



**REGIONAL CENTRE FOR URBAN AND ENVIRONMENTAL STUDIES
OSMANIA UNIVERSITY, HYDERABAD**

**WATER SUPPLY AND SEWERAGE SYSTEM IN HYDERABAD
LEVEL AND QUALITY OF SERVICE :
A STUDY OF USER PERCEPTIONS**

Sponsored by :

HYDERABAD METROPOLITAN WATER SUPPLY AND SEWERAGE BOARD

1993

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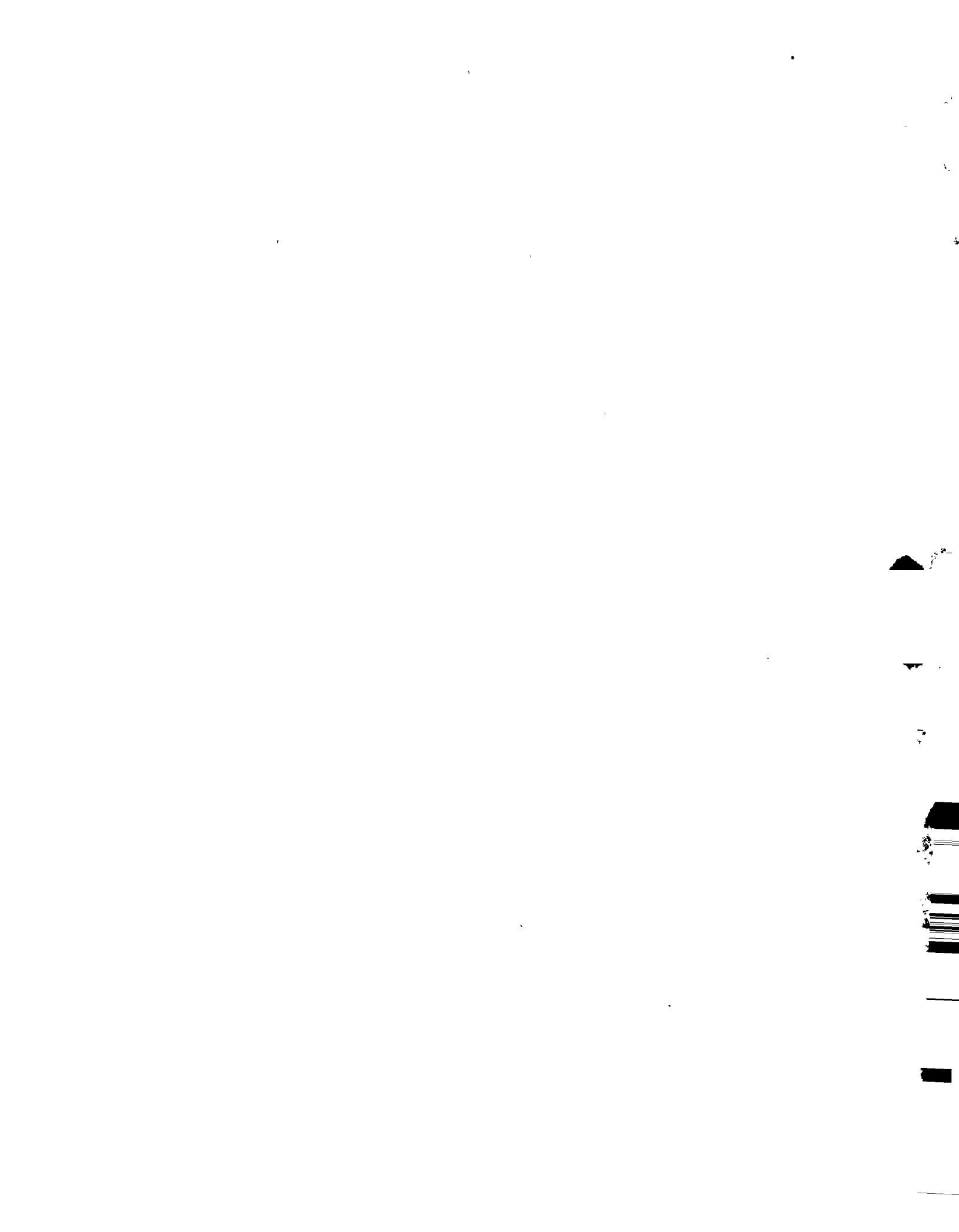
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PREFACE

The Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB), having been established as an independent and autonomous public utility undertaking, took up the task of improving performance of the water supply and sewerage system, in right earnestness. Numerous plans, projects and schemes along with a wide variety of measures for improving administration, were on the anvil. Sri T.R.Prasad, I.A.S., Principal Secretary, Municipal Administration and Urban Development (MAUD), Government of Andhra Pradesh (GOAP), under whose guidance the projects were planned, mooted the idea of a quick survey of consumer expectation and satisfaction on the level and quality of service. He felt that the survey output could serve as benchmark for measuring the likely improvements targeted through the project. The task of actual survey was assigned to the Regional Centre for Urban Environmental Studies (RCUES), Osmania University. Initially, it was intended to conduct the survey through random telephonic contact with service users. Dr J C Mohanty, IAS, the then Managing Director, HMWSSB pursued the idea of survey with great enthusiasm and zeal. There were numerous discussions between the faculty of the Centre and the staff of HMWSSB on the subject content, scope of analysis, parameters to be included etc. As a consequence, the survey focus was enlarged to cover the dimensions of demand determinants Quality Assurance, Pollution Control, Revenue Administration, the Board - User interface etc., to make the study more useful, especially in the context of the ongoing organisation improvement programmes.

The study was carried out at the Centre by Dr V LAKSHMIPATHY and DR.D.RAVINDRA PRASAD. We hope the findings of this study would facilitate proper perspectives on various dimensions of water management in the city of Hyderabad and facilitate scientific anchorage to the reforms and other measures for improvement, initiated by the Board.

Mr.T.R Prasad with his down to earth and uncluttered approach to solving problems and Dr J C Mohanty with this penchant for empirical research and unflagging zeal for structural reforms, jointly provided the thrust for the study. We were inspired by their singular commitment to improve the water and sanitation service in the city and place on record our deep appreciation of their concern and thank them for the professional trust reposed in us in entrusting the study to the Centre.



In carrying out the study, we received excellent encouragement and support from the Board, in particular from Sri.V.Bhaskar, IAS, Managing Director, Sri.G Subrahmanyam, Director (Projects), Sri.G.Nageswara Rao, Director, O & M, Sri.S.Ganapathy, Sri D.Rajeswara Rao, Dr.D.M.Mohan and Sri.P.V.R Ravindra - Chief General Managers incharge of various Circles.

We are indeed grateful to all of them for the insight, patience and forbearance, with which they met the numerous demands, we made during the survey.

The field investigation was ably supported by the General Managers, incharge of the sample divisions and their colleagues. But for their proactive support, the field study would not have achieved its goals. Their support is gratefully acknowledged.

Sri V.Ravi Sankar, Manager, Project Monitoring Cell helped us in designing the computer formats and processing We gratefully acknowledges his contribution.

Field investigations were carried out by a seven member research team and Dr.Ch Raghuram and Mr.G.Ramakrishna helped us in the analysis of data. We thank all of them. We received ungrudging secretarial support from our colleagues at the Centre - particularly Sri A.Satya Prasad, Sri.N.Ravinder Raj, Sri L S.Nagi Reddy, and Sri.T.Veerendar from the HMWSSB. Their support is gratefully acknowledged.

Date:12-April, 1993.
HYDERABAD.

D RAVINDRA PRASAD
DIRECTOR



SUMMARY OF RECOMMENDATIONS

1. The HMWSSB may initiate appropriate administrative measures for requiring all the applicants for water service connection, to declare the total number of household units or total population, likely to depend on the connection. In case of multiple household units (excluding multi-storeyed buildings), if the number of dependent households exceed two, the Board may make it mandatory on the part of the applicant, either to seek a higher size connection or a second connection. The recommendation is subject to technical appraisal prior to implementation.

The existing multiple household consumers, may be encouraged to obtain higher size connections. In order to identify the actual number of user households dependent on the same service delivery point, an appropriate data node may be included in the existing metering and billing formats. An action plan, to identify the actual number of user households per service unit, the system modifications including costs necessary to facilitate plural connections and the changes to be effected in the existing pattern of operations and maintenance for the purpose, may be drawn up on a top priority.

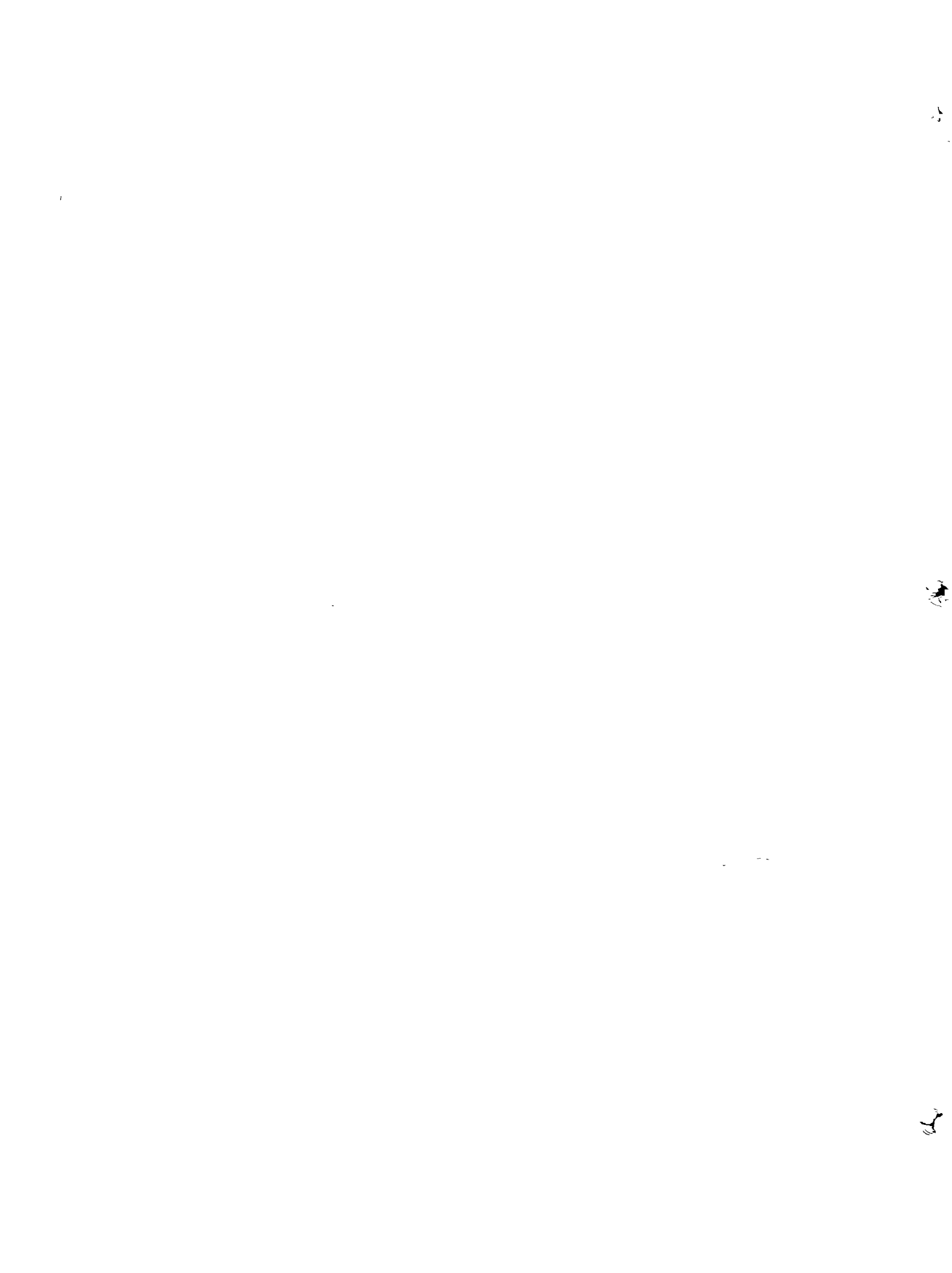
2. The Board may intensify the efforts on the exploration and utilisation of ground water, especially in the areas where the observed incidence of dependence on bore-wells is high. However the recommendation merits a detailed feasibility and technical appraisal.

3. The Board's corporate commitment to render service during the timings compatible to users convenience, should be enforced rigorously.

4. Service zones endemic to low pressure may be serviced through separate supply grids. However the technical implication of installing separate grids may be appraised.

5. The Board may initiate - on priority, appropriate measures for developing or upgrading service manuals on current operations and maintenance for optimising the utilisation of machines, plants and equipment.

6. Vestibule learning programmes for induction and up-gradation of system technology as well as personnel skills, may be designed and organised at the earliest.



7. The Board may launch an intensive programme on consumer education on water pollution. For this purpose, the Board may identify a few public spirited citizens in each locality for establishing a pollution control information grid. The suggested grid can positively enhance the visibility and effectiveness of the current efforts on pollution detection, prevention and control.

8 Controlling the lead time for fault rectification and addressing consumer complaints based on the present Management Information and Decision Support Systems must be implemented with greater rigour. The names and contact numbers of officers for reporting delays and grievances must be prominently displayed at every section office and published in news papers periodically

9. Management of crises on account of supply interruptions, should be streamlined and strengthened through rigorous implementation of the existing system of contingency planing, which may be upgraded to ensure direct participation of senior cadre personnel. The system for contacting the senior officers, may be adopted for this purpose also.

10 Revision of tariff should necessarily be preceded by a comprehensive public relations program incorporating the need for revision, services rendered and prior and post profiles of the revenue situation vis-a-vis the revision.

11. The time cycles of all the elements of the revenue system - metering, recording, billing and collection, should be synchronised Voluntary remittance irrespective of metering, may be encouraged. The pass book system, obtained in some of the sister utilities, may be adopted, to reduce the impact of the burden of sudden demands on account of accumulation of arrears.

12. The Board may take up the responsibility of meter servicing and maintenance, to protect the consumers from the vagaries of unscrupulous private meter repairers. Servicing charge "en-block" may be collected for this purpose. A detailed action plan should precede the implementation of this recommendation.

13. The state of maintenance of the public distribution system (PSPs and system leakages) and the sewerage system (manhole collapses and covers) merits immediate attention of the Board The services of public spirited citizens may be drafted in developing an effective on-line maintenance system covering both the parameters



14. The Board may introduce an appropriate techno-administrative system for inspection and certification of sumps and over-head tanks, located at the consumers premises to improve effectiveness of the measures for prevention of pollution, especially at the user end.

15. The Board may also undertake realignment of water supply and sewer lines at the premises of existing consumers in the larger interest of community health. All the prospective applicants may be required to arrange for clutter free access to be inspected and certified by a competent authority of the Board.

16. The Board may immediately undertake publication of an information booklet, incorporating all the facets of the service system to enhance public awareness.

17. Enhancing consumer orientation and trade or operation related skills amongst the employees will go a long way in reducing the level of alienation between the consumers and the Board. Steps to implement the Training Plan as conceived by the Board, may be initiated immediately

18. The Board may also encourage periodic consumer meets, which can assist the staff incharge of the localities, in developing a more realistic demand perspective and equation with the user public.

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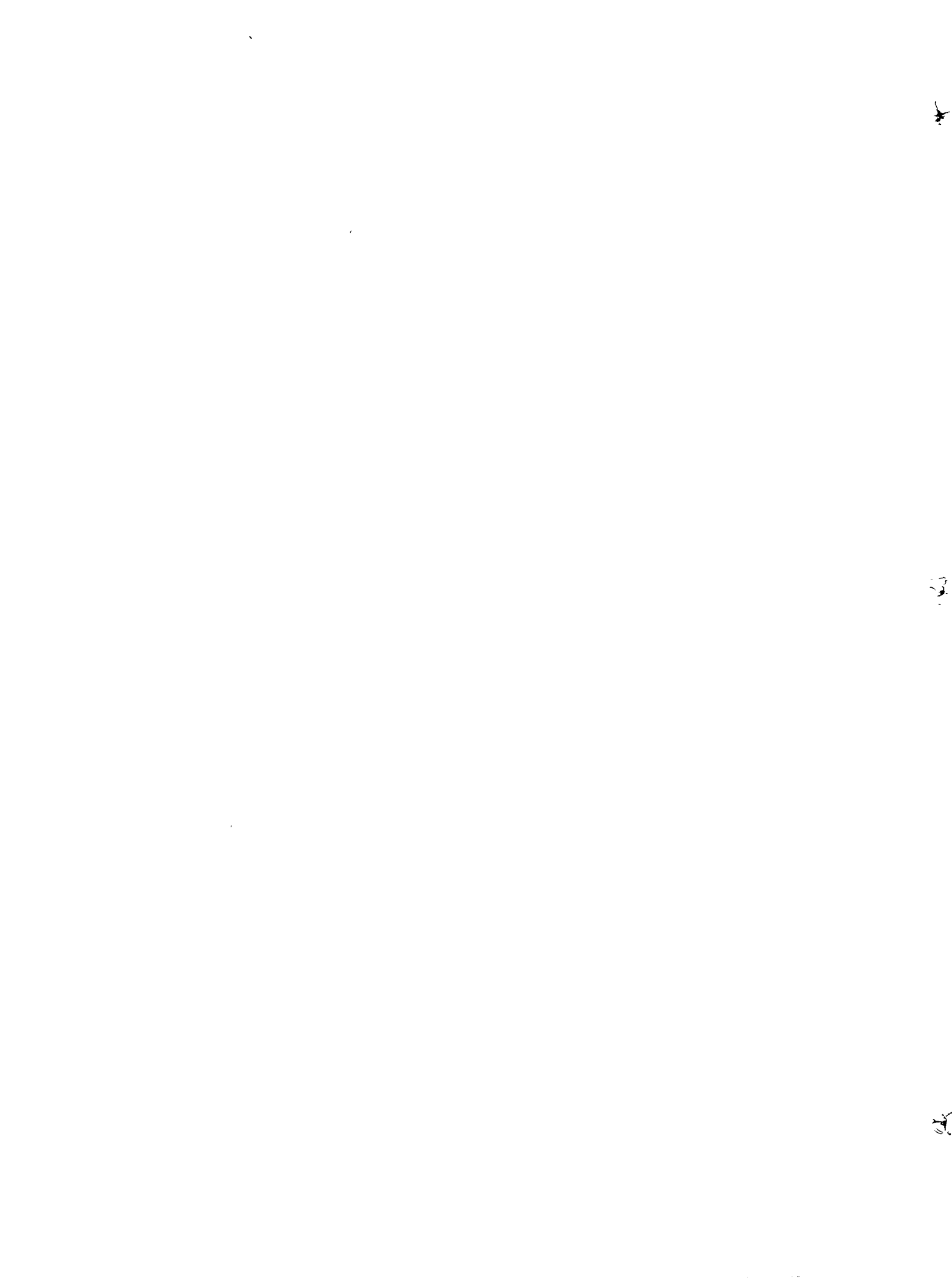
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1. INTRODUCTION AND STUDY DESIGN

Water is a basic human need and at times more important than food for sustaining life. Ensuring adequate supply of water, fit for human consumption and other requirements of the society and to meet developmental needs, occupies the position of prime responsibility and priority of all governments in the modern society. Water shortage affects adversely the growth of agricultural and industrial development and threatens the state of health and nutrition of a community and even the economic development of a nation. An appraisal of post Water and Sanitation of Decade of 80s estimate, that 1.2 billion people - mostly from the development countries, continue to be deprived of easy access to both water and sanitation and in urban slums and about one-tenth of a family's time is spent on procuring water. Absence of easy access to water compels manual hauling of water over long distances, which threatens the health of the effected sections apart from reducing time available for income generation activities or for familial responsibilities. In India, it was estimated that about 73 million work-days are lost every year on account of water borne diseases. It's costs in terms of loss of production and expenditure on medicare was estimated at roughly one billion dollars per annum. Achieving the objectives of overcoming the prevalent shortages vis-a-vis the need to provide water to the growing populations, requires state of art technologies to improve the water resources as well as highly efficient management of the same. Only an integrated approach to the management of water and sanitation would ensure proper quality of life to the rapidly growing populations.

Realising the significance of water and sanitation, modern governments every where are investing huge resources in reforming the institutional structures and administrative practices for proper management of scarce water resources. The international agencies such the World Bank, UNICEF and the World Health Organisation (WHO) have been emphasising on the need for establishment of appropriate institutional processes for providing adequate supply of water. These agencies also have been extending huge resource support to a number of developing countries, for augmentation and streamlining of their water and sanitation systems. The strategy of the international funding agencies in the water and sanitation sector in evaluating the existing institutional arrangements has been to seek: (i) the efficient utilisation of resources through appropriate technology choices and sound engineering design and construction, (ii) an improvement in institutional capacity in relation to (i) cited and also in relation to the management of operation and maintenance and of finance, including the introduction of "commercial" accounting, and (iii) pricing policies.



which encourage water conservation to render the services affordable to as many of the poor as practicable, ensure adequate financing of current expenditures and internal generation of funds, for further investment

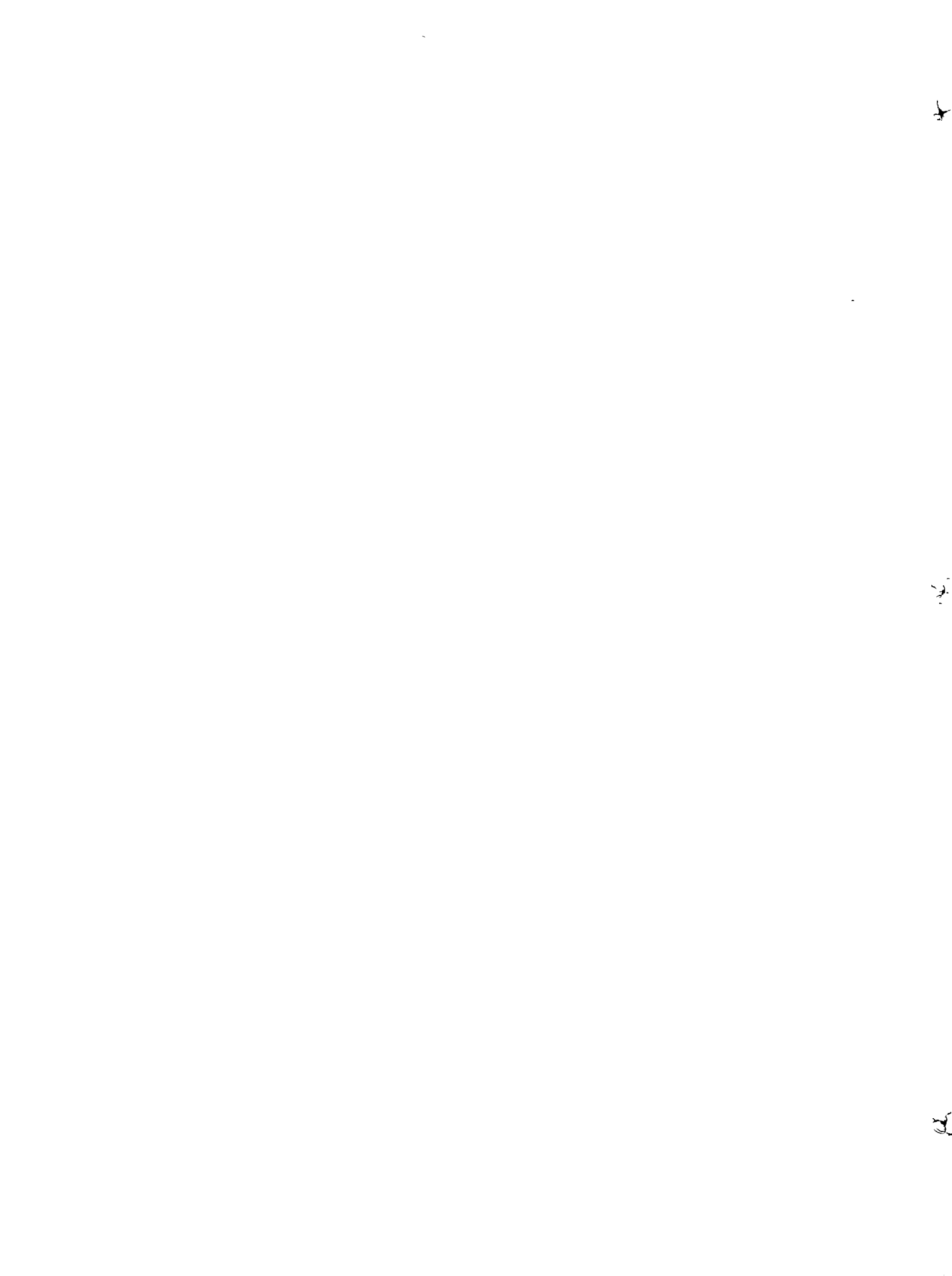
A comprehensive project to augment the water resources as well as to improve the system capacity for fair and equitable distribution and delivery in the Metropolitan Region of Hyderabad at an estimated cost of US \$ 140.6 millions (Rs.2570.6 millions) was prepared and presented to the World Bank for Technical Assistance. The Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) was successful in obtaining financial assistance of the order of US \$ 10.0 million in the form of IBRD Loan and SDR 63.9 million (equivalent to US \$ 79.9 million) from the Bank. Implementation of the project started in 1988 and is expected to be completed by 1997. As part of the project implementation, efforts towards institutional changes were initiated by the GOAP and the Board. A series of structural reforms and innovations have already been introduced to improve the effectiveness of water management in the city and to streamline the delivery systems anchored to community satisfaction.

