidura	Andhyan	15	15	12	3	5	-	10	-	11	4	8	2	5	4	8	3	
		Daniyalpur	4	4	3	1	1	-	3	-	1	3	-	-	4	-	3	1	
2.	Urwa	Chaukhata	5	5	4	1	-	1	4	-	3	2	1	1	3	-	2	3	
		Sikra	4	4	3	1	-	-	4	-	3	1	1	-	3	-	-	4	
3.	Pratappur	Ghurdauli	5	5	1	4	1	1	3	-	2	3	3	-	2	-	3	2	
		Meerpur	5	5	5	-	1	1	3	-	-	5	1	-	4	-	1	4	
4.	Saidabad	Jamshedpur	7	7	5	2	1	1	5	-	3	4	2	2	3	-	3	4	
		Hakimpatti	7	7	5	2	-	2	5	-	-	7	-	-	7	-	-	7	
Total			52	52	38	14	9	6	37	-	23	29	16	5	31	4	20	28	

D - Damaged

M - Missing

OK - In working order



ANNEXURES

ANNEXURE - I

PROFILE OF THE DISTRICT ALLAHABAD

The district of Allahabad is situated in the eastern region of the Uttar Pradesh. Its geographical area is 7,261.0 square Km. as reported in 1981. The district of Allahabad is surrounded by the district Pratapgarh in the north, district Fatehpur and Banda in the west, district Varanasi and Jaunpur in the east and the State of Madhya Pradesh in the south. It has a domestic airport at Bamrauli, which links it to the prominent cities of the country. The principal rivers which flow through the district are the Ganga, the Yamuna and the Sarswati.

CLIMATE

The maximum and minimum temperatures recorded during the year 1986-87 are 46.7°C and 6.2°C respectively. The average rainfall is 976 mm. The lie of the land varies in different parts of the district, resulting in water logging during the monsoon period.

POPULATION OF THE DISTRICT

According to 1981 Census, the district has a population of 3,797,000 which constitutes 3.42% of the total population of Uttar Pradesh [which was 110,900,000]. The district has increased its population by 29.3% in 1981, over its population of 1971. The average rate of population growth of the State during the same period was 25.49% which is slightly lower than that of the district. The population density of the district was 523 per square metre as against the State's average of 377 per square kilometre. The rural and urban distribution of the population of the district is 3,023,000 and 774,000 respectively. The literacy rate of the district is 27.99% according to 1981 Census.

Total population [Figures in '000]

[a]	Male	-	-	2,009
[b]	Female	-	-	1,788
[c]	Rural	-	-	3,023
[d]	Urban	-	-	774

Religionwise population of various communities in the district is presented below :

Religion	Rural	Urban	Total	Percentage
Hindu	2,712,598	588,692	3,301,290	86.95
Muslim	309,238	175,710	484,948	12.77
Christian	820	5,902	6,722	0.18
Sikh	281	2,447	2,728	0.07
Others	500	775	1,275	0.03
Not classified	8	62	70	-
Total	3,097,033	3,023,445	773,588	100.00

SCHEDULED CASTES AND SCHEDULED TRIBES

The population of Scheduled Castes and Scheduled Tribes are 931,331 in the district. This comprises 24.52% of the total population of the district. Out of total of 931,331, male and female constitute to be 484,739 and 446,592 respectively. Their main occupation is agricultural labour. The people belonging to this category either have no land or have insufficient land for agriculture.

ADMINISTRATIVE AND INSTITUTIONAL FRAME WORK

Following administrative setup has been framed out for speedy

and effective administration.

[a]	Tehsils	-	9
[b]	Blocks	-	28
[c]	Populated revenue villages	-	3,514
[d]	Forest villages	-	-
[e]	Gram Sabhas	-	2,366
[f]	Nyay Panchayat	-	304
[g]	Town and Town area	-	18
[h]	Nagar Mahapalika	-	1
[i]	Nagar Palika	-	-
[j]	Police Stations, etc.	-	45

OCCUPATION

The main occupation of the people of this district is agriculture which is the only source of livelihood for a majority of population. About half of the population is below the poverty line. The following are the percentage distribution of the total population of each class of workers which exists in the district.

			<u>Number</u>
[a]	Agricultural labour	-	520,358
[b]	Agricultural farmers	-	256,860
[c]	Family business	-	62,047
[d]	Others	-	285,196
[e]	Marginal farmers	-	24,019
	Total		-1,148,480

INFRASTRUCTURAL FACILITIES

[a] Communication

In the district Allahabad there are 521 Post offices, 96 Telegraph offices and 10,469 Telephone installed.

[b] Transportation :**[i] Railways :**

The district is well connected with the important districts and towns of the country. There are about 49 Railway stations including railway halts in the district. The total length of railway lines in the district is 303 Kilometres. Out of which the broad gauge length is 252 Kilometres and narrow gauge is 51 Kilometres.

[ii] Roadways :

The most efficient and relied mode of transportation is roadways for the inhabitants of the rural areas. Effective bus services of [UPSRTC] Uttar Pradesh State Road Transport Corporation are available where proper railway link is not available. The length of the road network in the district is 2852 Kilometres.