The present study on "Water Supply and Sewerage System in Hyderabad - Level and Quality of Service - An Evaluation Study of User Perceptions" constitutes one of the ongoing efforts of the Board, to identify the institutional, structural, procedural, behavioural and motivational bottlenecks that impinge on community satisfaction on the service delivery. The present study is aimed at analyzing the determinants of the demand and supply, the interface between the demand and capacity as well as the technology on operation and maintenance, administrative procedures for gaining access to the service, service tariff, billing procedures, quality assurance, thresholds of user capacity to pay, grievance and redressal mechanisms, level and quality of the service, and the effectiveness of measures against pollution - prevention and control.

STUDY DESIGN

I. OBJECTIVES:

- i) to assess the status of consumer satisfaction on current scale as well as quality of service relating to water supply and sewerage.
- ii) to develop data based scenario on the state of performance of operations and maintenance of the water supply and sewerage systems
- iii) to study the levels of user awareness of the determinants of service delivery



- iv) to study the operation of the determinants of consumer satisfaction, with a view to identify the nature and scope for organisational interventions for improving the delivery of service.
- v) to study the interface between the Board and its clientele with a view to identify factors detrimental to its smooth operation; and
- vi) to ascertain the user perspectives on the ways and means to improve the compatibility between the Board and its clientele

II **METHODOLOGY:**

- i) Door to door canvassing of data schedules designed to service the study objectives, and
- ii) personal interviews with select users and staff.

As a preliminary step, a large number of open ended interviews on random basis were carried out with a view to identify the major parameters of user satisfaction as well as expectations. Based on the resultant information, a draft questionnaire, covering over 51 service delivery as well as user attributes was designed. The draft questionnaire was pilot tested in 4 service localities and the questionnaire was finalised based on the data of pilot study. By way of abundant caution, the 'final schedule' was also subjected to validation, in one service locality

The final survey schedule covered the following service delivery and user attributes.

- i) **Consumer Household Unit Profile:**
 - a) occupancy status;
 - b) income profile;
 - c) duration of stay in the locality,
 - d) household size; and
 - e) period since obtaining the domestic private pipe connection.
- ii) **Demand Profile at Service Delivery Point:**
 - a) number of additional families sharing the respondent house unit;
 - b) total number of residents in the house unit to share the use of the service delivery point,
 - c) adequacy of water obtained at the service delivery point; and
 - d) access to alternate sources of water supply.



- iii) User Satisfaction on the Level of Service
 - a) service timing,
 - b) service duration,
 - c) regularity of the service,
 - d) quality of service, and
 - e) redressal of grievances

- iv) Consumer Awareness
 - a) water tariff,
 - b) sewerage surcharge,
 - c) metering and billing - processes and procedures;
 - d) location and the state of maintenance of public stand posts in the locality,
 - e) leakages from the local system,
 - f) state of maintenance of manholes, and
 - g) pollution - causes, prevention and control

- v) User - Board Service Interface
 - a) procedures for lodging complaint - water supply, sewerage and bill remittance,
 - b) lead time for repair, rectification and reconciliation of errors,
 - c) pollution detection and control, and
 - d) redressal of grievances

- vi) Public Relations
 - a) dissemination of information pertaining to the key elements of service, and
 - b) consumer meets

- vii) User Perspectives on Improvement

III. **FIELD STUDY:**

The current strength of domestic category of consumers, serviced by the Board is 200,616. The city for this purpose is divided into 2 Operation and Maintenance Circles, comprising 7 Divisions. Each Division is organised further, into subdivisions, and service sections depending on the number of consumers, operational complexities of the service terrain.



The study, was initially conceived on a modest resource base, limited to obtain a quick scan on consumer satisfaction. However, the information generated through the preliminary stage of interviews and the pilot testing of schedules, revealed the nature, magnitude, complexity and implications of consumer satisfaction, which positively deserved much higher level of resource inputs than were initially estimated. However, the RCUES in tune with its mission, to render action research assistance to public utility organisations, took up the study by stretching the application of resources made available rather than effecting upward revision of the project budget thereby causing additional burden on the HMWSSB - the sponsor of the study

The size of the sample for study in each service section was determined on consideration of the following issues

- i) Physical spread and service heterogeneity within the locality; and
- ii) Estimated time horizon and other resource constraints.

In consideration of the issues mentioned the scale for sampling was set at 1% of domestic consumer segment in each service section. The scale for sampling set a target of 2003 Households for the survey. Actual selection of the respondents within a locality, was to be on a random approach basis, with due care to include as wide an area as possible subject only to the ceiling on the sample size targeted in respect of the concerned service division.

The term "Section" connotes the first level organisational node for the delivery of water supply and sewerage service. The city service network is organised into 88 sections, with wide variations in respect of number of consumers, the spread of service area, geographical features, composition of consumer categories and sources of supply to which the respective areas are dedicated. The sample spread was conceived to encompass all the variations in the state of service delivery due to the differentials mentioned and at the same time, the size should prove adequate and amenable to the rigour of analysis.

The field study was carried out by a team of 8 trained research investigators under the guidance of the two principal investigators. The Metro Board supported the field study by deputing the concerned Officials of the sections, who provided the logistic support to the study team in their respective service jurisdictions. The itinerary of field visits were planned and organised in consultation with both the Directors (Engg.) and the Chief General Managers (Engg.) of the concerned service Circles as well as project monitoring and Construction Circles



IV **SAMPLE SPREAD:**

The actual dispersion of the study sample, among the Seven Operation and Maintenance Divisions, is presented in table No 1.

Table - 1

SAMPLE DISPERSION

Divi- sion	# of Sec- tions	The size of Consumer inventory	Sample (Target)	Sample (Actual)	% of Col.4 to Col.3	% of Col.5 to Col.4	% of Col.5 to Col.3
1	2	3	4	5	6	7	8
I	10	24,351	244	155	1	63.52	0.64
II	16	42,428	423	205	1	48.46	0.48
III	10	21,039	210	217	1	103.33	1.03
IV	11	27,975	280	286	1	102.14	1.02
V	17	37,193	371	377	1	101.62	1.01
VI	10	26,549	265	173	1	65.28	0.65
VII	14	21,081	210	243	1	115.71	1.15
TOTAL	88	2,00,616	2003	1656	1.00	82.68	0.83

V **FIELD SURVEY - THE SITUATION:**

- i) The service users in general, were visibly hostile and pessimistic about the water supply and sewerage service situation in the city and often were casual -even cynical at times, during the interviews. The team's attempts to explain the genesis and purposes of the study were often met with unconcealed sceptism on account of felt dissatisfaction, on the service situation of water supply. As a result quite a few of the scheduled queries, received either a "cursory" or "no response" returns
- ii) The research team was perceived - without any justification, as the Board's staff. The most immediate consequence was the manifested unwillingness to meet the team, on being approached for canvassing the survey schedules. Quite a bit of time, persuasive efforts and patience, were needed to modify the interview situations conducive to purposive interaction and generation of data

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- iii) Contact approaches on week days - especially between the periods of 9 AM to 10 AM and after 6 PM - were viewed as avoidable by a few of the target group. The other members of the household in general, were found either not capable or reluctant to contribute information. Consequently, the field visits had to be continued on weekends and holidays and often even after the normal working hours. The consequent stretch in daily schedule of field study timings as well as visits during holidays was not readily acceptable to the field staff
- iv) In certain localities, a few citizens were overly conscious of 'security' on account of the tense law and order situation during the period. The consequent reservations combined with certain social compulsions against meeting males from outside, proved difficult to overcome in gaining the confidence of respondents and admittance into their house premises
- v) The tense law and order situation during the period also effected the team's mobility adversely.
- vi) All the factors were cumulative in effecting reduction in the estimated targets for sampling.
- vii) The Boards field operatives perceived the field study - again without any justification, as a covert attempt to 'judge' their performance and were found apprehensive of the study outcome, despite the elaborate preparatory discussions in advance.

VI **FIELD STUDY - LIMITATIONS:**

The net result of all the situational factors was

- i) Time over-run of the field study phase by about 80%.
- ii) Shortfall from the targeted sample size in certain service localities - specifically in Division Nos.I, II and VI. The actual samples in these Divisions were of the order 64%, 49% and 65%, of respective targets



2. HYDERABAD WATER SUPPLY AND SEWERAGE BOARD: THE ORGANO - GENESIS

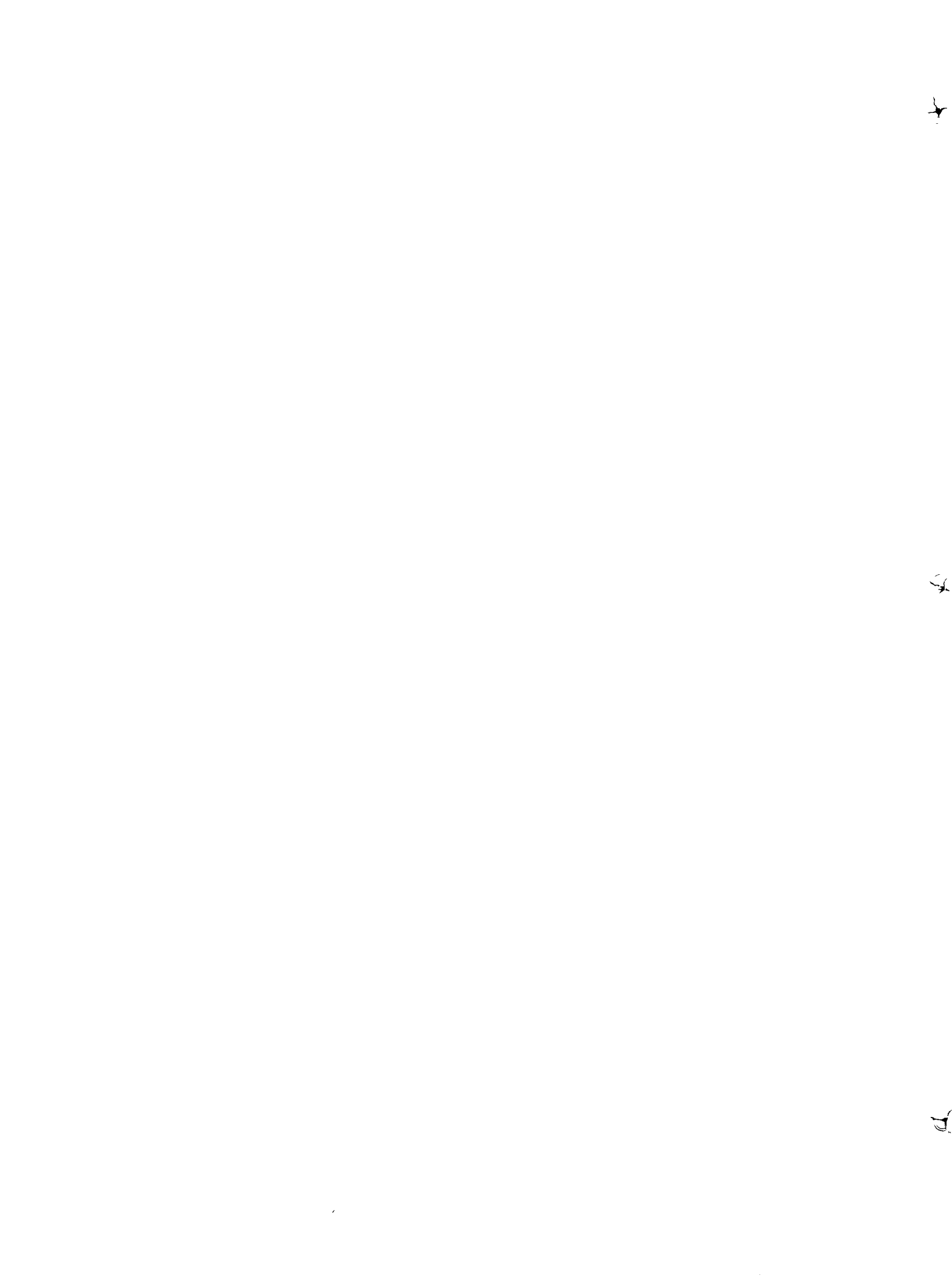
I THE GENESIS:

Hyderabad - the fifth in the order of large cities in India, is located at the grid of 17° 25' latitude North and 78° 25' longitude East, on the ridge at an elevation of 540 meters than sea level between Krishna and Godavari basins. The population of the city including the urban fringe, was 2.86 millions in the year 1981, crossed the 4.28 million mark in 1991 and is estimated to reach 7.8 million by 2011.

The Municipal Corporation of Hyderabad (MCH) covers 169.3 Sq Kms. The Musi - a tributary of the river Krishna, courses through the city in a west to east direction, dividing the city - 45.1 Sq.Km on the southern bank and the balance of 124.2 Sq Km.s. on the northern bank.

The city - considered a gateway to the south, witnessed rapid development of institutional and commercial infrastructure and transport links - air, rail and road with most of the other major cities in India. The contiguous region seats a large number of industries, commercial establishments and concomitant residential development - each adding its share of demand on the city water supply and sewerage system.

Historically, water supply and sanitation service, has been a part of the mandate of municipal government in Andhra Pradesh. However, the sector responsibility pertaining to the city of Hyderabad, despite being a Municipal Corporation, was assigned to the Department of Roads & Buildings, which was formerly a wing of the Public Works Department (PWD), Government of Andhra Pradesh (GOAP). In the year 1974, the sector responsibility was shifted to the Public Health Engineering Department, GOAP. In the year 1982 a separate Hyderabad Metropolitan Water Supply and Sewerage Board (the Board) was constituted. The Chief Engineer, Public Health Engineering Department was assigned as the Chairman of the city water supply service. A year later, the Board was abolished but the Chief Engineer (PH), was continued as specified authority incharge of water supply service. In course of time, the Chief Engineer (Public Health) was replaced by a separately appointed Chief Engineer for the Hyderabad Metro Water Works. In the year 1986, as part of augmentation efforts, the Manjira Phase III, Stage II scheme, was launched and the World Bank was approached for financial assistance. Consequent to the suggestions of the World Bank



the Board was constituted as an independent and autonomous public sector utility organisation. The sanitation service which was with the Municipal Corporation of Hyderabad all along, was also transferred to the newly constituted Board in course of time

II THE NEW CORPORATE STRUCTURE:

The Hyderabad Metropolitan Water Supply and Sewerage Board constituted on November 1, 1989, under the provisions of the Hyderabad Metropolitan Water Supply and Sewerage Act, 1989, assumed the total authority and responsibility for management of planning, designing, construction, operation and maintenance of both water supply and sewerage services in the entire Metropolitan Region of Hyderabad

In accordance with the provisions of the Hyderabad Metropolitan Water Supply and Sewerage Act, 1989, a Board of Directors, for the HMWSSB with the following membership was constituted

- | | | |
|-------|---|-----------------|
| i) | Hon'ble Chief Minister, Andhra Pradesh | - Chairman |
| ii) | Hon'ble Minister, Municipal Administration,
Andhra Pradesh | - Vice-Chairman |
| iii) | Principal Secretary to Govt , M.A &
U.D.Dept., GOAP. | - Director |
| iv) | Secretary to Government Finance
Department, GOAP | - Director |
| v) | Secretary to Government, Irrigation
Department, GOAP. | - Director |
| vi) | Commissioner, MCH | - Director |
| vii) | Chairman, A.P.Pollution Control Board. | - Director |
| viii) | Director, Medical and Health Department,
GOAP. | - Director |
| ix) | Director (Engg.), HMWSSB | - Director |
| x) | Director (Finance), HMWSSB | - Director |
| xi) | Managing Director, HMWSSB | |

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The composition of the Board with the Hon'ble Chief Minister, A.P., as the Chairman and the Hon'ble Minister for Municipal Administration, A.P., as the Vice-Chairman, Secretary level representation from three cognate Government Departments -i) Municipal Administration and Urban Development ii) Finance, and iii) Irrigation in addition to Chief Executive level representation from the Municipal Corporation of Hyderabad and the principal functionaries from A.P Pollution Control Board and Department of Medical and Health, GOAP, reflect the level of utmost attention accorded to water supply and sanitation needs of the city Appointment to the Board, except in case of Managing Director, is made ex-officio and the appointment to the post of Managing Director is done through nomination by the GOAP from the cadre of IAS The statutory provision for nominating the heads of the two key functions Engineering and Finance, to the Board are in line with current trends in public enterprise management.

III **THE CORPORATE MISSION AND OBJECTIVES:** The Board aims to be a performance effective and financially viable utility organisation in water supply and sanitation sector.

The new corporate mission is sought to be achieved through a multi level strategy profiled below

- i) increasing the threshold of operational autonomy as well as accountability pertaining to policy formulation planning, management of physical and financial resources, operations, maintenance and personnel services
- ii) streamlining the management structure of the service, by replacing the "protective state umbrella" - the common characteristic of organisations or government departments, with a corporate system of management by Board of Directors The Chief Executive is solely vested with the authority and responsibility for water supply and sanitation service in the city and reports to the 'Board' rather than directly to Government
- iii) facilitating a systemic switch to capital cost recovery from the existing grant financing, and
- iv) implementing a realistic cost-effective approach to the management of water supply and sewerage services

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IV. **The Mandate:** With a view to ensure effectiveness in the implementation of the corporate strategy, the Board has also defined and adopted a comprehensive structure of management tactics. The mandate as adopted by the Board is profiled below:

- i) Improving the planning and technology base of the existing systems of augmentation, operation, maintenance and management of water supply
- ii) Reducing the current levels of wastage and leakages, from transmission mains as well as distribution network
- iii) Minimising the current levels of unaccounted for water, through identification and removal of any inconsistencies in consumer inventories
- iv) Reducing the vulnerability of the water supply to drought conditions and lean monsoon years
- v) Improving the current systems on metering, recording, billing and collection of service user charges
- vi) Augmenting the capacity and improving the utilisation of current infrastructure for collection, treatment and disposal of sewage.
- vii) Reducing the hazards to pollution and health through provision of low cost household sanitation units
- viii) Upgrading the current efforts on monitoring the service delivery, through developing a data base of system maps, records and related documentation
- ix) Strengthening the financial base through formulation and implementation of policies aimed at recovery of costs of not only the current expenditure but also to support future investments and debt servicing.
- x) Enhancing the employee morale and commitment to corporate goals through fair and humane application of procedures and practices pertaining to personnel management.
- xi) Preparing and provision of operation and maintenance manuals for ready reference and guidance.
- xii) Designing, developing and installing reliable management information system (MIS) to facilitate timely decision making and productive utilisation of all the resources.
- xiii) Promoting consumer orientation amongst the employees through a policy of clientele orientation public relations

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xiv) Developing sensitive organisational interface with the public and sustaining the two way channels for communication

V. **THE POLICY BASE FOR MANAGEMENT:** The Board has also developed a comprehensive policy base for effective management of adopted policies, strategies and tactics. The contours of the policy base are profiled below.

A **Management ethics:** The Board shall maintain highest standards of ethics in its dealings with public as well as its employees.

B **Quality and Consumer Orientation:** The Board will strive to establish and operate the service delivery systems to ensure

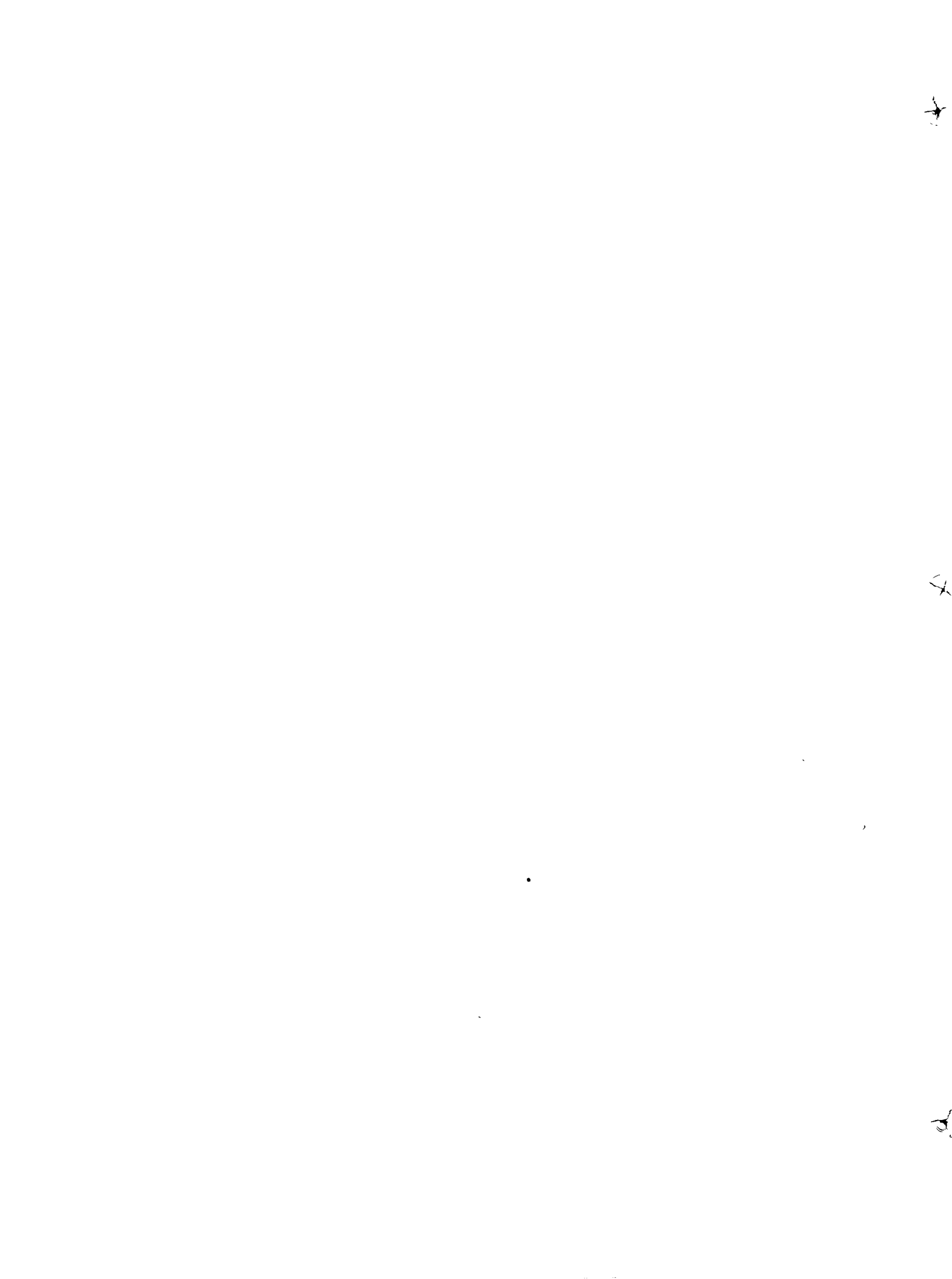
i) Level of service adequate in meeting consumer requirement, and

ii) Conformity with established standards and norms in respect of quality

C. **Public Relations:** The Board recognises that the consumer is the only reason for its establishment and existence and aims (i) to provide the due level of satisfaction to the consumer, (ii) to establish and maintain relationships with the consumer community, based on a spirit of respect, fairness and courtesy, and (iii) to encourage consumer orientation in the work practices as well as employee attitudes

D. **Business Environment - Structure - Staff:** The Board recognises the compulsions behind the rapid changes in the areas of social structures, legislation, technology and demands. It shall, therefore, aim at modifying the organisation strategies, structures and systems to ensure development of skills and competence to meet the emerging demands.

E **Productivity:** The Board recognises that water supply and sewerage services are becoming progressively cost intensive and optimisation of productivity of all the resources shall be increasingly crucial for survival. The Board, therefore, will strive to maintain (i) high levels of productivity of its resources - human, material, financial and technological, (ii) conservation of available resources, elimination of waste, and (iii) maximisation of resource utilisation



F. Work Culture:

- i) The Board recognises that the employees are the most important of its resources and employee development efforts would be aimed at inculcating pride in belonging to the organisation. Integrity, honesty and fairness in employment and service related matter shall be ensured
- ii) The Board will fully support innovation, achievement, participation and role clarity amongst of its personnel
- iii) The Board will strive to provide a work environment conducive to optimum performance and pride in job through systematic and rational classification of duties, responsibilities and positions, prescribing criteria and methods for career advancement and modifying the compensation and benefit packages to attract and retain proven talent

G Research and Management Development: The Board recognises the consequences of "aging" on the present system, the unique geographic features of the service jurisdiction and the urgency for expansion and growth. In order to meet the estimated rise in demand for water supply and sanitation services, the Board will strive to institute in-house diagnostic research systems for

- i) Upgrading the current levels of core technology in all the functions and operations and maintenance.
- ii) Implement need based training programmes - both in house and external to enhance the calibre of personnel performance.
- iii) Integrate the wide band of elements of personnel management such as job specifications, descriptions, manpower plans and the policies on recruitment, promotion and transfers

VI ORGANISATION

A Organisation: The organisational design of the HMWSSB is presented on Page No 16

The composition of the Board of Directors is already presented. The Managing Director is a full time employee and the Chief Executive of the Board. Next to the Managing Director in the hierarchy are four full time directors - each heading a principal function, viz .

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- i) Operations and Maintenance;
- ii) Projects;
- iii) Finance and Accounts, and
- iv) Personnel and Administration

The senior most amongst the two directors of the engineering group and the Director Finance and Accounts, are nominated to the Board of Directors. All the function directors including those nominated to the Board of Directors, report to the Managing Director

Next to the level of Directors (Engg) are Chief General Managers (Engg.) placed incharge of the organisational units of Circles, below the Board

The entire organisation is split into circles as presented below

I Operations & Maintenance Group:

Operations and Maintenance	-	2 Units
Construction (Other than World Bank Assisted Project)	-	1 Unit
Investigation	-	1 Unit

II. The project group:

Planning and Monitoring	-	1 Unit.
World Bank Assisted Project Construction	-	1 Unit.
Resettlement and Rehabilitation	-	1 Unit

The Director (Finance) is assisted by 2 Chief General Managers - One each for Finance and Accounts

The Director (Personnel) is assisted by 1 Chief General Manager (Training)

The Organisational units of "circles" are further divided into divisions, based on the spatial dimension pertaining to service distribution or integration of functions subjects or activities - such as quality assurance and testing and EDP - placed under the charge of a General Manager. Thus, a General Manager may either be head of a group of Operation and Maintenance service delivery units in a specific geographic area or a support function, service or activity such as material control/Quality Assurance or Survey and Investigation



The divisions under the Operation and Maintenance and the projects groups are further split into 'sub-divisions' - each under the charge of a Deputy General Manager. The term 'sub-division', connotes a group of service delivery sections within a contiguous area or group of activities related to project implementation. The sub-divisions are further split into 'sections' placed under the charge of Managers. The section constitutes the first level service node in respect of water supply and sanitation. In case of the projects wing, a section may be more broad based to cover either a purpose or place or persons or even a combination of the three.

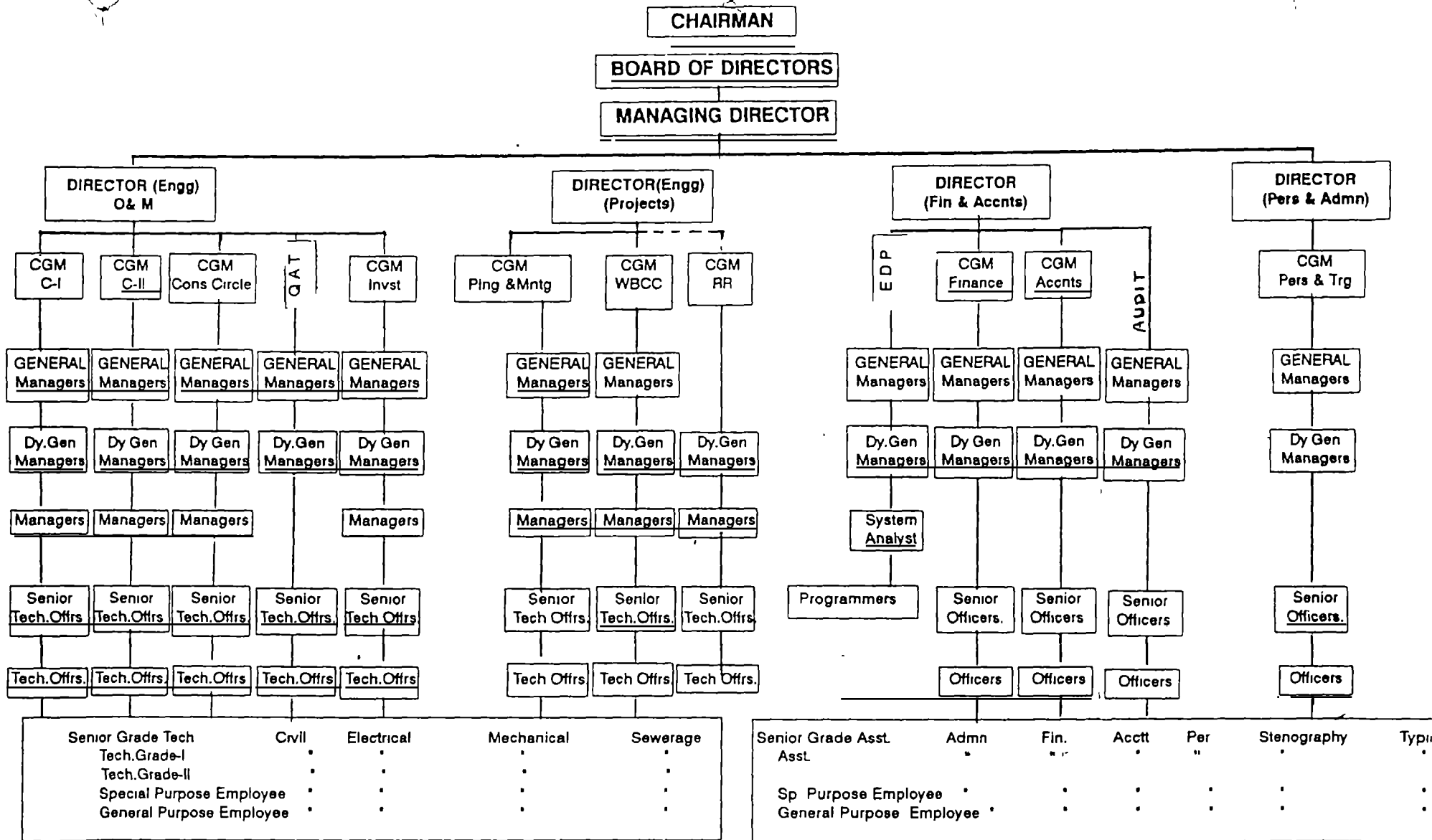
Organisation of the staff functions of Finance and Accounts and Personnel and Administration, follow a different pattern. The levels of responsibility and the authority vested in a given level of organisational sub-unit, constitutes the primary determinant of staff positions - to be assigned to the unit. However, due care has been taken to ensure parity between the ranks of head of the organisational unit and the staff personnel, in developing cadre assignments. Provision is made for posting staff officers from all the principal functions - adequate in numbers to take charge of a subject or a group of subjects exclusively both in the corporate office and the circle offices. At the level of units such as division, sub-division or even sections the staff functions are integrated by cognate group of functions and thus limiting the staff complement.

The job title of 'Manager' is made exclusive to the first level executives of engineering group. The position is conceived coterminous with the organisational node of "section" involving a broad range of line responsibilities to include not only the technical components of operations and maintenance but also activities pertaining to management of personnel, finance and accounts. Engineering being the dominant line component, appointment to the position of 'Manager' is restricted to engineering personnel only. The cognate nature of activities and the scope for personnel rotation between the operation and maintenance and the project wings, constitutes the rationale for extending the provision of 'Manager' positions to all the first level executives of engineering group whether in operations and maintenance or projects. However, from the level of Dy. General Manager inter-group equation is sustained, in so far as job titles are concerned.

The last tier consist of technical officers in the engineering group and generic designations of senior officers/officers appended in the appropriate group indicators such as finance, accounts, personnel and administration.



HYDERABAD METRO WATER SUPPLY AND SEWERAGE BOARD



CGM = CHIEF GENERAL MANAGER

E D P = ELECTRONIC DATA PROCESSING

O & M = OPERATIONS & MAINTANANCE

C-I = CIRCLE -I

C-II = CIRCLE -II

Q A T = QUALITY ASSURANCE & TESTING

Cons.circle = CONSTRUCTION CIRCLE

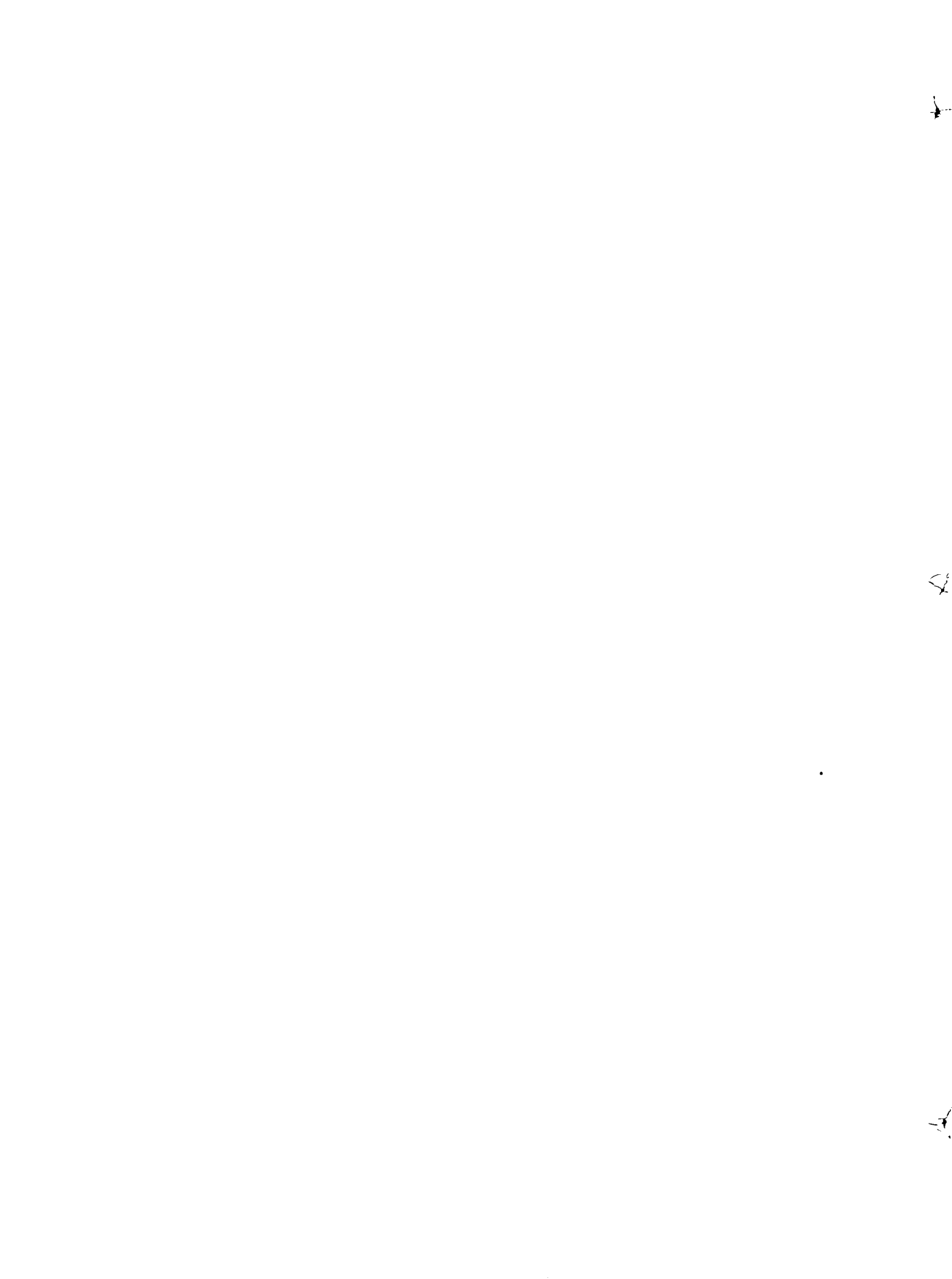
INVST = INVESTIGATION

PERS & TRG = PERSONNEL & TRAINING

W B C C = WORLD BANK CONSTRUCTION CIRCLE

R R = REHABILITATION & RESETTLEMENT

Ping & Mntg. = PLANNING & MONITORING



B. Subordinate Cadres:

The unwieldy maze of positions and levels of hierarchy in currency at the time of the constitution of the Board are rationalised into a four tier structure. The structure, consist of senior grade technical assistant, technician Gr.I and technician Gr.III in engineering group In the finance and accounts as well as personnel & administration groups, the hierarchy begins with senior assistant followed by assistant. The latter is the entry position

At the bottom level in the organisation there are two grades of personnel viz, special purpose and general purpose employees -both connoting performance of simple tasks requiring simple levels of physical endurance and dexterity.



3. SERVICE DEMAND AND DELIVERY

The current criteria which effect the size of service delivery connection in the category of domestic consumers, take into account the size of the residential plot built up area or plinth area of the building as a unit of demand. There is also includes a provision for the sanction of a second connection on demand from the user. However, neither the number of households sharing the use of the building nor the total user population resident there in, are accorded any weightage factor, for determining or increasing the diameter size of service connection. In general, the single unit domestic category of private pipe service connections, are of 1/2" dia size only. The size of service connection being the same and the duration of supply being uniform for all the consumers in a given locality, the quantity of water actually available to the user becomes a direct function of systemic pressure, which in turn depends on the elevation differentials in the service zone, distance between the service delivery point and the service reservoir, the number of connections enroute, leaks if any in the system, unauthorised tappings, clandestine use of suction pumps to maximise water drawal, etc. As against the diverse range of pressure determinants, the scale of user demand varies in tune with the usage pattern and user population dependent on the service delivery point, scale of access or availability of alternate sources of water supply and the characteristics of usage.

The interplay between the vectors borne of the two sets of the situational factors mentioned, creates diametrically divergent perspectives between the users and staff on the state of performance of service operations, level and quality of service, user grievances and organisational response. The service users tend to be increasingly critical of the systemic deficiencies. The staff on its part, being in access to information on technical parameters and systemic operations, perceive the strident criticism as irrational and unjustified. The perspective clash, causes erosion of trust, credibility and compatibility between service users and the organisation - the very foundation of effective management.

In order to facilitate objective analysis of the situation, attempts were made to profile the demand determinants at user point and their effects in two tiers - first at the Board level in totality, followed by divisional comparison. The following attributes were used in developing the profile: (Ref: Survey schedule data nodes No 2 to 7-Annexure-I).

- i) **Tenure status of the respondent;**
- ii) **Duration of residence in the same locality;**

- iii) **Household size of the sample respondent;**
- iv) **Occupancy pattern - number of other households and the total population in the building, as well as other households in the neighbourhood sharing the water (PPC only);**
- v) **Access threshold to alternate sources of water supply; and**
- vi) **Household income.**

i) **TENURE STATUS OF THE RESPONDENT:**

The tenurial status of the respondent can be one of the potential factors to bear upon the quality of responses. An owner by virtue of the concomitant interest in improving the status of service in the locality, is likely to provide durable data. A tenant on the other hand may not be in possession of vital data in addition to having an option to move to a better served area rather than attempt to improve the service status in the locality.

The sample size of 1656 Households revealed, 1363 (82%) as owners and the remaining 293 (18%) as tenants. The owner and tenant ratio as a percentage to divisional samples varied from 83% : 17% in Divisions No I and III, 80% : 20% in Division No II, 82% : 18% in Division No.IV, 84% : 16% in Division No.V, 81% : 19% in Divisions No.VI and VII. The total sample composition thus reveals, a owner, tenant ratio of 4:1

Based on the premise already stated, the data returns may be considered stable and durable

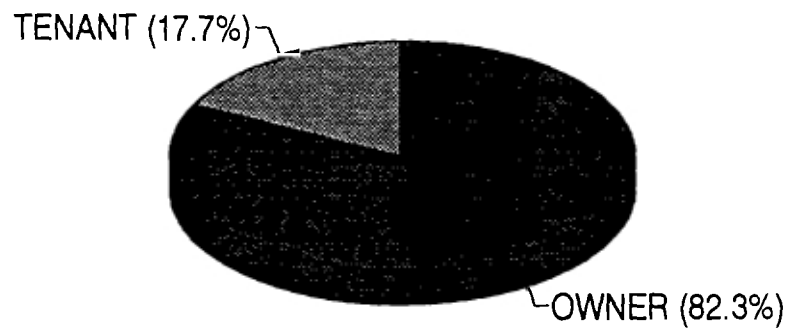
ii) **DURATION OF RESIDENCE IN THE SAME SERVICE LOCALITY:**

The premise for the query was that longer the duration of stay greater would be the scope and level of familiarity with the problems of water and sewerage service in the locality.

Only 74 households (4% of the sample) were in the stay period range of less than 1 year, 202 households (12%) were in the stay period range of 1 to 5 years, 218 households (13%) were in the range of 5 to 10 years, 151 households (9%) were in the range of 10 to 15 years and a large majority of 1011 households (61%) were in the range of exceeding 15 years. Thus the scope for familiarity with the service obtained through long period stay in the locality amongst the sample appears very high



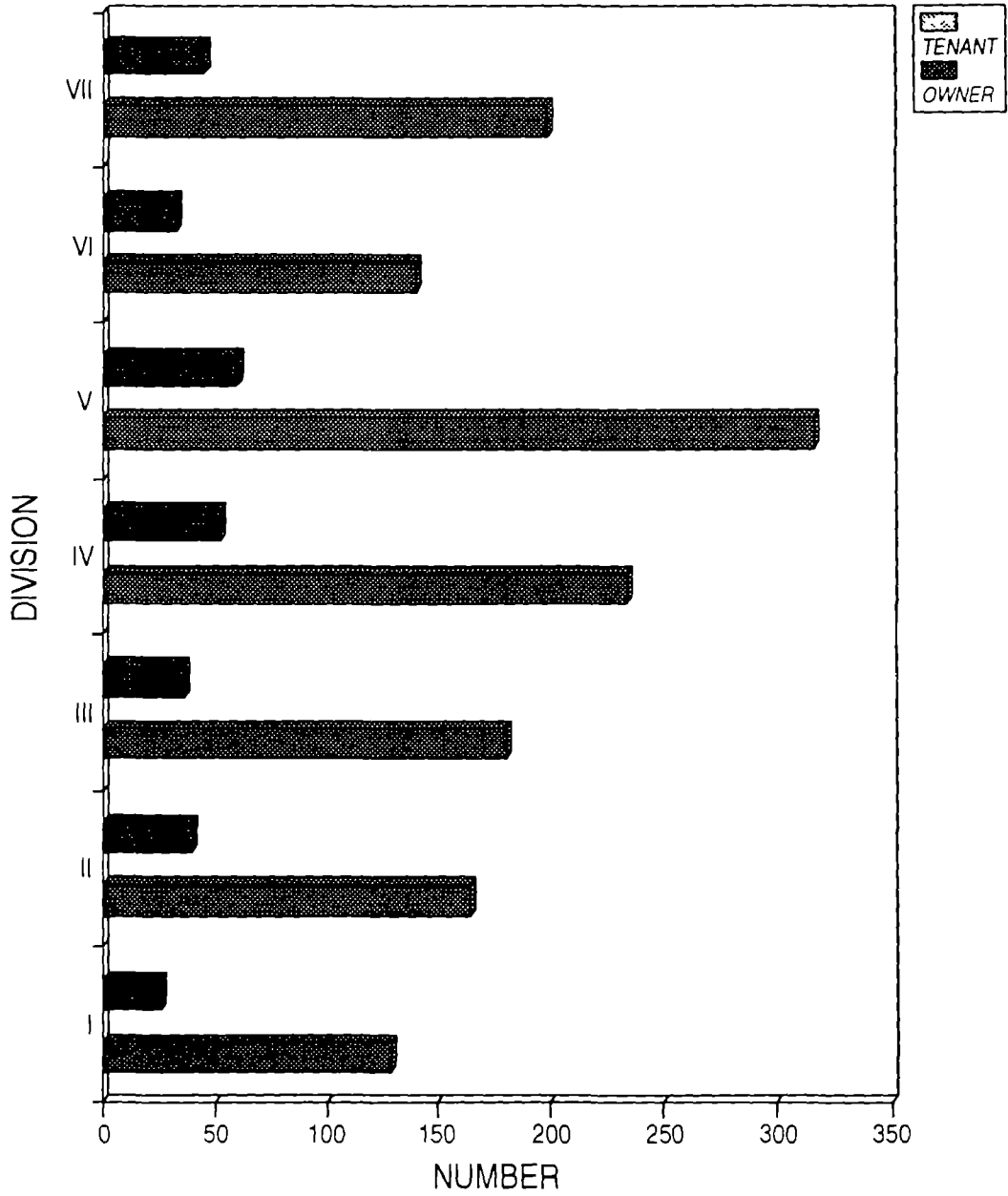
RESIDENTIAL STATUS



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RESIDENTIAL STATUS



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iii) **HOUSEHOLD SIZE OF THE SAMPLE RESPONDENT:**

The scale of demand at a given service delivery point, can usually be considered a direct function of the number of persons dependent on the same point. With a view to assess the scale of demand at the various service delivery points included in the sample, data on the household size of the sample respondents, the patterns of occupancy in the unit and total user population in the unit, was generated

The small family concept as the base, the attribute of household size was stratified into three slabs; viz.