		<u>[Kilometres]</u>
National highways	-	185
State highways	-	216
Main district roads	-	1,198
Other roads	-	<u>321</u>
Total	-	<u>1,920</u>
Others	-	<u>932</u>
Grand Total	-	2,852

ELECTRICITY

Almost all the town in the district have been electrified. The number of electrified villages in the district is 2,667. There are 18 towns and 1,549 Harijan Basties where electricity facilities have been provided.

BANK AND FINANCE

It has been observed that all the nationalised banks and some of the scheduled banks have opened their branches in the district. There are 144 branches of nationalised banks. the details of other banks are as follows :

		<u>No. of branches</u>
[a]	Nationalised Bank	144
[b]	Rural Banks	76
[c]	Cooperative Banks	43
[d]	Land Development Banks	9
[e]	Other Commercial Banks	54

IRRIGATION FACILITY

The district has a net irrigated area to the tune of 232,362 hectares. Sourcewise irrigated area is given as under :

	<u>Source</u>		<u>Area irrigated</u>
[a]	River	-	107,797
[b]	Tubewells	-	112,659
[c]	Wells	-	6,028
[d]	Ponds, etc.	-	4,371
[e]	Others	-	<u>1,507</u>
	Total	-	232,362

USE OF FERTILIZERS

The use of chemical fertilizers in the district has been to the tune of 57,424 M.T. during 1985-86. The total use of different fertilizers in district is given as under :

			<u>Figures in M.T.</u>
[a]	Nitrogen	-	43,372
[b]	Phosphate	-	10,580
[c]	Potash	-	<u>3,472</u>
	Total	-	57,424

HOSPITAL

In the district there are 65, Allopathic, 32 Ayurvedic, 30 Homeopathic and 6 Unani Hospitals. There are 60 Primary Health Centres, 98 Family and Child Welfare Centres, 327 Sub-Family and Child Welfare Centres and 6 Hospital providing expertise for treatment of different types of diseases.

EDUCATION

The literacy of the district is 27.99% as per the 1981 Census. The district has 1,879 Junior Basic School and 405 Senior Basic Schools. There are, in all, 218 Higher Secondary School, 32 Degree Colleges and one University in Allahabad. Apart from this the district has also 2 Polytechnics and one Industrial Training Institute [ITI].

ANIMAL HUSBANDRY

In 1982, it was estimated that the animal population in the district was 2,073,071. For treatment of these animals various hospitals and centres have been opened. In 1986-87, there were 61 Veterinary Hospitals, 115 Livestock Development Centres, 108 Artificial Insemination Centres, 43 Sheep Development Centres, 9 Pig Development Centres, 113 Pigery Units and 135 Poultry Units in the district. The total number of poultry birds in the district are 280,317.

PIPED WATER SUPPLY FACILITIES

It has been estimated that most of village in district Allahabad are devoid of piped water supply. In 1986-87 there were only 1,833 villages where piped water supply facility was available.

OTHER FACILITY

The district has 23 Cinema theatres in 1986-87 and the total number of seats in these theatres were 14,950. There were 920 Fair Price Shops in the district, out of the 495 were in rural areas whereas the rest 425 were in urban area.

INDUSTRIALIZATION

The Allahabad district has a number of medium, small scale & cottage industries. Few Public Sector Undertakings of the Central Government, like Indian Telephone Industries, Bharat Pumps & Compressors Limited, IFFCO, Triveni Structural Ltd., etc. are operating in the district. Few big industries of the Private Sector are also operating in the district, like Geep Industrial Syndicate Limited. There were 186 working medium and large scale industries in which 25,321 persons were employed, whereas 10,004 persons were employed in 2,229 small scale units in the Allahabad district.

ANNEXURE - II

PROFILE OF THE DISTRICT VARANASI

The district of Varanasi is situated in the eastern region of Uttar Pradesh. Its geographical area is 5,091.0 Square Kilometre as reported in 1981, which comprises 1.73% of the total area of the Uttar Pradesh.

Varanasi is probably one of the most ancient city of India, if not, in the world. From time immemorial it has been a great religious centre for Hindus and one of the most sacred place of pilgrimage being visited by million of people every year.

At a distance of 12 Kilometres from Varanasi city lies Sarnath, where the founder of Buddhism Lord Buddha preached his first sermon. Apart from this there are numerous places of tourist interest and historical importance.

The district is surrounded by the district Ghazipur in the east, district Mirzapur in the south, district Allahabad in the west and the district Jaunpur in the north. It also has a domestic airport which links it to prominent cities of India. The principal river which flows through the district is the Ganga. The river flows from west to the eastern region of the district to enter the State of Bihar.

CLIMATE

The maximum and minimum temperatures recorded during the year 1986-1987 are 45.6°C and 4.4°C respectively. The average rainfall is 1056 mm. The lie of land of the district varies considerably with low lying areas which results in water logging during the monsoon period.

POPULATION OF THE DISTRICT

According to 1981 Census the district has a population of 3,701,006 which constitutes a 3.33% of the total population of Uttar Pradesh [which was 110,900,000]. Since 1971 the district has increased its population growth rate by 29.75% which is higher than the growth rate of State of 25.49%. The density of the population in the district was 707 per Square Kilometre as against the State average of 377 per Square Kilometre. The rural and urban classification of the total population of the district is 2,706,183 and 994,823 respectively. The literacy rate of the district is 31.85%.

[Figure in '000]

Total population	-	3,701
Males	-	1,943
Females	-	1,758
Rural population	-	2,706
Urban population	-	995

The population of various religions existing in the rural and urban area of the district is presented in the tabular form below :

Religions	Population			Percentage
	Rural	Urban	Total	
Hindus	2,548,818	754,941	3,303,759	89.27
Muslims	154,573	232,063	386,636	10.45
Christian	2,090	2,523	4,613	0.12
Sikhs	429	3,454	3,883	0.10
Others	273	1,842	2,115	0.06

SCHEDULED CASTES AND SCHEDULED TRIBES

The population of Scheduled Castes and Scheduled Tribes is

[x]

670,629 in the district. This comprises 18.12% of the total population of the district. Out of total 670,629, the males constitute 350,086 and the females constitute 320,543. Their main occupation is agricultural labour and this is the only source of their livelihood. The people in this group either have no land or have insufficient land for agriculture. Most of them are below poverty line.

ADMINISTRATIVE AND INSTITUTIONAL FRAME WORK

For the purpose of effective and efficient administration of the district, the following administrative units have been framed out :

Tehsils	-	4
Blocks	-	22
Populated revenue villages	-	3,662
Forest villages	-	5
Gram Sabha	-	2,194
Nyay Panchayat	-	289
Town and town areas	-	15
Nagar Mahapalika	-	1
Nagar Palika	-	4
Police Stations	-	59

OCCUPATION

The main occupation of this district is agriculture which is the only source of livelihood for a majority of the population. About half of the population is below the poverty line. The following are the percentage distribution of the total population of workers which exist in the district.

	<u>Percentage</u>	<u>Number</u>
Farmers	34.08	363,916
Agricultural farmers	16.26	173,664
Family business	14.08	150,399
Others	31.93	341,053
Marginal labour	3.63	38,783
 Total		 <hr/> 1,067,815 <hr/>

INFRASTRUCTURAL FACILITIES

[A] Communication :

In the district there are 518 Post Offices, 41, Telegraph Offices and 13,142 Telephone installed

[B] Transportation :

[i] Railways :

The district is well connected with the important districts and towns of the country. There are about 47 Railway stations including the railway halts in the district. The total length of railway lines in the district is 887 Kilometres out of which the broad gauge length is 183 Kilometre and narrow gauge length is 204 Kilometre.

[ii] Roadways :

The most efficient and relied mode of transportation is roadways for the inhabitants of the rural areas where there are no railway links. Buses of Uttar Pradesh State Road Corporation [UPSRTC] and the private buses are plying on these routes.

The length of the roads in the district is 1,951 Kilometres, out of which 1,422 Kilometre metalled road has been constructed by the P.W.D. [Public Works Department]. The length of the roads are as follows :

		<u>Kilometre</u>
National highways	-	156.00
State highways	-	56.00
Main district roads	-	190.00
Other roads	-	1,020.00
Total		1,422.00

ELECTRICITY

Nearly all the towns in the district have been electrified. The number of electrified villages in the district is 2,276. There are 797 Harijan basties where electricity facilities have been provided.

BANK AND FINANCE

It has been observed that nearly all the Nationalised Banks have opened their branches in the district. There are 194 branches of Nationalised Banks, 79 Rural Bank branches. The detail of other banks are as follows :

		<u>Number</u>
Branches of Cooperative Banks	-	30
Branches of Land Development Banks		4
Other Commercial Banks	-	32

IRRIGATION FACILITY

The district has a net irrigated area to the tune of 229,977 hectares.

Sourcewise irrigated area is given as under :

<u>Source</u>		<u>Area Irrigated</u>
River	-	99,957
Tube well	-	122,482
Well	-	3,950
Pond	-	883
Others	-	2,705
	Total	229,977

AGRICULTURE

District Varanasi has primarily an agricultural characteristics with Paddy, Wheat, Pulses, Oilseeds, Sugarcane and vegetables as the basic crops of the area :

		<u>In Hectare</u>
Reported area	-	509,125
Area under non-agricultural use	-	54,040
Forest	-	77,400
Barren land	-	6,065
Net area sown	-	322,129
Area sown more than once	-	162,454
Pasture	-	304
Area under horticulture	-	7,638
Other uncultivable land	-	11,955

It is estimated that about 70.0% of the total geographical area is being used actively for the purpose of cultivation. The use of better quality of artificial fertilizers, pesticides and high yielding seeds is increasing resulting in an increase of average yield of principal crops.

USE OF FERTILIZERS

The use of chemical, fertilizers in the district has been to

the tune of 137.9 Kg. per hectare. The total use of different fertilizers in district is given as under :

		<u>Figure in M.T.</u>
Nitrogen	-	49,009
Phosphate	-	12,847
Potash	-	4,979

HOSPITAL

In the district there are 261 hospitals as per the data available for 1986-87. There are 82 Allopathic, 79 Ayurvedic, 20 Homeopathic and 8 Unani Hospitals. The details of other hospitals are as under :

		<u>Number</u>
Primary Health Centre	-	25
Family & Child Welfare Centres	-	59
Family & Child Welfare Sub-centres	-	542

EDUCATION

The literacy rate of the district Varanasi is 31.85%. The district has 1,771 Junior and 493 Senior Basic School. There are in all 183 Higher Secondary School, 20 Degree Colleges and 3 Universities in the district. Apart from this the district also has One Polytechnic and two Industrial Training Institute [ITI] in the district.