- a) less than five persons
- b) 5 to 10 persons
- c) 10 to 15 persons

The total sample of 1656 household units spread over the 7 Service Divisions reveals, 650 households units (39% of total sample) in the size range of less than 5 each, 717 households (43%) in the size range of 5 to 10 each and 256 households (15%) in the size range of 10 to 15 each. There were 33 households (2%) in the category of "no response".

Statistical analysis of the data indicates, as an average of 7 persons in each sample household. However the average size varies from 8 members per sample household in the Divisions I to VI to 6 members each household, in Division No.VII. The size variation of the order of only 1 appears marginal and the user scenario appears ideal. However, with the juxtaposition of the dimension of other households living in the same building - connoting sharing of water, the situation alters drastically.

iv) **OCCUPANCY PATTERN:**

a) **Multiple Household Units:**

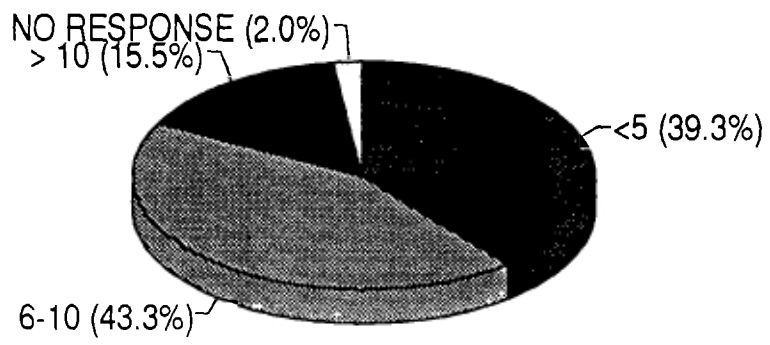
The user group may comprise either the owner household entirely, or the tenants entirely or a combination of both the categories, in addition to families in the neighbourhood.

The query on the occupancy pattern is based on the premise that the consumption - scale and pattern, by a given population of users

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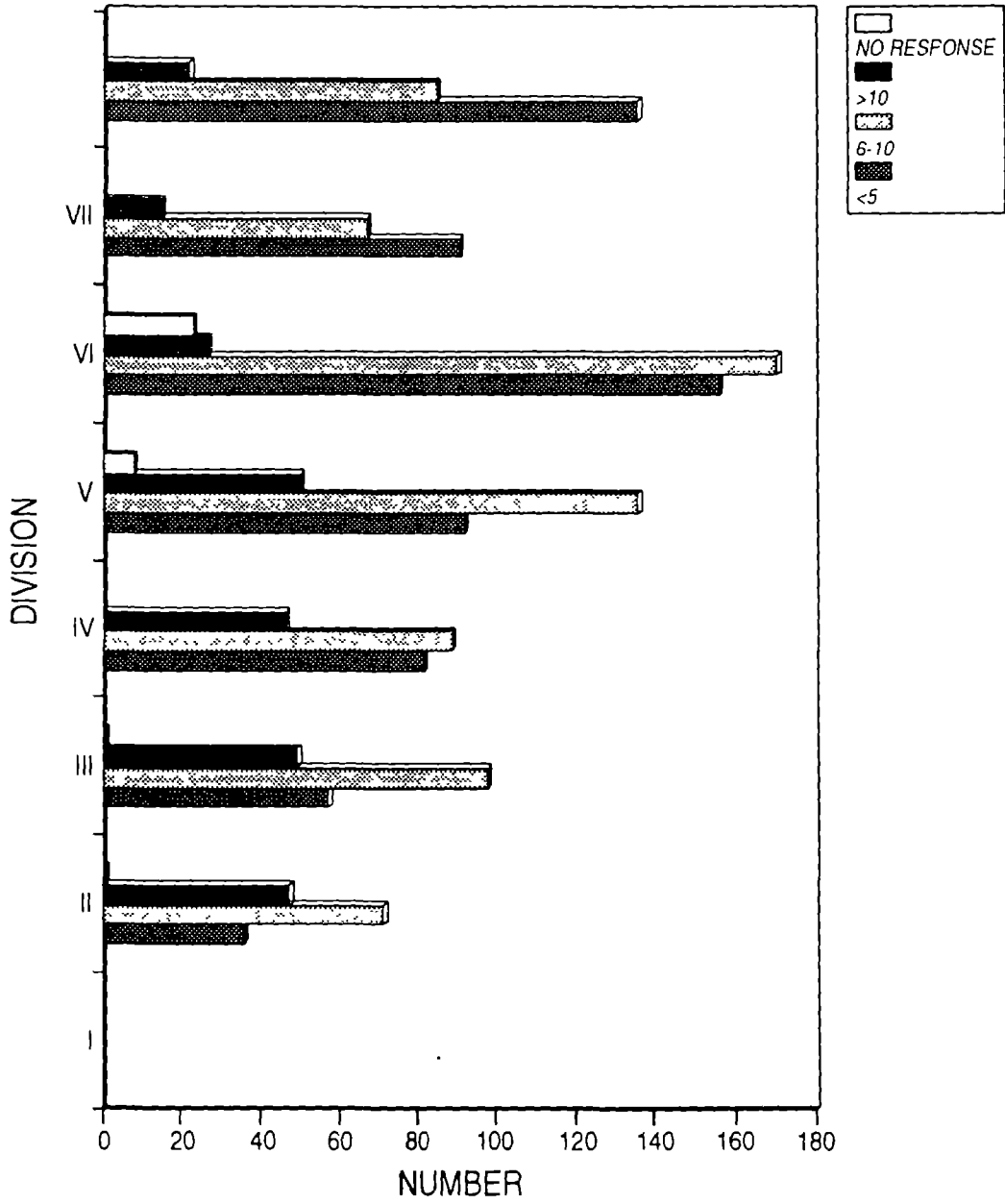
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HOUSE HOLD SIZE





HOUSE HOLD SIZE



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belonging to household would be different, even if the same population is scattered into different households though in the same housing unit.

Statistical analysis of the data reveals, that while 890 households (54% of the total sample) were single units, the balance of 766 (46%) were multiple household housing units.

The percentage of multiple household housing units to total sample households varied from a minimum 30% in Division No.I to a maximum of 68% in Division No VI The Divisional data on the attribute is profiled below-

Table No.2

INCIDENCE OF MULTIPLE HOUSEHOLDS TO SAMPLE HOUSEHOLDS

Division No	% of Multiple household housing units to sample households in the division
I	30%
II	34%
III	37%
IV	36%
V	58%
VI	49%
VII	68%

The actual demand in general as can be clearly seen has been consistently far in excess - ranging from 30% to 68%, over the assumed criteria on the size of service connection. The high levels of demand in divisions No. VII, V and VI - 68%, 58% and 49% respectively, is in correlation with the rapidly escalating intensity of land use in these areas. Even in the service divisions of I & II within the old city area, the demand outstrips supply by 30 to 34%

b) Multiple Household Units - Implications on Demand and Supply

In order to assess the magnitude of multiple household housing and its impact on access to the service, data on the actual number of

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households resident in the same building was generated. The data reveals, 346 sample units (21% of total sample) with 1 additional household each indicative of demand excess of the order of 100% over the stipulated norm on per capita supply, 157 units (9%) had 2 additional households each, indicative of demand excess of the order of 200%. 88 units (5%) had 3 additional households each, indicative of excess demand of the order of 300% over supply norm, and 172 units (10%) had 4 additional household, each indicative of demand excess of the order of 400%. The sample segment with no additional households a size compatible to implementation the supply norm comprised only 890 units (54%) and a negligible number of 3 sample units (0.18%) returned a "no response" for reasons of their own, one of them being the mistaken notion of the research team representing the Municipal Corporation of Hyderabad to carry out property tax assessment. The summative analysis reveals 763 sample units (46% of the total sample) wherein the scale of demand exceeds the supply norm by 211% and 890 units (53.7%) wherein the demand - by the norm of household as a unit of consumption, equals the supply norm

The number of additional households per sample building, varying from 1 to more than 4 in certain localities the summative analysis also reveals an average of 2.2 households in each sample unit implying more than 17 persons - dependent on the same service point there by reducing the quantity of water made available, to 1/3 of the LPCD norm It therefore, was not surprising to find a majority of the respondents replying in the negative to the question of adequacy of water made available.

c) Number of users per service delivery point:

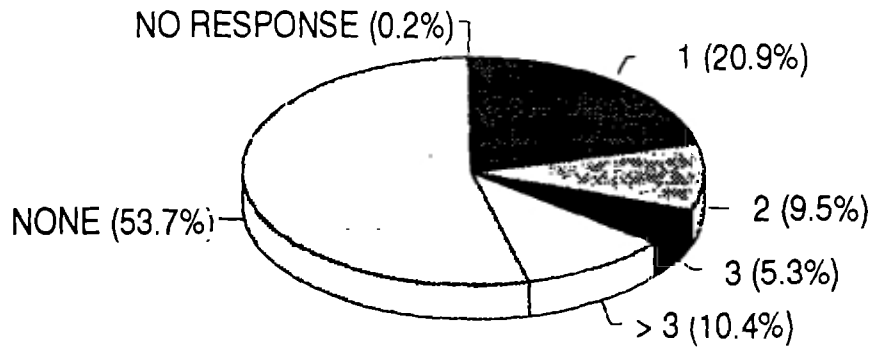
The high incidence of demand against the systemic capacity found further corroboration, even on the attribute of user population per point. Only 65 households (4% of the total sample) were in the user population range of 5 persons per point, as against 779 Households (47%) in the range of 5 to 10 persons, 331 Households (20%) in the range of 10 to 15 persons, 138 Households (8%) in the range of 15 to 20 persons, and 134 Households (8%) in the range of exceeding 20 persons. A good number - 209 Households (13%), returned a no

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NUMBER OF OTHER HH IN THE BUILDING



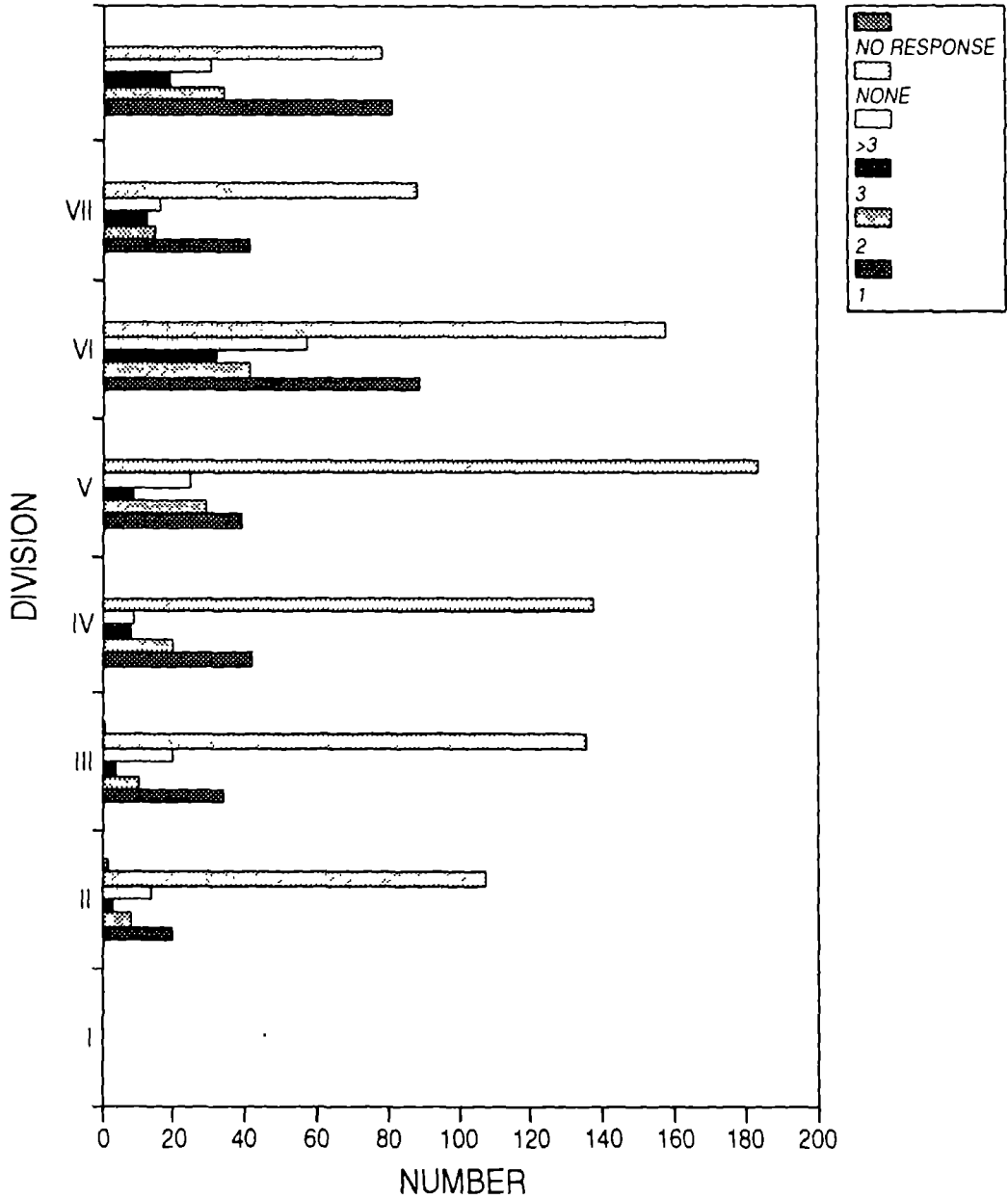
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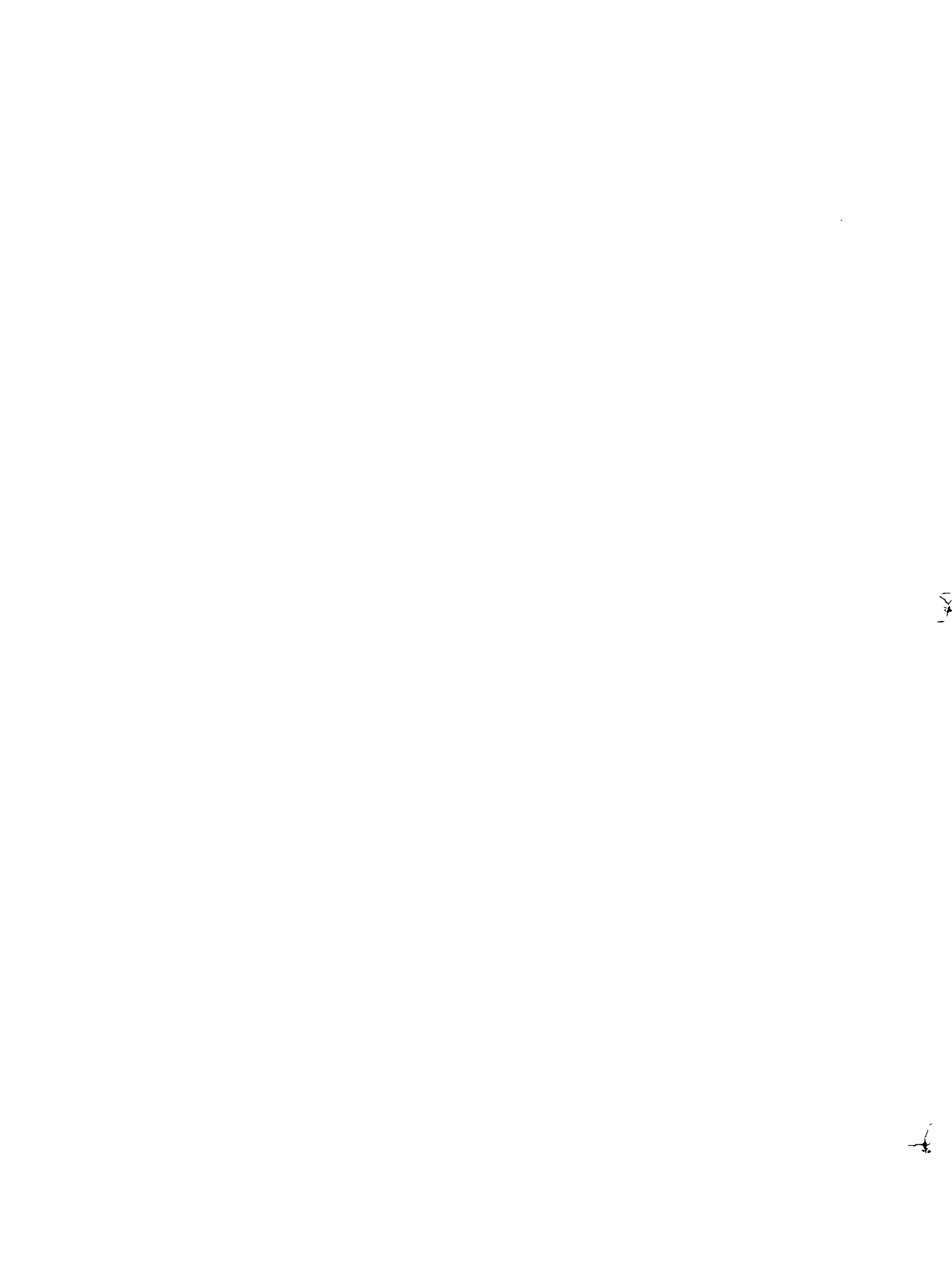
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NUMBER OF OTHER HH IN THE BUILDING





response. Mid point method of analysis indicates a sample average of 13 persons per point. Excepting the sample segment of 65 households (4%) with 5 persons per point the average population in the remaining households amounts to 14 persons. Thus, the excess of the demand over the supply, ranging from 100 to 400%, as identified by the variable of households per sample unit stands substantiated.

The demand scenario in each division is profiled below:

Division - I

The Divisional sample of 155 Household Units (9% of the total sample) indicates 36 Households (23% of the divisional sample) in the size range of 5 persons each, 71 Households (46%) in the size range of 6 to 10 persons each, 47 Households (30%) in the range of exceeding 10 persons each

On the variable of additional households per sample unit, there are 20 sample units (13%) with one additional family, 8 Units (5%) with two additional families, 3 Units (2%) with three additional families, and 14 Household Units (9%) with four additional families

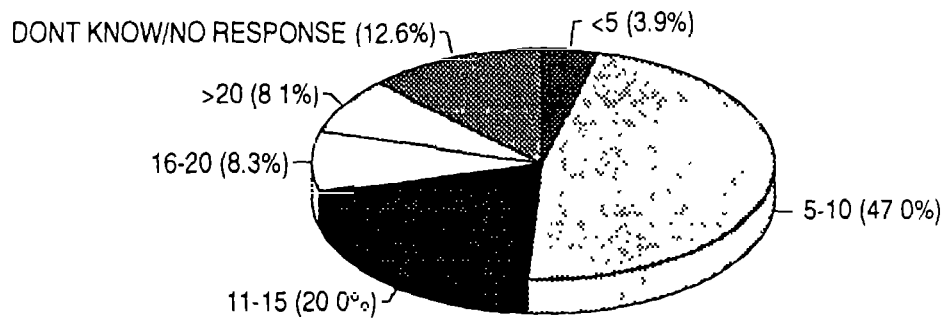
On the variable of user population dependent on the same service delivery point, there were 81 Units (52%) in the population size range of 5 - 10 persons, 40 Household Units (26%) in the size range of 11 to 15, 19 Units (12%) in the size range of 16 - 20 and 14 Units (9%) in the size range of exceeding 20 persons per point.