ANIMAL HUSBANDRY

In 1982, it was estimated that the animal population in the district was 1,236,859. For treatment of these animals, various hospital and centres have been opened. In 1986-87 there were 39 Veterinary Hospitals, 45, Livestock Development Centres, 19 Artificial Insemination Centres and 48 Artificial Insemination

Sub-centres in the district. The total poultry population in the district are 321,610.

PIPED WATER SUPPLY FACILITIES

It has been estimated that most of the villages in district Varanasi are devoid of piped water supply facility. In 1986-87 there were only 1,150 villages where piped water supply facility was available.

OTHER FACILITIES

The district has 31 Cinema Theatres in 1986-87 with a total seating capacity of 21,983 seats. There were 1,718 Fair Price Shops in the district out of this 935 were in rural areas and the rest 783 were in the urban areas of the district.

INDUSTRIALIZATION

The Varanasi district has a number of medium, small scale and cottage industries. The major industries of the district are Sugar, Handloom, etc. In 1984, there were 205 working factories in which 18,463 people were employed. The production of the above factories were to the tune of 189 crore. Additionally 516 small scale factories were also operating in 1986-87 in which 3,681 employees were employed.

Bhadohi a small town of the district is known for its carpet industry among the carpet importing countries.

ANNEXURE - III

PROFILE OF THE DISTRICT RAE BARELI

The district of Rae Bareli is situated in the central region of Uttar Pradesh. It is approximately 80 Kilometres away from the State capital Lucknow. Its geographical area is 4,609 Square Kilometre

The district is surrounded by the districts Sultanpur and Pratapgrah in the east, district Fatehpur in the south, district Unnao in the west and district Barabanki in the north. It has an airport at Fursatganj. The river Ganga passes the district by touching the southern boundary of the district. The river flows from western region to eastern region to enter into the State of Bihar. This district has seen considerable development and has become an important district for the last few decades as many distinguished leaders of the country belonged to this district.

CLIMATE

The maximum and the minimum temperature recorded during the year 1986-87 are 44.8°C and 0.6°C respectively. The average rainfall is 928 mm.

POPULATION OF THE DISTRICT

According to 1981 Census the district has a population of 1,887,000 which constitutes a 1.70% of the total population of the Uttar Pradesh [which was 110,900,000]. Since 1971 the district has increased its population growth rate by 24.9% which is lower than the growth rate of the State i.e. 25.49%. The density of population in the district was 385 per Square Kilometre as against the State average of 377 per Square Kilometre. The rural and urban classification of the total population of

the district is 1,748,000 and 139,000 respectively. The literacy rate of the district is 23.08%.

		<u>Figure in '000</u>
Total population	-	1,887
Male	-	972
Female	-	915
Rural	-	1,748
Urban	-	139

According to 1981 Census

The population of various religions existing in the rural and urban areas of the district is presented in the tabular form below :

Religions	Population			Percentage
	Rural	Urban	Total	
Hindu	1,587,873	105,591	1,693,464	89.74
Muslim	159,532	32,501	192,033	10.17
Christian	81	430	511	00.02
Sikh	368	328	696	00.03
Budhist	41	3	44	00.002
Jain	35	50	85	00.004
Others	3	104	107	00.005

SCHEDULED CASTES AND SCHEDULED TRIBES

The population of Scheduled Castes and Scheduled Tribes are 535,859 in the district. This comprises 28.39% of the total population of the district. Out of Scheduled Caste and Scheduled Tribe population, the male constitute 270,975 and the female constitute 264,884. Agriculture is the main occupation of the majority of the population. Most of the people do not have

land and hence are compelled to work on others farm or in rural business establishments i.e. in Brick Kilns, Flour Mills, etc.

ADMINISTRATIVE AND INSTITUTIONAL FRAME WORK

For the purpose of effective and efficient administration of the district the following administrative units have been framed out.

		<u>Number</u>
Tehsils	-	6
Block	-	19
Populated revenue village	-	1,731
Gram Sabha	-	1,334
Nyay Panchayat	-	180
Town and Town Area	-	7
Nagar Palika	-	2
Police Stations	-	21

OCCUPATION

The main occupation of this district is agriculture which is the only source of livelihood for majority of the population. About half of the population is below the poverty line. The followings are the percentage distribution of the total population of workers which exists in the district.

	<u>Population</u>	<u>Percentage</u>
Farmers	394,722	60.00
Agriculture labour	102,283	15.65
Family business	11,563	1.77
Others	77,286	11.83
Marginal labour	67,417	10.31
Total	653,271	-

INFRASTRUCTURAL FACILITIES

[a] Communication :

In the district there are 386 Post Offices, 14 Telegraph Offices and 1,111 Telephone installed.

[b] Transportation :

[i] Railways :

The district is well connected with the important districts and towns of the country. There are about 26 railway stations including railway halts in the district. The length of the railway lines in the district is 176 Kilometre.

[ii] Roadways :

The most efficient and relied mode of transportation is roadways for the inhabitants of the rural areas. Buses of UPSRTC [Uttar Pradesh State Road Transportation Corporation] and the private buses are plying on routes including interior part of the district. The length of the road in the district is 1,684 Kilometre out of which 1,302 Kilometre metellad road has been constituted by the P.W.D. [Public Works Department]. The length of roads are as follows :

		<u>Kilometre</u>
State highway	-	219
Main district road	-	250
Other roads	-	833
Total	-	1,302

ELECTRICITY

Nearly all the towns in the district have been electrified. The number of electrified villages in the district are 1,715 and the number of Harijan Basties where electricity facilities have been provided is 2,327.

BANK AND FINANCE

It has been observed that nearly all the Nationalised banks have opened their branches in the district. There are 40 branches of Nationalised banks, 71 Rural bank branches. The details of other banks are as follows :

	<u>Number</u>
Branches of Cooperative Bank -	27
Branches of Land Development Bank -	1

IRRIGATION FACILITY

The district has a net irrigated area to the tune of 181,000 hectares. Sourcewise irrigated area is given as under :

<u>Source</u>		<u>In hectare</u>
River	-	121,733
Tube well	-	52,938
Well	-	1,916
Pond etc.	-	3,738
Others	-	1,014
Total	-	181,339

AGRICULTURE

District Rae Bareli has primarily an agriculture characteristics

with Pulses, Wheat, Oilseeds and vegetables as the basic crops of the area.

		<u>In hectare</u>
Reported area	-	458,372
Area under non-agricultural use	-	46,450
Forest	-	7,374
Barren	-	23,174
Net area sown	-	271,254
Area sown	-	135,837
Pastures	-	4,104
Area under horticulture	-	23,848
Other uncultivable land	-	25,435

It is estimated that about 67% of the total geographical area is being used actively for the purpose of cultivation. The use of better quality of artificial fertilizer, pesticides and high yielding seeds is increasingly resulting in an increase in average yield of principal crops.

USE OF FERTILIZERS

The use of chemicals fertilizers in the district has been to the tune of 70.5 Kg. per hectare. The total use of different fertilizers in district is given as under :

		<u>Figure in M.T.</u>
Nitrogen	-	22,092
Phosphate	-	5,317
Potash	-	1,277

HOSPITAL

In the district there are 43, Allopathic, 41 Ayurvedic, 35, Homeopathic and 8 Unani Hospitals. Details of other hospitals are as under :

Primary Health Centre	-	31
Family and Child Welfare Centre	-	19
Family and Child Welfare Sub-centre	-	378

EDUCATION

The literacy rate of the district Rae Bareli is 23.08%. There are 1,141 Junior and 337 Senior Basic School. There are 62 Higher Secondary Schools and 6 Degree Colleges in the district. One Polytechnic and two Industrial Training Institute [ITI] are also in the district to impart technical education.

ANIMAL HUSBANDARY

In 1982, it was estimated that the animal population in the district was 1,445,824. For treatment of these animals various veterinary hospitals and centres have been opened. In 1986-87 there were 34 vaterinary hospitals, 61 livestock development centre, 28 artificial insemination centres and 43 artificial insemination sub-centres in the district. The poultry birds in the districts numbered to 85,760.

PIPED WATER SUPPLY FACILITIES

It has been estimated that a considerable number of villages in district Rae Bareli are devoid of piped water supply facility. In 1986-87 there were 1,515 villages where piped water supply facility was available.

OTHER FACILITIES

The district, as reported in 1986-87 had 8 Cinema Theatres with a total seating capacity of 4,783 seats. There were 346 fair price shop in the district out of which 269 were in the rural areas and the rest 77 were in urban part of the district.

ANNEXURE - IV

DATA NEED

<u>VARIABLE</u>	<u>DATA NEED</u>
1. WATER QUANTITY	<ul style="list-style-type: none"> - Human and animal population in the Scheme area. - Design criteria for present consumption of water. - Present production requirements [including water losses] - Present production of water in m³ per day. - Hours of operation of supply per day. - Hours per week/month the supply operates. - Trend in water production since supply was opened. - Observations on condition of equipment and facility e.g., Overhead tanks, Treatment plant, Standposts, etc. - Capacity of supply in m³ per day/per hour. - Seasonal variations in demand/capacity. - Identification of limiting factors in production and distribution. - Checks on water discharge from tube wells and condition of facility, observations on suitability of equipment.
2. WATER QUALITY	<ul style="list-style-type: none"> - Physical examination of water for discolouration, odours or tastes that might lead to non-acceptance by consumers.

Annexure - IV [Contd.]

<u>VARIABLE</u>	<u>DATA NEED</u>
	<ul style="list-style-type: none">- Bacteriological [E. Coli], Physical, Chemical analysis of water from overhead tanks, taps, home storage and traditional sources.- In case of poor water quality reasons for poor quality.
3. RELIABILITY OF WATER SUPPLY	<ul style="list-style-type: none">- Frequency of break downs.- Time lag in repairs.- Hours of supply- Availability of repairing facilities.- Maintenance of facility.- Leakage in supply.- Water pressure.- Quantity of water obtained from traditional sources.- uses of water obtained from traditional source.- Hours of power supply.- In case of low reliability factor reasons for the same.
4. CONVENIENCE OF WATER POINTS	<ul style="list-style-type: none">- Distance of water point to household.- Quantity of water required in the household and trips needed to fulfill the requirement.- Availability of water point to various sections of population.- Suitability and proximity of water point to the consumers.