Division - II

The Divisional sample of 205 Household Units (12% of the total sample) reveals, 57 Households (28% of the divisional sample) in the size range of 5 persons each, 98 households (48%) in the size range of 6 to 10 persons each, and 49 Households (24%) in the size range of exceeding 10 persons per household

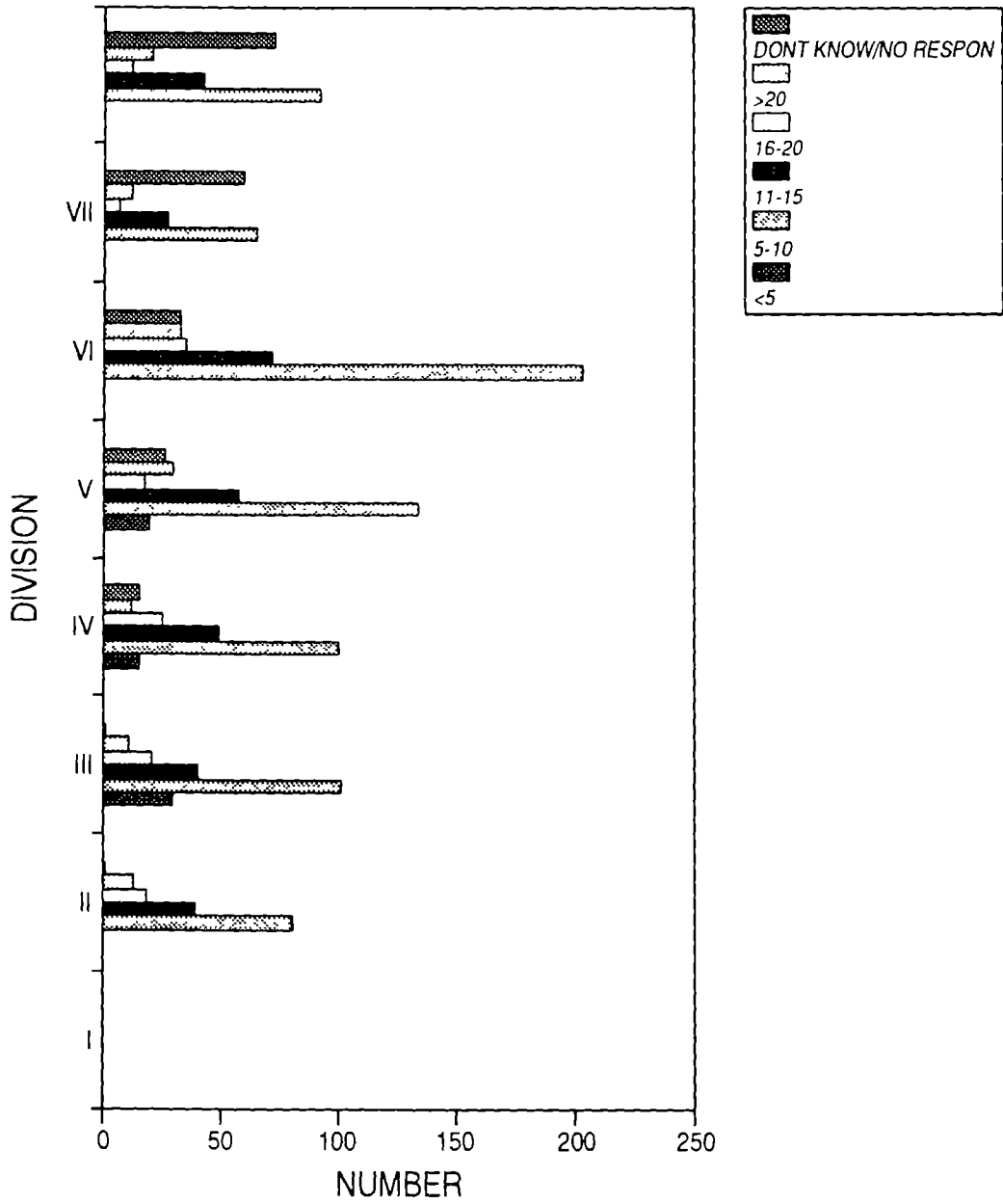
On the variable of additional households in the same unit, there were 34 sample Units (17%) with one additional family each, 10 Units (5%) with two additional families, 4 Units (2%) with three additional families and 20 Units (10%) with 4 additional families each.

TOTAL POPULATION IN THE BUILDING





TOTAL POPULATION IN THE BUILDING



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On the variable of user population dependent on the same service delivery point, there were 30 units in the size range of 5 persons each, 10 units (49%) in the size range of 5 to 10 persons each, 4 units (20%) in the size range of 10 - 15 persons each, 21 unit in the size range of 15 - 20 persons each and 11 units (5%) in the size range of exceeding 20 persons each.

Division - III

The Divisional sample of 217 Households (13% of the total sample) indicates 82 Households (32% of the divisional sample) in the size range of 5 each, 89 households (42%) in the size range of 6-10 each, 46 households (21%) in the size range of exceeding 10 persons per household.

On the variable of additional households in the same unit, there were 42 households (19%) with one additional family each, 20 households (9%) with two additional families each, 8 households (4%) with three additional families each and 9 households (4%) with four additional families each.

On the variable of user population dependent on the same service delivery point, there were 15 households (7%) in the size range of 5 persons each, 100 households (46%) in the size range of 5 - 10 each, 49 households (23%) in the size range of 10 - 15 each, 25 households (12%) in the size range of 15 to 20 persons each and 13 households (6%) in the size range of exceeding 20 persons each.

Division - IV

The Divisional sample of 286 households (17% of the total sample) indicates 92 households (32% of the divisional sample) in the size range of 5 persons each, 136 households (43%) in the size range of 6 to 10 persons each and 50 households (17%) in the size range of 10-15 persons each household

On the variable of additional households in the same unit, there were 39 household units (14%) with one additional family, 29 household units (10%) with two additional families, 9 household units (3%) with three additional families and 25 household units (9%) with four additional families

On the variable of user population dependent on the same service delivery point there were 20 household units (7%) in the population size range of 5 persons each, 134

household units (47%) in the size range of 5 to 10 persons each, 58 household units (20%) in the size range of 10-15 persons each, 18 household units (6%) in the size range of 15 to 20 persons each and 30 household units (10%) in the size range of exceeding 20 persons each

Division - V

The Divisional sample of 377 households (23% of the total sample) indicates 156 households (41% of the divisional sample) in the size range of 5 members each, 17 households (45%) in the size range of 6 - 10 members each, 27 households (7%) in the size range of 10 to 15 each.

On the variable of additional households in the same unit, there were 89 households (24%) with one additional family, 42 household units (11%) with two additional families, 32 household units (8%) with three additional families and 57 household units (15%) with four additional families.

On the variable of user population dependent on the same service delivery point, there were 204 households (54%) in the size range of 5 to 10 persons each, 72 households (19%) in the size range of 10 to 15 persons each, 35 households (9%) in the size range of 15 to 20 persons each and 33 households (9%) in the size range of exceeding 20 persons each.

Division - VI

The Divisional sample of 173 households (10% of total sample) indicate 91 households (53% of the divisional sample) in the size range of 5 persons each, 67 households (39%) in the size range of 5 to 10 persons each, 15 households (9%) in the size range of 10 to 15 persons each.

On the variable of additional households in the same unit, there were 42 household units (24%) with one additional family each, 15 household units (9%) with two additional families each, 13 household units (8%) with three additional families each and 16 household units (9%) with four additional families each.

On the variable of user population dependent on the same service delivery point, there were 66 households (38%) in the size range of 5 to 10 persons each, 28 households (16%) in the size range of 10 to 15 persons each, 7 households (4%) in the

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size range of 15 to 20 persons and 12 households (7%) in the size range of exceeding 20 persons each.

Division - VII

The Divisional sample of 243 households (15% of total sample) indicates 135 households (56% of the divisional sample) in the size range of 5 persons each, 85 households (35%) in the size range of 6 to 10 persons each and 22 households (9%) in the size range of 10 to 15 persons each.

On the variable of additional households in the same unit, there were 81 household units (33%) with one additional family each, 34 households (14%) with two additional families each, 19 household units (8%) with three additional families each and 31 household units (13%) with four additional families each.

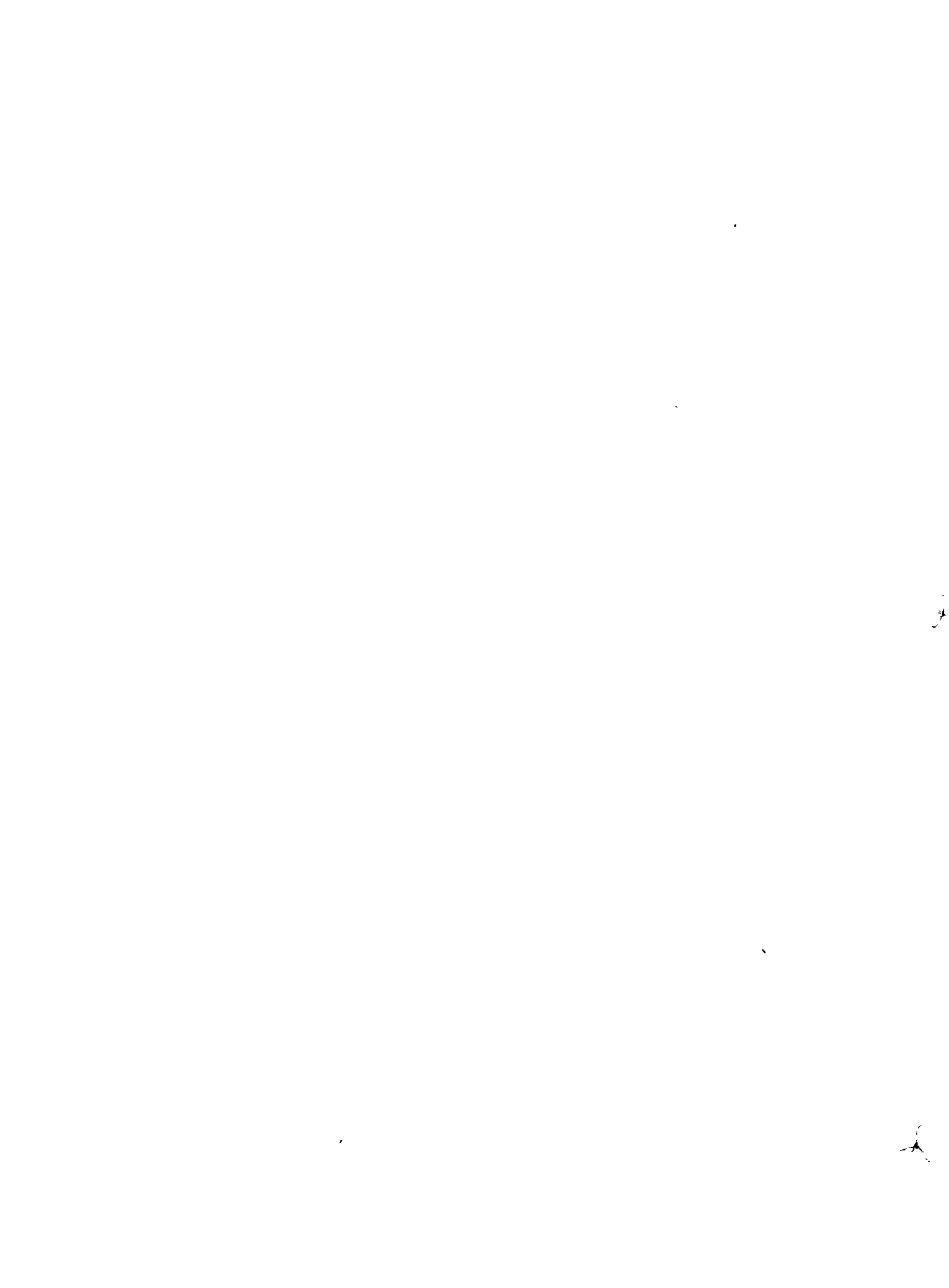
On the variable of user population dependent on the same service delivery point, there were 93 households (38%) in the size range of 5 to 10 members each, 43 households (18%) in the size range of 10 to 15 members each, 13 households (5%) in the size range of 15 to 20 members each and 21 households (9%) in the size range of exceeding 20 each.

In general, it can be seen that 4 out of the 7 sample divisions, the actual user population dependent on the same service delivery point, is far in excess of the sample average of 7 consumers per service delivery point.

v) ACCESS THRESHOLD TO ALTERNATIVE SOURCES OF WATER SUPPLY:

The level of access to alternate sources for augmenting the available water, constitutes another major determinant of user perception on adequacy of the level of service. The premise is, that larger the scale of access to alternate sources, lower the level of dependence on piped water service and vice-versa.

The category composition of the sample universe of 1656 household units, indicates 1517 household units (92%) in the user category of PPC, 163 household units (8%) in the category of PSP. The data dispersion clearly indicates an overlap. Analysis of the overlap revealed 446 households (27% of the total sample) with access to multiple sources, which include a bore-well or an open well within or outside the premises or PPC/PSP in the neighbourhood. The scope or access to multiple sources



being significant - 27% appears as the major mitigating factor, against the felt deficiencies in the levels of service.

The divisional profile of access to multiple sources is presented below: (category totals and their percentage do not tally due to multiple responses).

Division - I

The divisional sample size of 155 households (9% of the total sample) reveals, 50 households (32% of the divisional sample) having access to multiple sources of which 20 households (40% of the segment) depend on bore wells within their premises, 24 households (48%) on private open wells and 18 households (36%) on the PSP in the neighbourhood. There was 1 household, not inclined to identify the additional source.

Division - II

The divisional sample size of 205 households (11% of the total sample) reveals, 35 households (17% of the divisional sample) having access to multiple sources of which 26 households (74% of the segment) depend on bore wells within their premises, 8 households (22%) on private open wells and 7 households (20%) on the PSP in the neighbourhood. There was 1 household, not inclined to identify the additional source.

Divisional - III

The divisional sample size of 217 households (13% of the total sample) reveals 52 households (24% of the divisional sample) having access to multiple sources of which 19 households (37% of the segment) depend on bore wells within their premises, 25 households (48%) on private open wells and 22 households (42%) on the PSP in the neighbourhood. Again there was 1 household not inclined to identify the additional source.

Division - IV

The divisional sample size of 286 households (17% of the total sample) reveals, 86 households (30% of the divisional sample) having access to multiple sources of which 44 households (51% of the segment) depend on bore wells within their premises, 25 households (29%) on private open wells and 46 households (53%) on the PSP in the neighbourhood. There were 4 households (5%) not inclined to identify the additional source.

Division - V

The divisional sample size of 377 households (23% of the total sample) reveals, 128 households (34% of the divisional sample) having access to multiple sources of which 84 households (66% of the segment) depend on bore wells within their premises, 37 households (29%) on private open wells and 41 households (32%) on the PSP in the neighbourhood. There were 9 households (7%) not inclined to identify the additional source.

Division - VI

The divisional sample size of 173 households (10% of the total sample) reveals, 33 households (19% of the divisional sample) having access to multiple sources of which 27 households (82% of the segment) depend on bore wells within their premises, 4 households (12%) on private open wells and 17 households (52%) on the PSP in the neighbourhood. There were 2 households (6%) not inclined to identify the additional source.

Division - VII

The divisional sample size of 243 households (15% of the total sample) reveals, 72 households (30% of the divisional sample) having access to multiple sources of which 28 households (39% of the segment) depend on bore wells within their premises, 35 households (49%) on private open wells and 12 households (17%) on the PSP in the neighbourhood. There were 8 households (11%) not inclined to identify the additional source.

As can be seen the incidence of multiple sources varies from 29% in division No. V to 6% in Division No.II. The incidence of access to bore wells varies from 17% in Division No V to 7% in Division No II. The service zone with high incidence of bore wells may further be explored to augment systemic capacity also.

vi) HOUSEHOLD INCOME PROFILE:

The income status of a household also constitutes one of the forces to influence the pattern of water usage, which in turn determines the scale of demand for the service. Higher the income, greater is the scope for multiplicity of personal amenities and peripherals such as gardening etc. The low incidence of both the parameters in poor/low income localities is the visible manifestation of the premise.



As expected the question of family income elicited reluctant or no response as 608 Households (37% of the total sample) returned a no response, 166 Households (10%) were in the income range of less than Rs.1000 PM., 420 Households (25%) were in the income range of Rs.1000 to Rs.2000 PM , 247 Households (15%) were in the range of Rs.2000 to 3000 PM , 127 Households (8%) were in the range of Rs.3000 to 4000 PM., and 88 Households (5%) were in the range exceeding Rs.4000/- per month.

The mean household income excluding the "no response" category, amounts to Rs.3,270 per month. The tie-up between the household income and per capita expenditure on water service is presented later.



4. WATER SUPPLY

The demand composition despite being a crucial determinant of the actual scale of supply is akin to the submerged portion of an iceberg. While the impact potential of diverse demand patterns and the usage differentials, at the service delivery point often escape attention, the more visible aspects such as the following, assume greater significance and role, in the formation of user perspectives on the state of effectiveness of the service delivery.

- i) **Day to day timing of water supply;**
- ii) **Pressure and duration of the supply;**
- iii) **Regularity in the supply timings;**
- iv) **Quantity of water accessible - net satisfaction;**
- v) **Supply during the summer; and**
- vi) **Lack of satisfaction - casual factors.**

The survey schedule included data nodes to trace the actual state of service on all the attributes in various localities along with the user reactions on the patterns. The summary analysis as well as the inferences are profiled below: (Ref: Survey schedule data nodes 10 to 17 - Annexure-I).

i) **DAY TO DAY TIMING OF WATER SUPPLY:**

Water supply in the city being intermittent, the timing cycle of the supply, constitutes an important conditioning factor of consumer satisfaction. The consumers, particularly those exclusively dependent on PSP's, expect the supply at a 'convenient' time of the day. However, the concept of convenience tends to be relative and dependent upon the unique nature of socio-economic composition of the locality, viz: the common employment denominator, work rhythm, employment status of the female population, distance to the PSP in case of PSP users, cultural/social compulsions against females from collecting water in public, etc.

The HMWSSB is committed to render the supply in general during the period beginning at early morning through early evening on a regular basis. However, the systemic constraints, such as inadequate number as well as capacities of service reservoirs, feeder lines/pumping stations, treatment plants, power failures, etc, make it imperative to stagger the supply timing beyond the stipulated limits of day time only. User perspectives on the day to day timings of water supply were obtained and the analysis is presented below:



The data base of 1656 Household units reveals, 342 households (21% of total sample) receiving water during the time range of 12 midnight to 4 AM, 778 households (47%) in the time range of 4 AM to 7 AM, 178 households (11%) in the time range of 7 AM to 10 AM, 89 households (5%) in the time range of 10 AM to 1 PM, 79 households (5%) in the range of 1 PM to 4 PM, 84 households (5%) in the range of 4 PM to 7 PM, and 69 households (4%) in the range of 7 PM to 10 PM Surprisingly, 31 households (2%) stated receiving water round the clock

As can be seen, 21% of the consumer population is served between 12 mid night to 4 AM, a highly inconvenient period on all accounts Division No.IV appears to be the most effected service zone in this respect, with 28% of the effected category of population resident therein followed by Division No.V (19%), Division No.I (16%), Division No.III (13%), Division No VII (11%), Division No.II (9%) and Division No.VI (4%). The timing situation in Divisions IV, V & I and 3 - in that order of priority, need to be taken up for modification of supply tuning to more acceptable periods

ii) **PRESSURE AND DURATION OF THE SUPPLY:**

The actual quantity of water accessible also belongs to the group of primary determinants of user satisfaction The quality turn depends on the operation elements such as pressure and duration of the supply. The element of Pressure, in turn depends on the level differentials between the service delivery point and the water head in the service reservoir to which the distribution system is dedicated, systemic leaks, number of service outlets on the same distribution line, unauthorised pumping and the level differences between the distribution lines as well as service delivery points The element of duration is conditioned, not only by the time span of service release but the quantity of water in storage at the service reservoir and the relative levels of distribution lines. - Higher the relative level lower the pressure and duration

The HMWSSB is committed to supply water for a minimum of two hours a day, to facilitate conformity with the norms pertaining to per capita supply

In reality, a wide band of felt differences, in the patterns of duration of supply has been identified (The extremities are highlighted) The sample universe of 1656 households, revealed 129 household units (8% of total sample) in the average duration range of less than 1 hour, 849 household units (51%) in the duration range of 1 to 2 hours, 375 households units (23%) in the duration range of 2 to 3 hours, 290 household units (18%) in the duration range of exceeding 3 hours and 31 household units (2%) in the duration range of "no interruption at all".

In view of the critical nature of the impact of 'duration' on user satisfaction, the division profiles on the attribute, are presented below: (Extreme ranges such as less than one hour and round the clock are highlighted)

Division - I

The Divisional sample of 155 household units (9% of the total) revealed 3 units (2% of the divisional sample) in the duration range of less than 1 hour, 66 units (43%) in the duration range of 1 to 2 hours, 48 units (31%) in the duration range of 2 to 3 hours, 36 units (23%) in the range of exceeding and 2 units (1%) in the range of "no interruption at all".

Division - II

The divisional sample of 205 household units (12% of the total sample) revealed 14 units (7% of the divisional sample) in the range of less than 1 hour, 148 units (72%) in the range of 1 to 2 hours, 21 units (10%) in the range of 2 to 3 hours, 19 units (9%) in range of exceeding 3 hours and 3 units (1%) in the range of "no interruption".

Division - III

The divisional sample of 217 household units (13% of the total sample) revealed 9 units (4% of the divisional sample) in the range of less than 1 hour, 120 units (55%) in the range of 1 to 2 hours, 50 units (23%) in the range of 2 to 3 hours, 34 units (16%) in the range of exceeding 3 hours and 4 units (2%) in the range of "no interruption".

Division - IV

The Divisional sample of 286 household units (17% of the total sample) revealed 3 units (1% of the divisional sample) in the range of less than 1 hour, 103 units (36%) in the range of 1 to 2 hours, 24 units (29%) in the range of 2 to 3 hours and 96 units (34%) in the range of exceeding 3 hours

Division - V

The Divisional sample of 377 household units (23% of the total sample) revealed 93 units (25% of the divisional sample) in the range of less than 1 hour, 136 units (36%) in the range of 1 to 2 hours, 81 units (21%) in the range of 2 to 3 hours and 67 units (18%) in the range of exceeding 3 hours.

Division - VI

The Divisional sample of 173 household units (10% of the total sample) revealed 5 units (3% of the divisional sample) in the range of less than 1 hour, 102 units (59%) in the range of 1 to 2 hours, 40 units (23%) in the range of 2 to 3 hours, 24 units (14%) in the range of exceeding 3 hours and 2 units (1%) in the range of "no interruption".

Division - VII

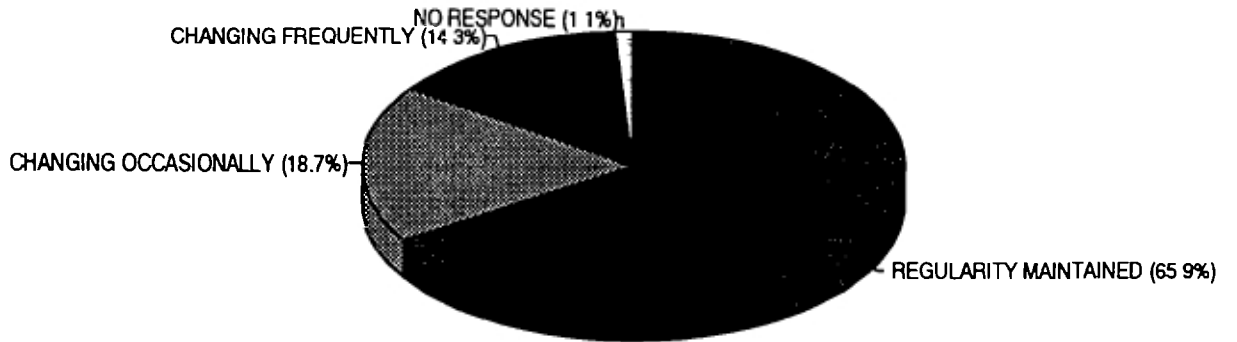
The divisional sample of 243 household units (15% of the total sample) revealed, 2 units (1% of the divisional sample) in the range of less than 1 hour, 174 units (72%) in the range of 1 to 2 hours, 51 units (21%) in the range of 2 to 3 hours, 14 units (6%) in the range of exceeding 3 hours and 2 units (1%) in the range of "no interruption".