Annexure - IV [Contd.]

5. DEMOGRAPHIC PROFILE

- HYGIENE & GENERAL** - Household size, caste, occupation income, literacy.
- Hygiene practice, use of latrines, cleanliness of utensils, water storage.
 - Demands of water for cooking, bathing, washing, etc.
 - Observation on cleanliness around facilities, household, etc.

6. OPINIONS, AWARENESS

& ATTITUDES

- Advantage of piped water supply.
- Preference of traditional sources over new facility or vice-versa.
- Fulfillment of demand of village and household.
- Involvement of consumers and women folk in establishing the facility.

ANNEXURE - V

RURAL WATER SUPPLY AND SANITATION
SUB-PROJECT - V
VILLAGE INFORMATION SCHEDULE

GENERAL INFORMATION :

DISTRICT :
BLOCK :
NYAY PANCHAYAT :
VILLAGE : CENSUS CODE [1981] :

No. of HAMLETS :
[Please give list on last page]

NAME OF GRAM PRADHAN :

NAME OF VILLAGE PANCHAYAT :

NAME OF MEMBERS :

No. OF HARIJAN BASTIES :
[Please give list on last page]
LENGTH OF APPROACH ROAD
FROM NEAREST METALLED ROAD [IN KMS] :
 [1] PACCA ROAD [KMS] :
 [2] KATCHA ROAD [KMS] :
DISTANCE FROM BLOCK HQ. [KMS] :
DISTANCE FROM NEAREST POST OFFICE [KMS] :
DISTANCE FROM NEAREST RAILWAY STATION [KMS] :

BUSINESS/INDUSTRIES :	NO. OF UNIT(S)
[1] FLOUR MILL
[2] RICE MILL
[3] FURNITURE MAKING
[4] AGRICULTURE INPUTS
[5] BRICK MAKING
[6] SUGARCANE PROCESSING
[7] OIL PROCESSING
[8] TOBACCO CURING
[9] SAREE WEAVING

[10]	CARPET WEAVING
[11]	BEAD MAKING
[12]	SHOP
[13]	RATION SHOP
[14]	COOPERATIVE SHOP
[15]	BANKS
[16]	HANDLOOMS/POWERLOOMS

HATS/BAZARS/VILLAGE FAIRS AND FESTIVALS :

SL.NO.	NAME	FREQUENCY	DURATION	DAYS

		SC/ST	GEN	TOTAL
TOTAL NO. OF HOUSEHOLDS :				
POPULATION :				
[1] MALE	[A] ADULT :			
	[B] CHILDREN :			
	[C] TOTAL :			
[2] FEMALE	[A] ADULT :			
	[B] CHILDREN :			
	[C] TOTAL :			
[3] TOTAL	[A] ADULT :			
	[B] CHILDREN :			
	[C] TOTAL :			

LITERACY :

- [1] MALE :
- [2] FEMALE :
- [3] TOTAL :

EDUCATIONAL FACILITIES	NO.	STUDENTS			TEACHERS		
		M	F	T	M	F	T
[1] PRIMARY/BASIC SCHOOLS						
[2] JUNIOR HIGH SCHOOLS						
[3] HIGHER SECONDARY/INTER						
[4] DEGREE COLLEGES						
[5] ADULT EDUCATION CENTRE						
[6] ANGANWADI/BALWADI						

	TRADITIONAL	NUMBER	FORMALLY TRAINED
MASONS ANDMECHANICS AVAILABLE IN VILLAGE

BUSY PERIOD FOR VILLAGERS FROM TO

HEALTH SERVICES	IN VILLAGE	IF OUTSIDE DISTANCE
[1] PRIMARY HEALTH CENTRE
[2] SUB-CENTRE
[3] DISPENSARY
[4] HOSPITALS
[5] VILLAGE HEALTH WORKERS
[6] VILLAGE DAIS
[7] HAKIMS/VAIDS
[8] QUALIFIED DOCTORS

INFORMATION FROM PHC/SUB-CENTRE [WATER BORNE DISEASES]

NAME OF PREVAILING DISEASES	NO. OF PATIENTS IN LAST 6 MONTHS		NO. OF PATIENTS IN LAST ONE YEAR	
	ILLNESS	FATAL	ILLNESS	FATAL
TYPHOID				
JAUNDICE				
CHOLERA				
DIARRHOEA/DYSENTRY				
GASTROENTERITIS				
WORMS				

VILLAGE LEVEL SOCIAL ORGANISATIONS :
MAHILA/YUVA/YUVATI MANGAL DALs....