The variation range as can be seen within Divisions as well as between the Divisions is too wide, which constitutes the primary reason for the visibly strident user dissatisfaction. Improving the duration in the areas at lower percentile in general, involves augmentation of additional quantities of water which in turn may require considerable capital investment and long periods of gestation. Developing composite mechanisms and operations coupled with stricter enforcement of the pattern could be the immediate strategy option. The variety of durations patterns may be modified to a single and uniform pattern of 2 hours. The most optimum pattern can be developed through operation research techniques.

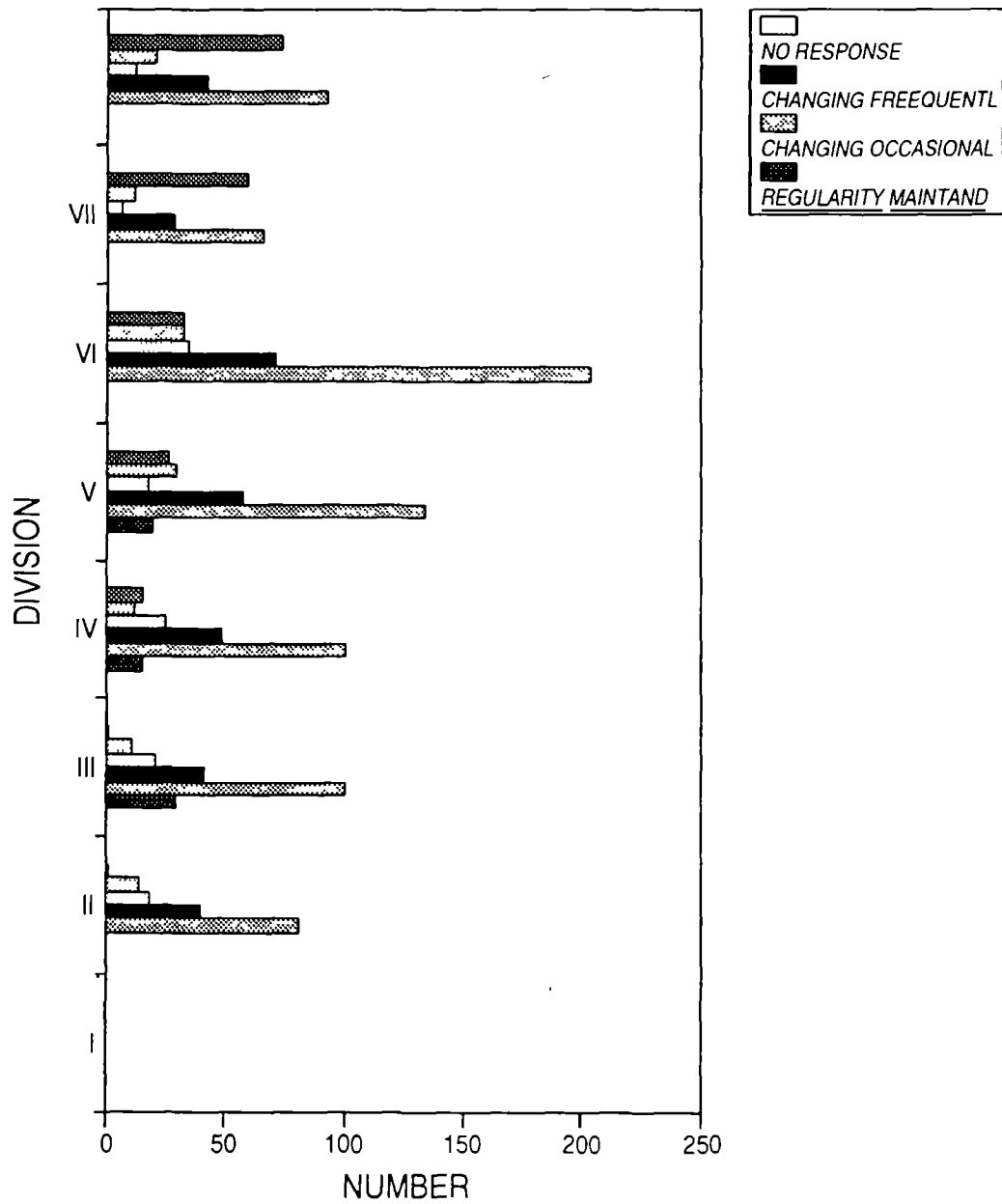
iii) REGULARITY IN THE SUPPLY TIMINGS

"Regularity" in the supply timing, constitutes another major factor likely to condition the consumer satisfaction. On this issue the total sample revealed 1092 Households (66% of the total sample) in the affirmative category implying that the timing of supply is generally regular, 310 Households (19%) in the category of "supply timing changing occasionally" and 236 Households (14%) in the category of "supply

REGULARITY



REGULARITY



timing changing frequently". In general all the divisions scored high on the affirmative category ranging from 61% to 78%.

As against, the expressed satisfaction on the part of majority, adverse opinion on account of changes in the supply timing - "occasionally" or "frequently" ranged from 21% in Division No.I to 41% in Division No.VI.

While the majority of Households (66% of the total sample) may not have a grievance on account of regularity, the balance of households (34%) certainly nurse a grievance. The wide publicity which the aggrieved segment musters as against the total absence of information on positive achievements, earns an adverse image for the service. Most of the factors likely to effect changes in the supply tuning, mainly emanate from the deficiencies or requirements of the operations and maintenance functions of the system. The deficiencies may include equipment or material failures, paucity of personnel skills in designing, forecasting, planning and management of water supply, inadequacy or redundancy of existing procedures pertaining to operations. The Board may be well advised to initiate diagnostic learning programmes on development, induction as well as up-gradation of the current technology as well as personnel skills to meet the emergent situations due to systemic deficiencies as well as the adverse public opinion.

iv) **QUANTITY OF WATER ACCESSIBLE - NET SATISFACTION**

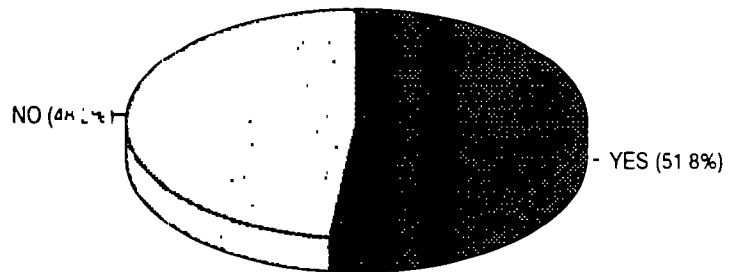
A direct question on nett satisfaction on water supply service was included in the schedule, mainly to accommodate the sample segments disinclined to respond on factor basis. The "forced choice" technique was used to nudge the respondents into choosing between yes or no, in consideration of all the conditioning factors in totality.

Statistical analysis of data on 'nett satisfaction' reveals 858 household units (52% of the total sample) in affirmative category implying positive felt satisfaction as against 798 household units (48%) in the negative implying no satisfaction.

The inferences on the gap-of the order of 50% between the supply and demand based on factorial data returns, pertaining to household size, number of additional households in the same unit, number of users dependents on the same service delivery point, thus stands validated.



ADEQUACY BY QUANTITY (Incl PSP User)



With a view to assist in the formulation of corrective action plans the division profiles on the attribute of nett satisfaction, are presented below.

Division - I

The divisional sample of 155 Household units (9% of the total sample) reveals 62 household units (40% of the divisional sample) in affirmative category implying positive nett satisfaction as against the 93 household units (60%) in the negative category connoting 'no satisfaction'.

Division - II

The divisional sample of 205 Household units (12% of the total sample) reveals 97 household units (47% of the divisional sample) in affirmative category as against 108 household units (53%) in the negative category

Division - III

The divisional sample of 217 Household units (13% of the total sample) reveals 114 household units (53% of the divisional sample) in the affirmative category as against 103 household units (47%) in the negative category

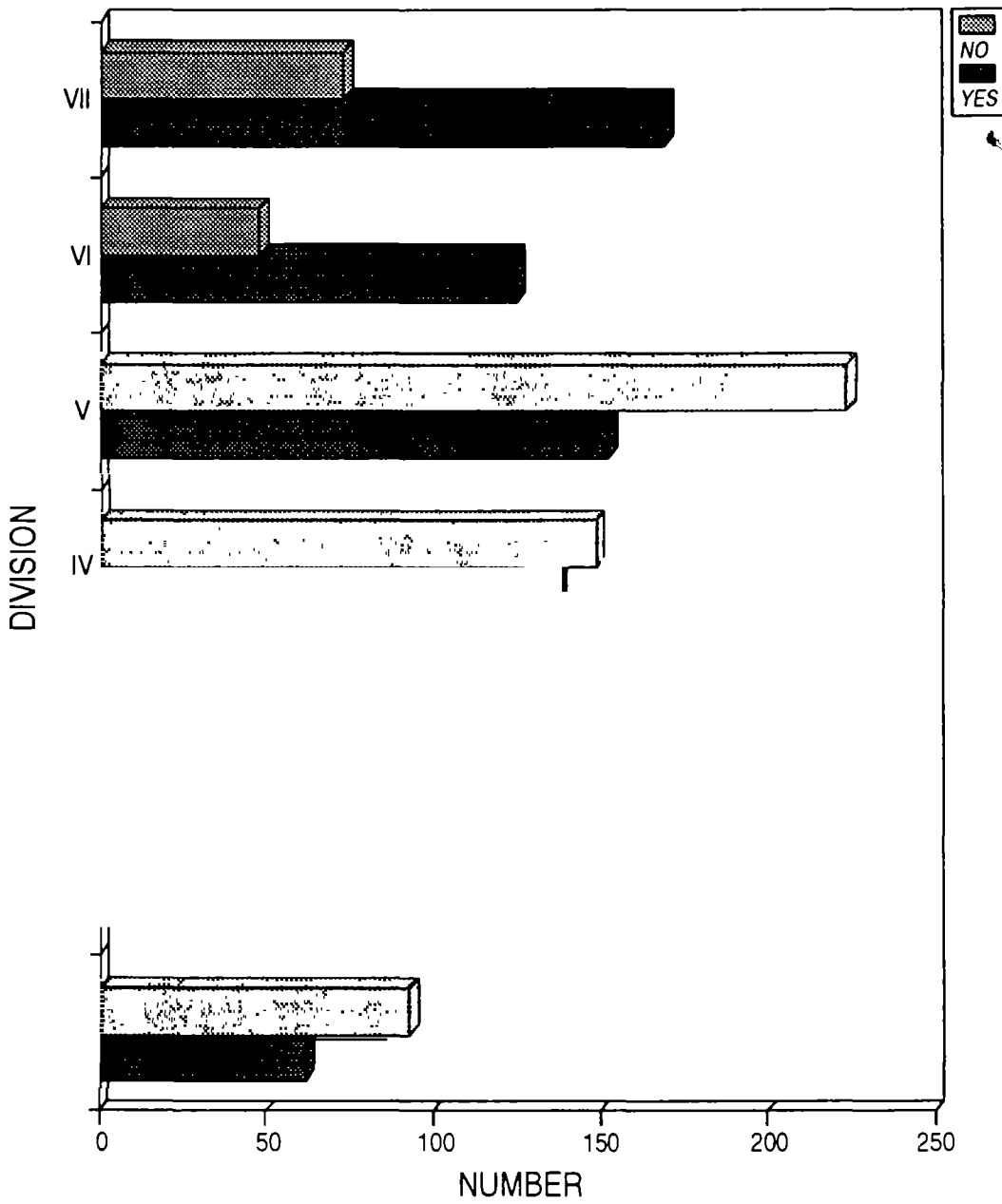
Division - IV

The divisional sample of 286 household units (17% of the total sample) reveals 137 household units (48% of the divisional sample) in the affirmative category and 149 household units (52%) in the negative category

Division - V

The divisional sample of 377 Household units (23% of the total sample) reveals 153 household units (41% of the divisional sample) in the affirmative category as against 224 household units (59%) in the negative category

ADEQUACY BY QUANTITY (Incl PSP User)



Division - VI

The divisional sample of 173 Household units (10% of the total sample) reveals 125 household units (72% of the divisional sample) in the affirmative category as against 48 household units (28%) in the negative category.

Division - VII

The divisional sample of 243 Household units (15% of the total sample) reveals 170 household units (70% of the divisional sample) in the affirmative category as against 73 household units (30%) in the negative category.

The dominance of the category of negative responses from all the service divisions except Division No.III VI and VII. can be directly attributed to high average scores on additional families per household unit and consequent rise in the user population per point in the service divisions under reference, which again is in correlation with the incidence of multiple households established in occupancy pattern

v) SUPPLY DURING SUMMER

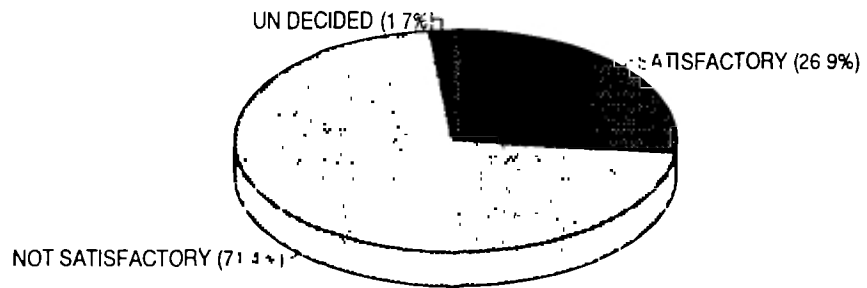
With a view to assess consumer satisfaction on service levels during summer, a direct question on the status of satisfaction during summer was included in the schedule (Ref. survey schedule data node number 29, 11, 12 and 13).

The data profile on consumer perception on the water supply during Summer is presented below:

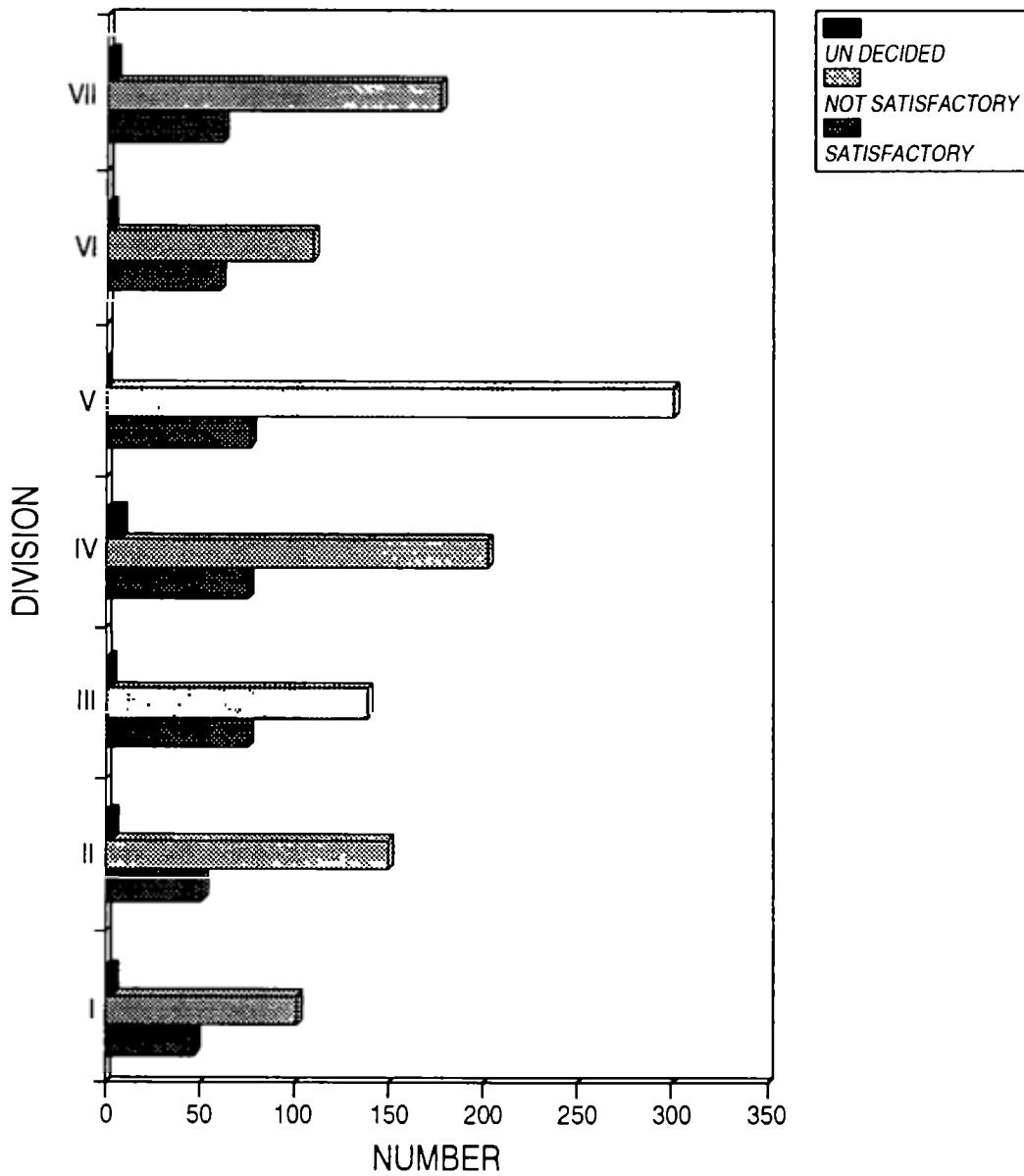
On the point of 'duration' 446 household units (27% of the total sample) expressed satisfaction as against 1351 household units (82%) in the same category during non summer season - a drop of 55% from normal season datum. 1182 household units (71%) were in the negative category - as against 305 household units in the same category during non-summer season - a rise of 33% from normal season datum and interestingly 28 households (2%) were non committal - a category not obtained during normal season

On the point of regularity of supply timing 619 households (37%) expressed positive satisfaction as against 1092 households (66%) during normal season - a drop of 29% from normal season datum. 1008 households (61%) expressed negative

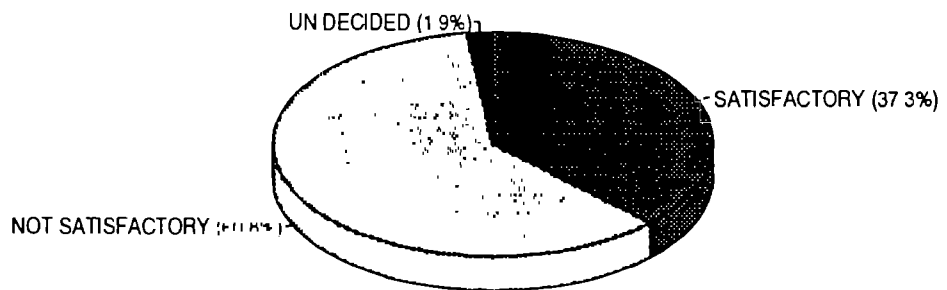
WATER SUPPLY DURING SUMMER
DURATION



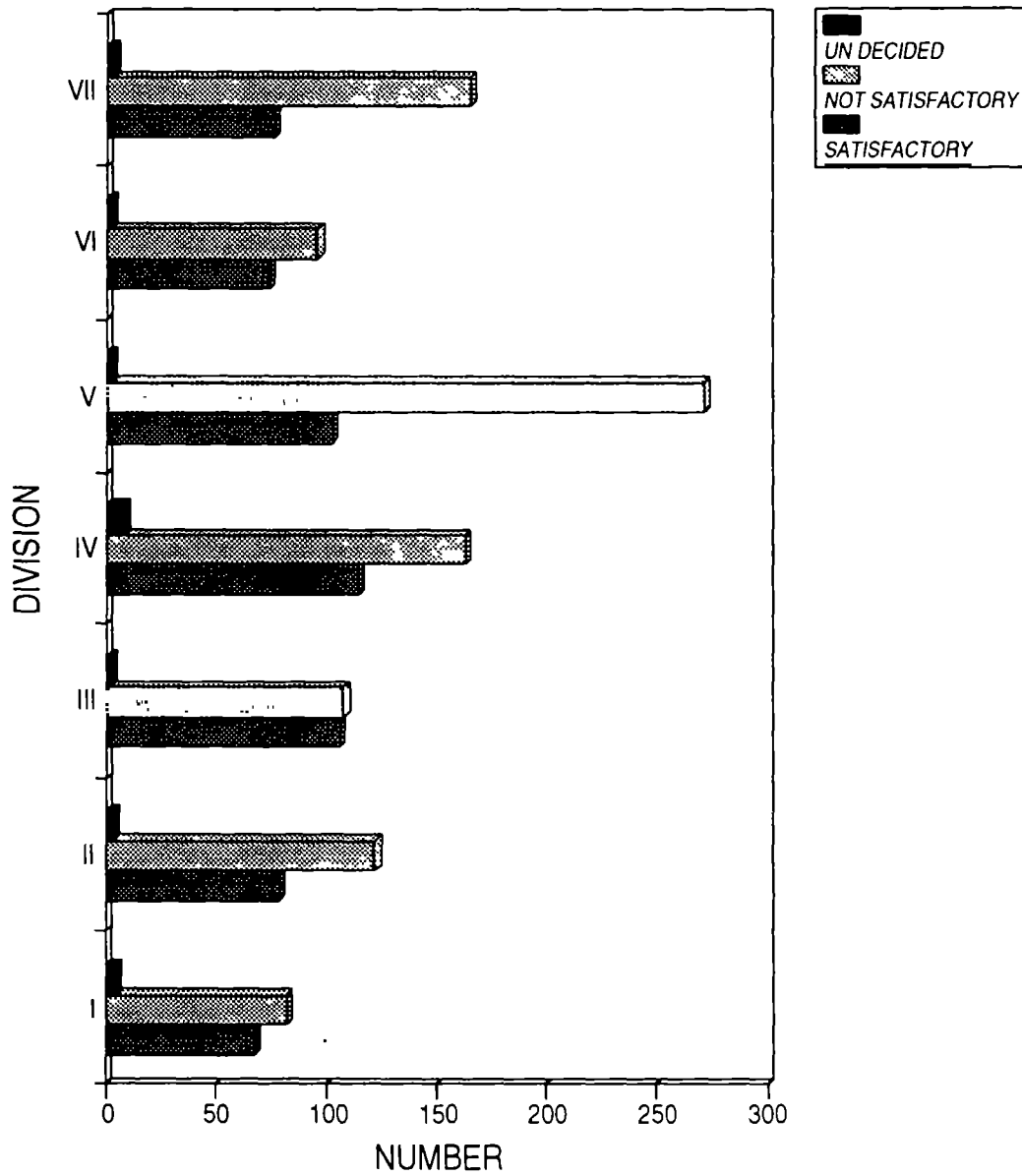
WATER SUPPLY DURING SUMMER DURATION



WATER SUPPLY DURING SUMMER
REGULARITY



WATER SUPPLY DURING SUMMER REGULARITY





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satisfaction as against 546 households (33%) - a rise of 28% from the normal season datum and 31 households (2%), in the "non-committal" category - a rise of 1% from the normal season datum.