SL.NO.	NAME	YEAR OF ESTABLISHMENT	MEMBERSHIP		
			SC/ST	GEN	TOTAL

DRINKING WATER FACILITIES FOR VILLAGE :
[WITH NO. OF UNITS]

[1] PIPED WATER SUPPLY	PRIVATE :
	COMMUNITY :
	WITH PLATFORM AND DRAIN :
	WITH PLATFORM BUT NO DRAIN :
	WITHOUT PLATFORM :

[2] HAND PUMP

PRIVATE :
COMMUNITY :

[3] WELL
[A] OPEN WELL

PRIVATE :
COMMUNITY :

[B] ROOFED WELL

PRIVATE :
COMMUNITY :

NATURAL WATER SOURCES	NO.	DISTANCE FROM VILLAGE
-----------------------	-----	-----------------------

CANAL
RIVER
POND/LAKE

DROUGHT PRONE AREA	YES/NO
FLOOD PRONE AREA	YES/NO
DEPTH OF WATER TABLE AT HIGHEST LEVEL

ELECTRICITY : NO. OF CONNECTIONS

- [1] FOR DOMESTIC PURPOSE
- [2] FOR IRRIGATION
- [3] FOR BUSINESS/INDUSTRY

LIST OF HAMLETS

SL.NO. ?	NAME	HOUSEHOLD	POPULATION
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HARIJAN BASTIES :

SL.NO.	NAME	HOUSEHOLD	POPULATION
--------	------	-----------	------------

[xxx]

ADMINISTRATIVE INFORMATION :

VDO CIRCLE	NAME OF VDO	VILLAGES	NAME OF PRADHAN
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REMARKS OF THE INVESTIGATOR

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ANNEXURE - VI

RURAL WATER SUPPLY.

SUB PROJECT-I

Questionnaire For Household Survey

Survey Form Code

D	B	V	H

NOTE :

(D) District code (B) Block code (V) Village code (H) Household serial No

I. General Information :

1.1 District Name :

1.2 Block Name :

1.3 Village Name :

2. Name of the head of household :

3. Social category : SC/ST/GEN

4. Household members :

	Adults (above 14 yrs)	Children (below 14 yrs)	Total	Literate			Total
				UPTO HS	HS	ABOVE HS	
MALE							
FEMALE							

5. Income of the household :

Occupation	Members engaged	Annual approx income (Rs)
1. Agriculture		
2. Agr. Labour		
3. Service		
4. Business		
5. Traditional Occup- ation (Rural Artisans)		
6. Other Sources (specify)		

10. How long does it take to fetch water and come back Minutes (estimated)

11. Who collects water ?

	<u>Usually</u>	<u>Sometimes</u>
Children		
Women		
Men		
Hired Person		

12. How much water is collected each time ? Liters (Approx)

13. How many times a day water is collected ?

In summer

In winter.

In monsoon

14. What water source do you use for the following activities ?

(a) Activity

water source

Distance Estimated (in meters)

during summer

- Drinking
- Cooking
- Washing food & Utensils
- Bathing
- Washing of Clothes
- Watering Livestock
- Others (specify)

(b) during winter

- Drinking
- Cooking
- Washing food & utensils
- Bathing
- Washing of Clothes
- Watering Livestock
- Others (specify)

15. Do you use any other water source for any of above activities or any other activities ?

(a) If Yes, please give source and reason for usage :

Source

Reason

16 What are the timings of piped water supply ,

Morning
From To

Afternoon
From To

Evening
From To

17. How frequently do break downs occur in piped water supply

Never... .. Mostly in dry season..... — Monthly.....

Weekly... .. otherwise (specify).....

18. How long do the breakdowns last ?

19 Do you know the reasons for breakdown/failures ? Yes/No

(a) If yes, please state three important reasons for failure/breakdown in your opinion :

- (1) Electricity Failure
- (2) Pipe damage
- (3) Water Pilferage
- (4) Low Pressure
- (5) Others (specify)

(b) What do you do in case of a breakdown ?

- (1) Contact the operator
- (2) Register a complaint
- (3) Inform Pradhan
- (4) Use traditional Source
- (5) Others (Specify)

20. For what purpose is the water collected from piped water supply being used ?

Activity. Approx. estimate in buckets etc.

- Drinking
- Cooking
- Washing of food & utensils

Bathing

Washing clothes

Watering of animals

Watering of kitchen garden

Others (specify)

21. What is the distance of the nearest Project water point from your house ? metres(estimated)

22. Do you use piped water supply for drinking ? Yes/No

23. If No for what reason (s) are you not using the piped water for drinking ?

traditional source more convenient

the supply does not taste good

water point unclean

supply unreliable

others (specify)

24. Which water do you use when tap water is not available ?

.....

25. Is any water stored for use normally or during this period ? Yes/No

(a) If yes storage device

(b) Condition of storage device Clean/Unclean

26. Do you have any problem in collecting water from community water points (specify) ?

.....

.....

27. In what way, would you suggest, the water service could be improved ?

(1) More Standposts

(4) Increase in supply hours

(2) More private connections

(5) More pressure

(3) Regular supply

(6) Others (Specify)

III. SANITATION :

28. Do you consider the standpost and it's surroundings clean ? Yes/No

29. If dirty what role could you play in keeping the facility clean ?

.....

.....

- 30 Do you have a latrine ? Yes/No
 (a) If yes what type ? SL/DL
 (b) when was it built ? (year/month)
 (c) How many house members use it regularly ?

Adults		Children	
Male	Female	Male	Female

(d) Where do the other members go for defecation ?

.....

31. Have you been informed about the support the Govt. is providing for latrine construction ? Yes/No

32. Are you willing to have a latrine ? Yes/No

(a) If yes, in what way can you contribute to the programme of construction of latrine ?

(1) Labour

(2) cash

(3) Material

(Please specify quantum)

(b) if no, what is the reason (s) why you have not yet joined or why you do not wish to join the latrine programme ?

(1) Latrine not needed

(2) Latrine too expensive

(3) No time to build

(4) Do not know how to build

(5) Have tried but have been told it is not yet my turn

(6) No squatting slabs available

(7) Others (please specify)

33. How do you wash your hands after abolution ?

- (a) With water
- (b) With clay or ash
- (c) With soap

34. Do you know of any diseases associated with drinking unclean water or helped in spreading by stagnation of water ?

.....

.....

.....

35. How many of your family members have been ill due to :

Disease	Past six months				Past one year				Period of infirmity Part Full
	am	af	cm	cf	am	af	cm	cr	
Malaria									
Diarrhoea/dysentry									
Jaundice									
Typhoid									
Cholera									
Gastroenteritis									

am — adult male, cm — child male, af — adult female, cf — child female

ANNEXURE - VIII

TECHNICAL DETAILS OF WATER SUPPLY SCHEMES

[Rs. in Millions]

Sl.No.	Schemes	Revenue villages	Population in '000	Distribution mains Kms.	Size of tank		Discharge of tube wells		Discharge of plants		Water connections	Standpost	Feeder	Costs estimate Rs.	Costs final Rs.
					KL	M	1	2	1	2					
<u>DISTRICT ALLAHABAD</u>															
1.	Saidabad	19	23.60	71	650	16	3,600	2,250	1,900	1,900	675	181	NW	3.39	6.06
2.	Nidura	20	20.40	52	650	20	2,000	2,150	1,800	2,100	526	154	NW	3.70	5.50
3.	Pratapapur	31	29.20	105	800	20	3,000	3,000	3,000	2,000	215	117	NW	4.68	8.06
4.	Urwa	23	20.30	70	500	14	4,000	3,600	1,500	1,650	556	167	NW	3.82	5.87
<u>DISTRICT RAE BARELI</u>															
5.	Firozpur	16	13.73	55	350	21	3,500	1,100	1,100	1,100	310	110	W	3.44	5.05
6.	Raipur	26	14.99	89	500	22	1,560	1,560	1,250	1,300	255	182	W	4.60	6.55
7.	Govindpur	19	19.93	82	500	20	1,200	1,400	1,100	1,400	275	101	W	4.06	6.19
8.	Bhojpur	34	20.37	75	500	20	800	1,800	750	1,800	618	99	W	4.04	6.17
9.	Thulendi	19	20.10	78	500	20	1,150	1,150	1,000	1,000	125	169	W	4.80	7.78
10.	Jagatpur	32	23.87	111	650	20	1,350	1,350	1,125	1,125	77	310	W	4.58	8.56
11.	Ashrafpur	20	17.63	65	500	21	1,000	1,000	800	800	43	198	W	4.12	6.57
12.	Udari	16	17.21	92	500	20	1,000	1,000	850	850	13	195	W	4.63	7.62
13.	Bannamau	27	28.55	133	800	24	1,560	1,815	1,500	1,800	189	240	W	6.51	9.37
14.	Behta Kalan	34	30.40	110	800	22	1,500	1,500	625	1,600	217	235	W	6.21	10.47
<u>DISTRICT VARANASI</u>															
15.	Tikri	27	41.10	61	1,200	18	3,300	3,300	2,100	2,750	797	215	W	6.06	9.38
16.	Sewapur	31	21.46	47	600	16	1,600	1,600	1,300	1,200	258	119	W	3.99	5.03
17.	Harahua	79	38.40	130	1,000	18	2,100	2,100	1,840	1,660	900	253	W	6.30	8.72
18.	Birankot	46	42.10	133	1,000	18	2,100	2,100	1,540	1,800	630	330	W	5.53	8.24
19.	Mirza Murad	42	38.61	100	1,000	22	2,100	2,100	1,700	1,600	793	173	W	5.52	8.76
20.	Rohania	49	41.67	90	1,000	18	2,100	2,100	1,800	1,950	1,313	212	W	6.06	11.36
21.	Vyasnagar	55	40.66	88	1,000	18	2,100	2,100	1,900	1,650	654	261	W	5.82	8.91
22.	Khandwa	52	38.17	111	1,000	18	2,100	2,100	1,850	2,000	770	323	W	5.66	8.73

NW - Not working

W - Working

ANNEXURE - IX

[xxxx]

ANNEXURE - IX

STUDY TEAM

1. Project Director : Mr. R.L. Raina
General Manager, UPDESCO .
2. Technical Specialist : Mr. S.P. Misra,
General Manager [Retd.],
U.P. Jal Sansthan
3. Consultants : Mr. Y. Shankar

Mr. V.K. Rastogi

Mr. Abu Omama
4. Research Staff : Mrs. Indumati Tewari

Miss Alka Rani

Miss Ratna Dey

Mr. Vipin Saxena

Mr. Akhilesh Srivastava

Mr. Sunil K. Singh

Mr. A.N. Singh

Mr. H.N. Singh