On the point of quantity of water made available, 453 households (27%) expressed positive satisfaction as against 858 households (52%) at normal season - a drop of 25% from the normal season datum - 1157 households (70%) expressed negative satisfaction as against 798 households (48%) - a rise of 22% from the normal season datum and 46 households (3%) were in the 'non-committal' category - a category not obtained during normal season

On the point of quality of water supplied, 1183 households (71%) expressed positive satisfaction as against 1246 (75%) at normal season - a drop of only 4% from the normal season datum, 542 households (33%) expressed negative satisfaction as against 410 households (25%) - a rise of 8% from the normal season datum and 31 household units (2%) were in the noncommittal category - a category not obtained during normal season

On the point of pressure of water supply, 357 households (22%) express positive satisfaction as against 1159 households (70%) - a drop of 48% from the normal season datum, 1257 households (76%) expressed negative satisfaction as against 497 households (30%) - a rise of 46% from the normal season datum and 42 households (3%) were in the non committal - a category not obtained during normal season.

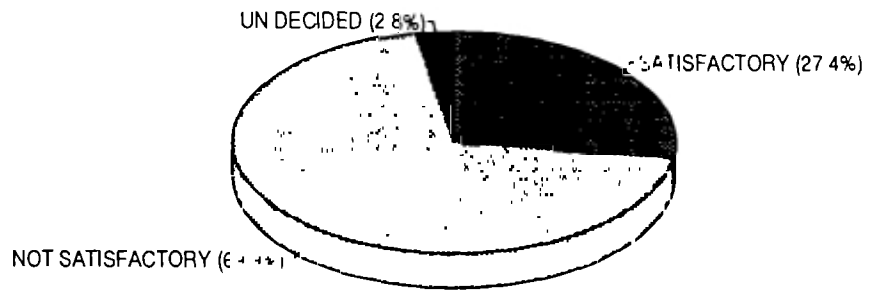
vi) **LACK OF SATISFACTION - CASUAL FACTORS**

With a view to identify the factors leading to the state of no satisfaction on account of reduced supply, the respondents (negative category) were asked to indicate any one of the following which they perceive as the dominant reason for getting less than adequate water.

- i) Low pressure
- ii) Short duration
- iii) Leakages in the pipe line
- iv) Clandestine tapping/pumping
- v) Too many to share the water from the same service delivery point.
- vi) Relief during interruptions of the service.

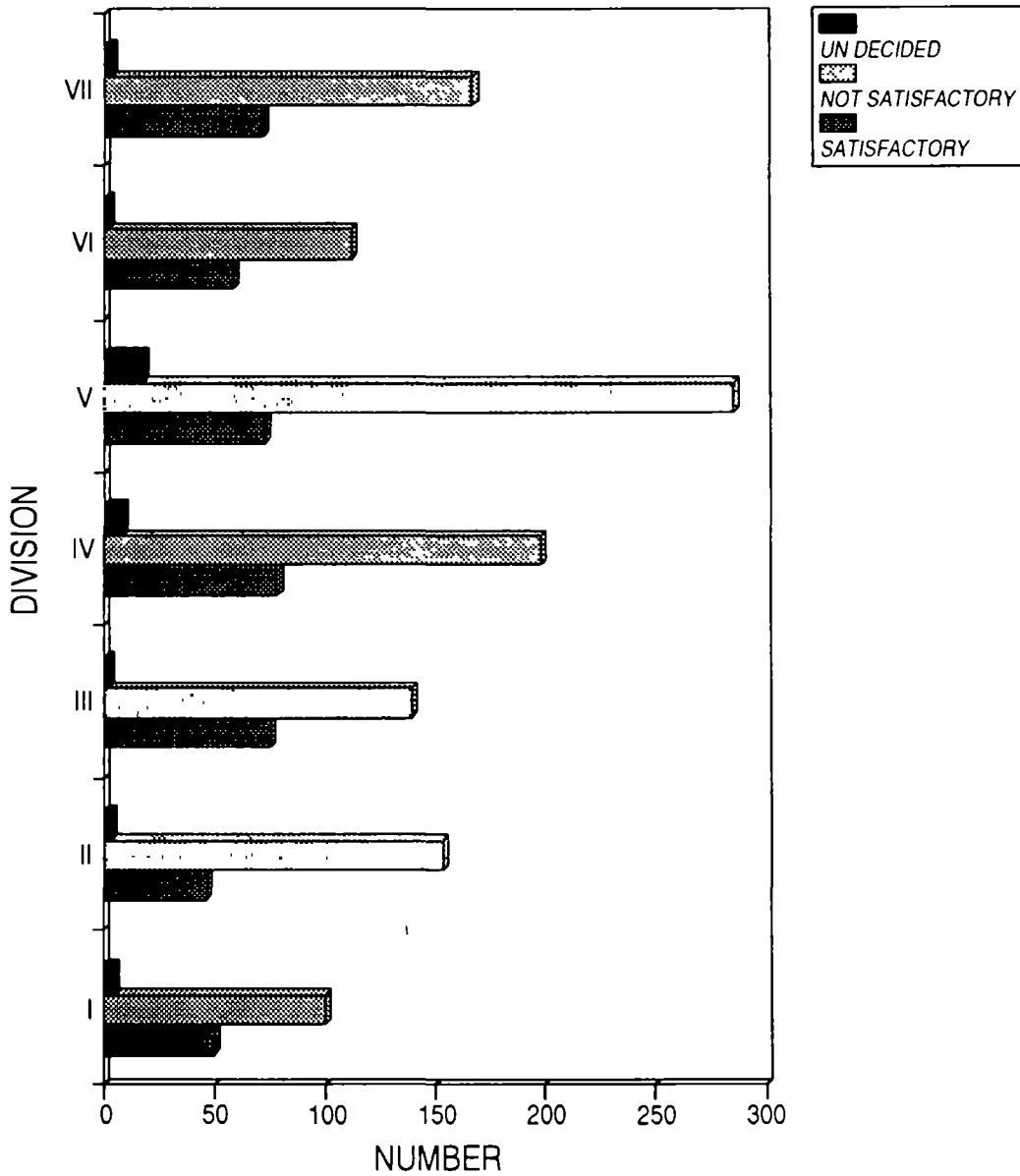


WATER SUPPLY DURING SUMMER
QUANTITY

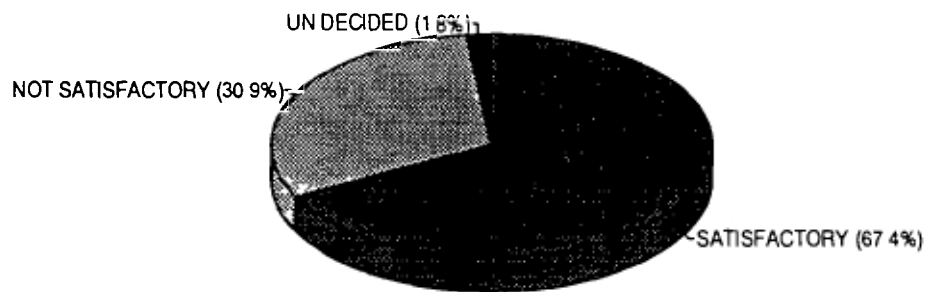




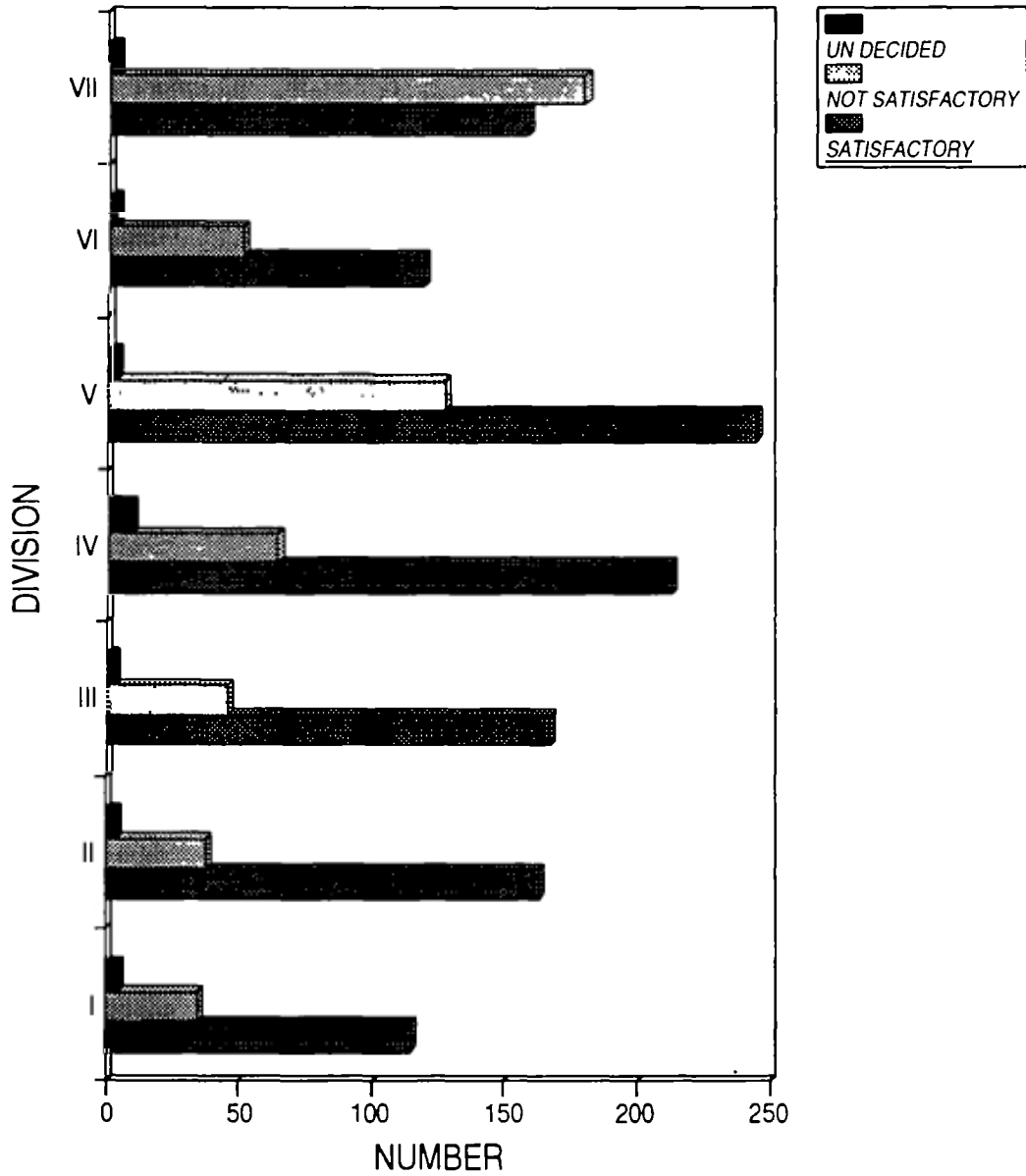
WATER SUPPLY DURING SUMMER QUANTITY

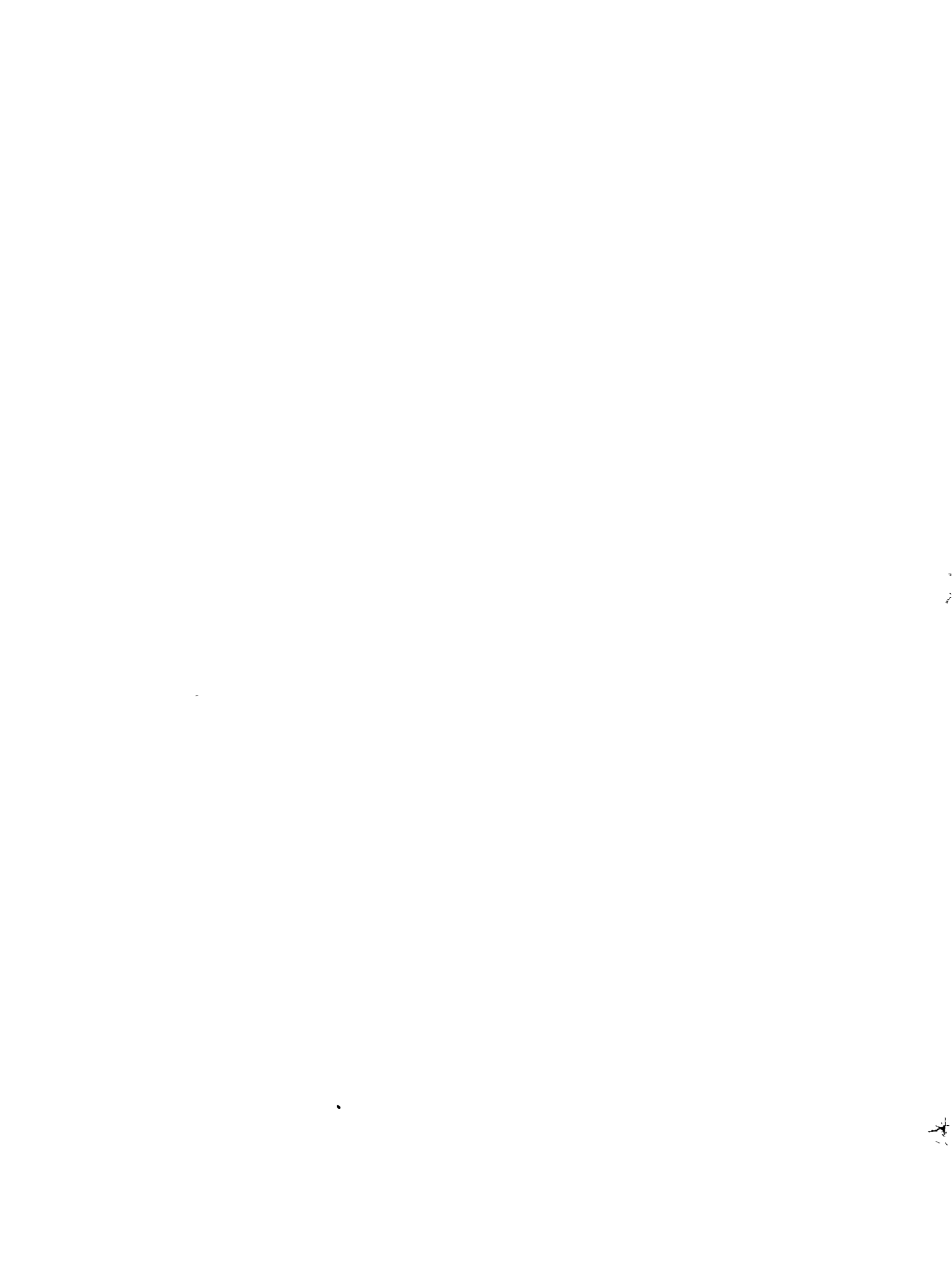


WATER SUPPLY DURING SUMMER
QUALITY

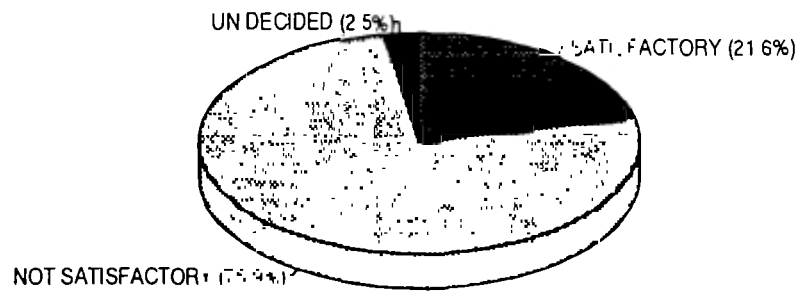


WATER SUPPLY DURING SUMMER QUALITY



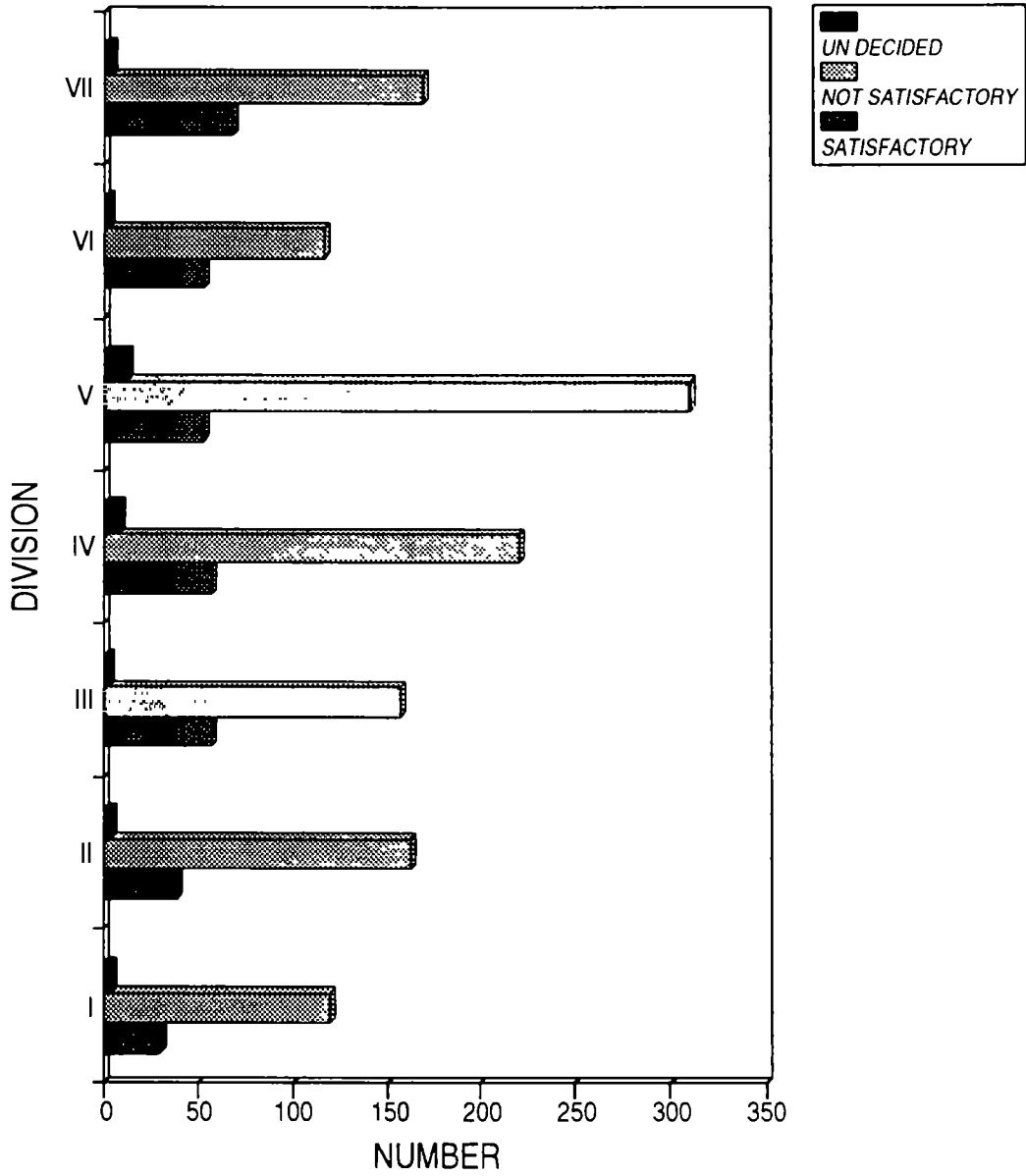


WATER SUPPLY DURING SUMMER
PRESSURE





WATER SUPPLY DURING SUMMER PRESSURE





The combined negative segment of 798 household units (48% of the total sample) in all the divisions constituted the universe for the query. Of the segment, 497 household units (62% of the segment sample) attributed the inadequacy mainly to low pressure, followed by 301 household units (38%) mainly attributing to short duration. There were 235 households (29%) returning more than one reason (Multiple response).

The range of multiple responses included, 7 household units (1% of the segment sample) indicating to "leakages" in the pipeline, 40 household units (5%) to "clandestine tapping/pumping" and 188 household (24%) to "too many persons to share" the same service delivery point.

Impact of the two dominant factors viz. low pressure and short duration, can certainly be reduced through technology up-gradation and improving the effectiveness of systemic operations.

The Board would be well advised to take up preparation or up-gradation of service manuals on current operations and maintenance covering the various equipment, components, machines and instruments. Concurrently, intensive vestibule training of Operation and Maintenance personnel in the implementation of emergent service manuals, may also be planned, scheduled and organised.

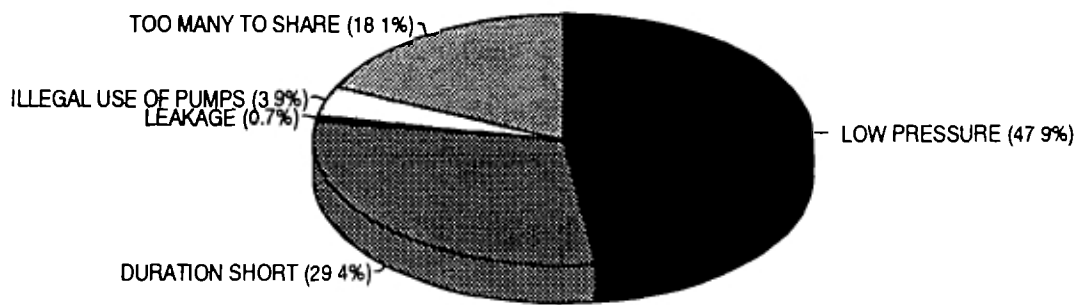
RELIEF DURING INTERRUPTIONS IN THE SERVICE

Interruptions due to unforeseen failure of the system can never be eliminated totally and may often not allow for any advance intimation to the consumers. But stoppages as a result of maintenance needs can be scheduled and advance communication to consumers likely to be affected in addition to making alternate arrangements, will go a long way in mitigating their difficulties. A sizeable segment of consumers - 622 households (38% of the total sample) were found 'sore' against the Board on the issue.

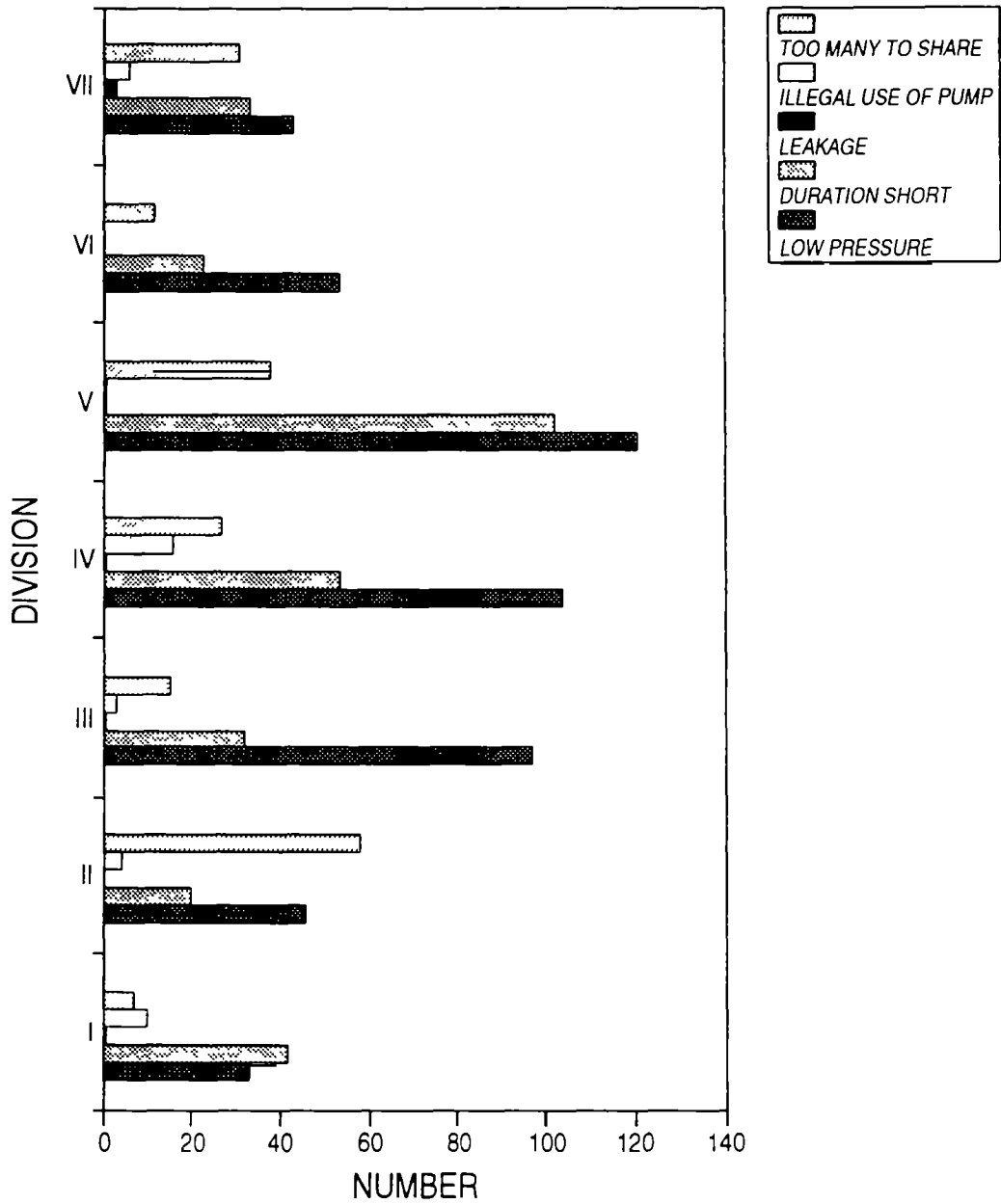
The data profile reveals 952 households (57% of the total sample) indicating TV/Radio/Newspapers as the medium of information, 42 households (3%) indicating the Board staff, and 40 households (2%) indicating neighbours as the source of information. The balance of 622 household units (38%) were found nursing an acute grievance against the Board on account of 'no advance information on interruptions'.



REASONS FOR INADEQUANCY (Incl.PSP User)

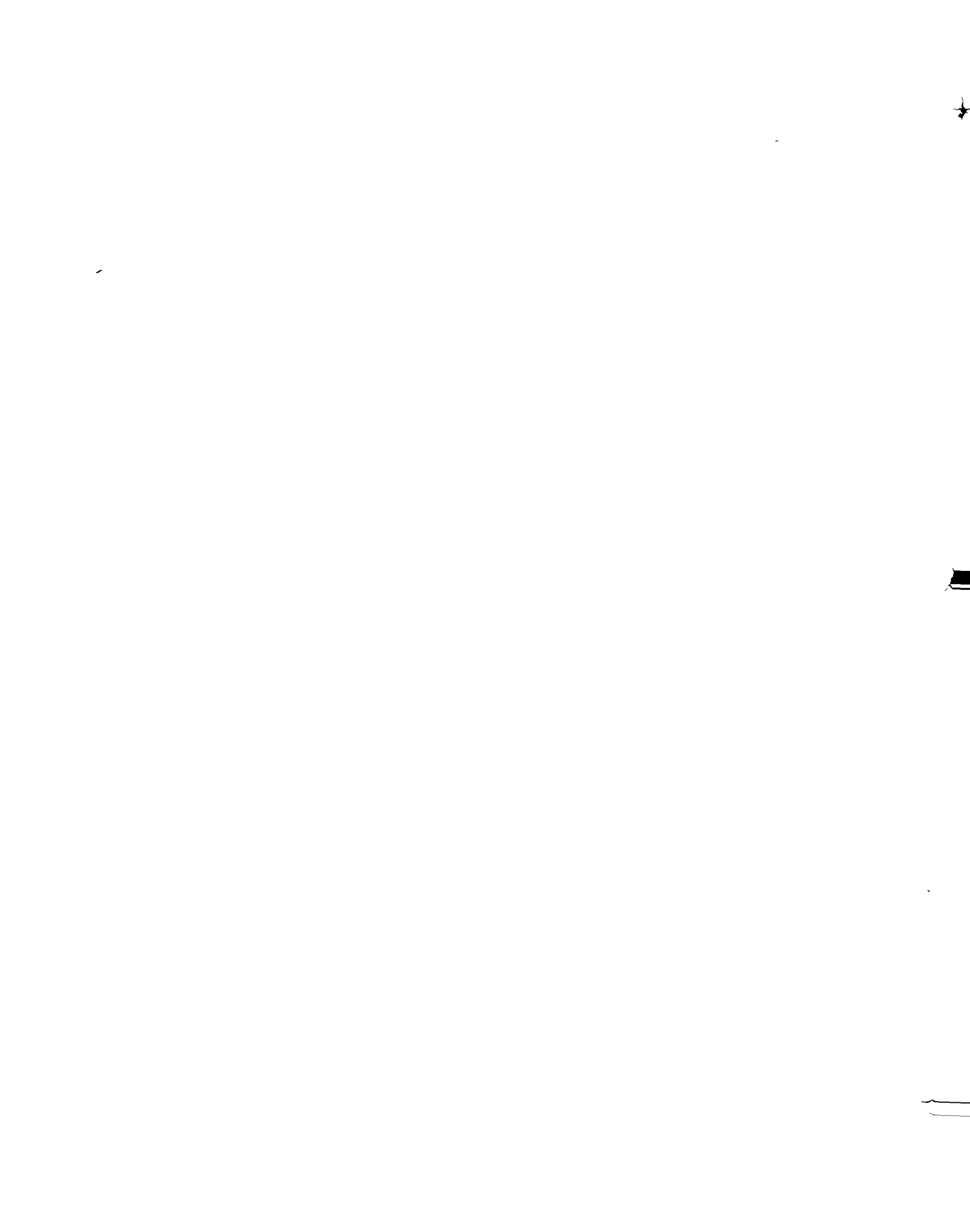


REASONS FOR INADEQUANCY (Incl PSP User)



On the point of alternate arrangements of water supply during interruptions, the data profile reveals 484 households (29% of the total sample) replying in affirmative implying alternate arrangements by way of tankers, 16 households (1%) also affirmative but indicating to supply of water at other periods of time of which may include extended duration of supply on normal days. The balance of 1116 household units (68%) were found nursing an acute grievance on account of no alternate arrangements to supply water even for drinking.

The need for sensitivity to consumer needs, especially in utility sector, cannot be over emphasized. In addition to enunciating procedures to be followed in case of interruptions personnel compliance with them must be made mandatory. At the same time, employee training in public relations and behaviour, can be taken up on priority, to achieve change in employee attitudes



5. WATER QUALITY

"Quality of water". constitutes the next important factor to impinge upon user satisfaction on service delivery. The following data nodes were built in the survey schedule for assessing the user perception on the quality of water:

- i) **Satisfaction on quality**
- ii) **Lack of satisfaction - casual factors**
- iii) **Consumer grievances - redressal**

THE HMWSSB HAS EARNED A BETTER IMAGE ON THE DIMENSION OF QUALITY ASSURANCE.

i) SATISFACTION ON QUALITY

On the attribute of satisfaction about the Quality of water, 1246 household units (75% of the total sample) have returned an affirmative response, implying positive felt satisfaction, as against 410 household units (25%) in the negative. The comparative profile of the 7 divisions on the data node of satisfaction on Quality of water is presented below

Division - I

The divisional sample of 155 household units (9% of the total sample) reveals 129 household units (83% of the divisional sample) in the category of affirmed felt satisfaction as against 26 household units (17%) in the negative category

Division - II

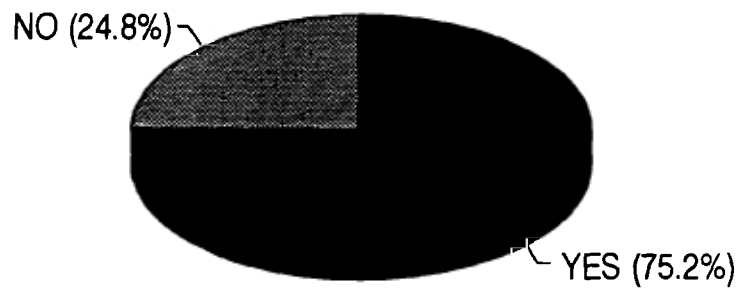
The sample of 205 Household units in the division (12% of the total sample) reveals, 166 units (81% of the divisional sample) in the category of affirmed satisfaction as against 39 units (19%) in the negative category.

Division - III

The divisional sample of 217 Household units (13% of the total sample) reveals 169 units (78% of the divisional sample) in the category of affirmed satisfaction as against 48 units (22%) in the negative category



SATISFACTION ON QUALITY OF WATER





Division - IV

The sample of 286 Household units in the division (17% of the total sample) reveals, 202 units (71% of the divisional sample) in the category of affirmed satisfaction as against 84 units (29%) in the negative category.

Division - V

The divisional sample of 377 Household units (23% of the total sample) reveals, 250 units (66% divisional sample) in the category of affirmed satisfaction as against 127 units (34%) in the negative category.

Division - VI

The sample of 173 Household units in the division (10% of the total sample) reveals 140 units (81% of divisional sample) in the category of affirmed satisfaction as against 33 units (19%) in the negative category.

Division - VII

The divisional sample of 243 Household units (15% of the total sample) reveals 190 units (78% of the divisional sample) in the category of affirmed satisfaction as against 53 units (22%) in the negative category.

It can be seen, that the satisfaction on the attribute of quality of water is predominantly high. Yet, the segment of negative satisfaction is also considerable, ranging from a minimum of 17% in Division No.I to a maximum of 34% in Division No.V.

ii) LACK OF SATISFACTION - CASUAL FACTORS:

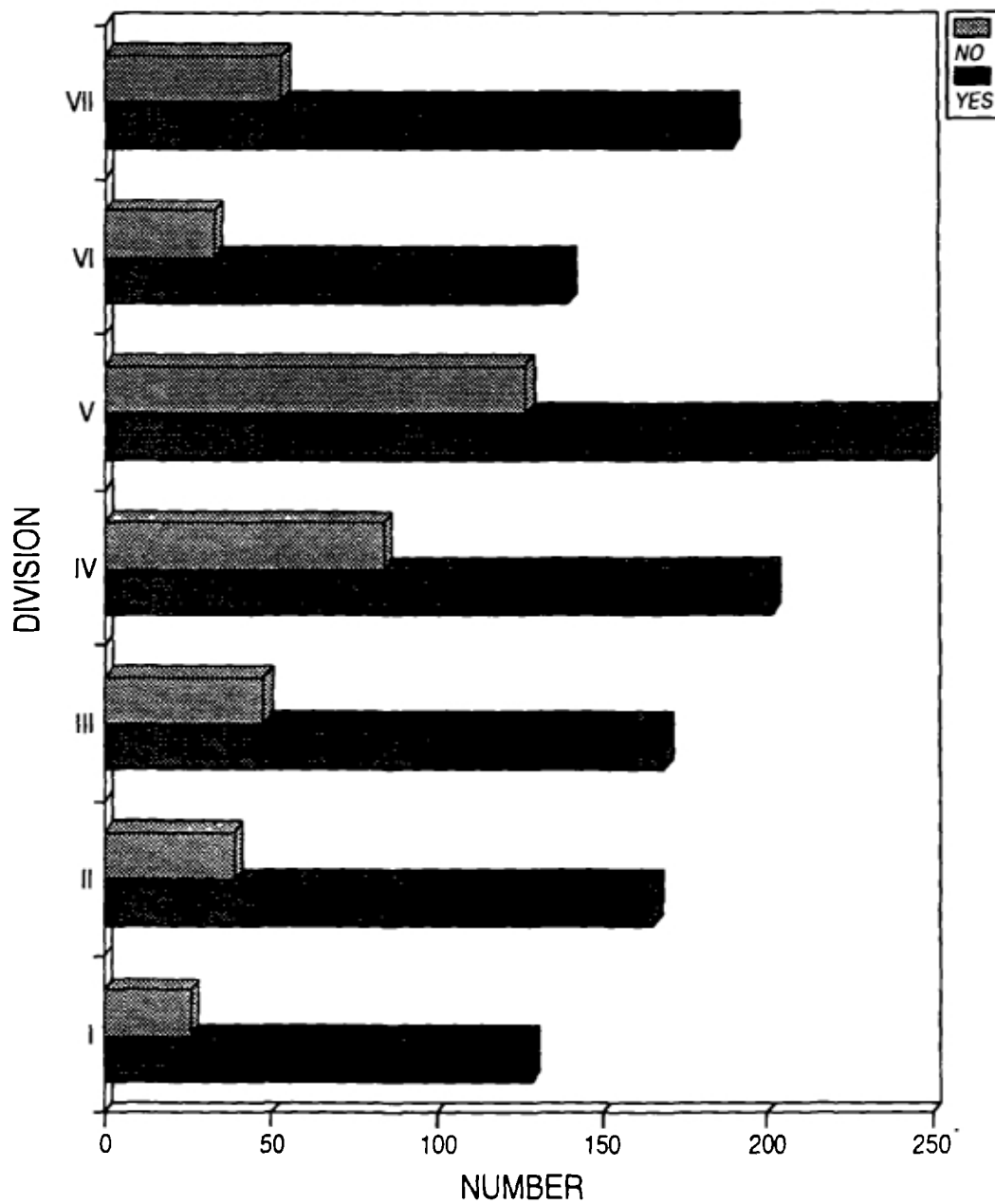
The sample segment of consumers in "no satisfaction" category was further probed to trace the vectors of dissatisfaction. The sample of 410 Household units of the no satisfaction segment (25% of the total sample) reveals, 132 household units (32% of the segment sample) complaining on 'colour' - implying presence of impurities, as the dominant reason, 161 sample units (39%) complaining on "foul smell", 52 household units (13%) complaining chemical smell, and 55 household units (13%) complaining on "floating matter"

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SATISFACTION ON QUALITY OF WATER





The entire segment sample also reported "Murkiness" as the secondary reason for dissatisfaction.

Quality deficiencies in the water supply can be traced to systemic deficiencies including paucity of diagnostic or control skills on the part of quality assurance personnel. The importance of assuring quality, especially in view of its role of primacy in the maintenance of community health and reduction of social costs of diseases likely to spread through consumption of substandard water does not need any reiteration and effectiveness in the management of quality assurance and control, directly depend upon the free flow of information between the Board and consumer. The Board has already initiated a few measures to effect on-line correction of deficiencies in Quality assurance and Control and the consumer originated information can positively catalyze the performance of the corrective mechanism.

iii) **CONSUMER GRIEVANCES - REDRESSAL**

With a view to identify the state of art of the interface between consumers and the Board, relating to the management of quality assurance and control, the sample segment of "no satisfaction" was probed further.

The 'no satisfaction' segment of 410 household units (25% of the total sample) revealed, 331 household units (81% of the segment sample) affirmative, to the query whether they have made a complaint - origination of communication. The balance of 79 units (19%) were in the negative category - implying not even lodging of complaint. One segment of the group said, that the problems of repeated failures and staff indifference have become highly vexatious. They have found it easier, expeditious and reliable to install individual systems for protection. Having installed the personnel systems they did not feel it necessary either to observe for pollution or make a complaint on it. The alienation symbolises the state of rupture in the communication loop between the Board and consumers, and to that extent proves detrimental to the Quality assurance and Control efforts.

The Board would be well advised to mount an integrated programme on improving public awareness on various aspects of its Quality Assurance and Control operations immediately. Concurrently intensive training programmes on consumer sensitivity can be planned, organised to enhance the current levels of organisational response to public grievances.



Even the sample segment, which was affirmative in originating communication, found it necessary to 'pursue' the matter. The sample units of 331 (81% of the no satisfaction segment) reveals, 269 household units (81%) stated to have initiated the communication by lodging the complaint to the concerned section officer, of which 93 household units (28%) had to pursue it further to higher officers and 47 household units (14%) had to take a further recourse to other venues for obtaining redressal. The term "other venues" included political leaders, officials in the Municipal Corporation/government and other influentials.

On the element of organisational response to their initiative, the sample reveals 54 household units (16% of the segment sample) stating that they received only adhoc redressal and 71 household units (21%) stating that the redressal was durable. A large majority of 206 household units (62%) reported that the problem remained unsolved

In view of the critical importance of a proactive communication interface between the user and the Board, the divisional profile on the state of response, which in turn determines the organisational image is presented below:

Division - I

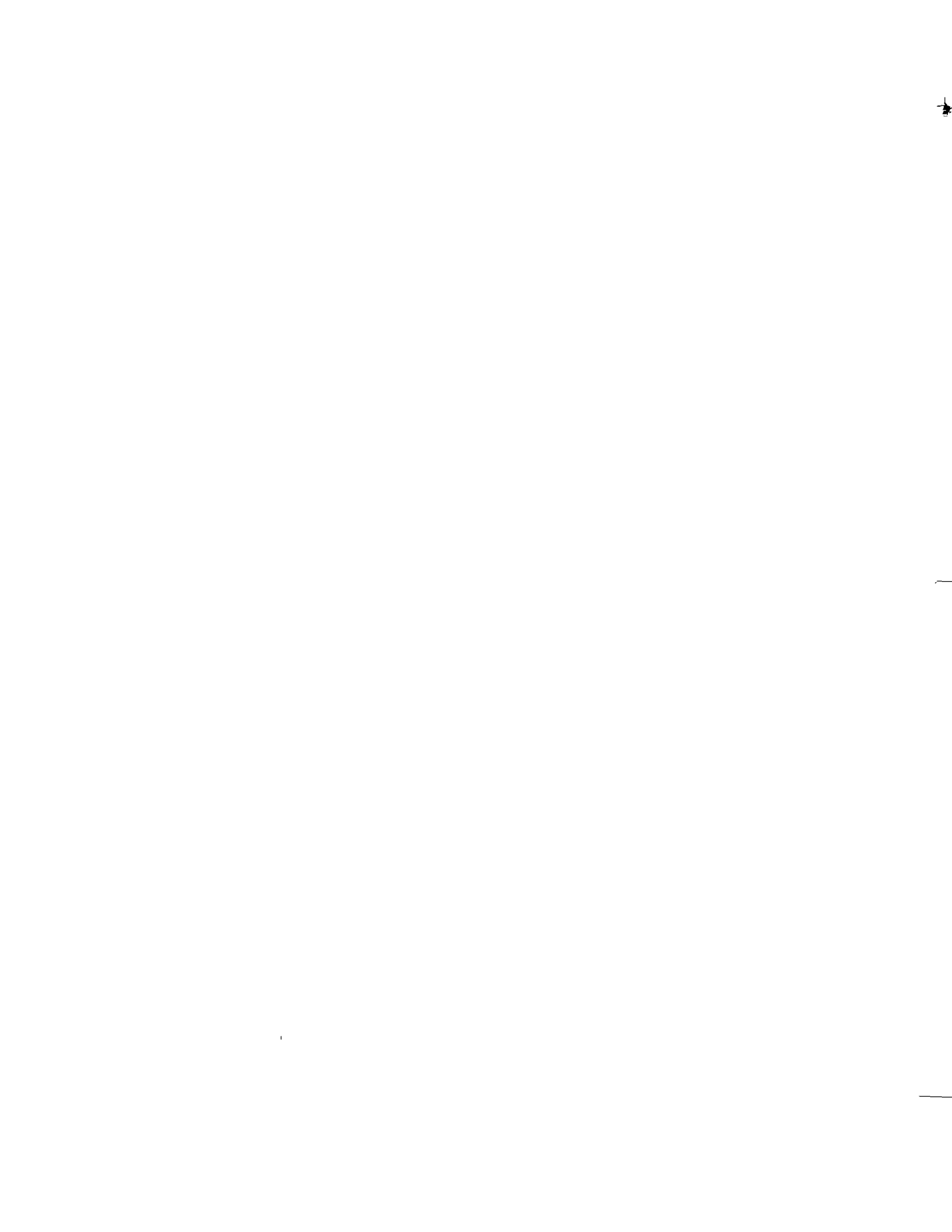
The divisional sample of 25 household units (8% of the segment sample) reveals 3 households (12%) in the category of only 'adhoc' redressal, as against 22 households (88%) in the category of 'not solved'.

Division - II

The divisional sample of 30 household units (9% of the segment sample) reveals 3 households (10%) in the category of only 'adhoc' redressal, 11 households (37%) in the category of 'durable' redressal and 16 households (53%) in the category of 'not solved'.

Division - III

The divisional sample of 41 household units (12% of the segment sample) reveals 8 households in the category of only 'adhoc' redressal, 10 households (24%) in the category of 'durable' redressal and 23 households (56%) were in the category of 'not solved'.



Division - IV

The divisional sample of 52 household units (19% of the segment sample) reveals 7 households (11%) in the category of only 'ad hoc' redressal 8 households (13%) in the category of 'durable' redressal and 47 households (76%) in the category of 'not solved'.

Division - V

The divisional sample of 116 household units (38% of the segment sample) reveals 16 households (14%) in the category of only 'ad hoc' redressal, 21 households (18%) in the category of 'durable' redressal and 79 (68%) in the category of 'not solved.'

Division - VI

The divisional sample of 25 household units (8% of the segment sample) reveals 13 households (52%) in the category of only 'ad hoc' redressal, 7 households (28%) in the category of 'durable' redressal and 5 (20%) in the category of 'not solved'.

Division - VII

The divisional sample of 32 household units (10% of the segment sample) reveals 4 households (13%) in the category of only 'ad hoc' redressal, 14 households (44%) in the category of 'durable' redressal and 14 households (44%) in the category of 'not solved'.

As can be seen, the category of 'not solved' is predominantly high in all the divisions, which clearly indicates deficiencies in personnel sensitivity to public grievances. While there could be technical/financial or even organisational limitations for effecting only 'ad hoc' solutions, the category of 'not solved' simply reflects personnel morbidity.

The sample segment of affirmative responses - both ad hoc as well durable, was further probed to analyze the apparent alienation between the staff and users. The following elements were expected to provide clues

- i) Organisational level to which the positive response is attributed
- ii) Lead time for the redressal
- iii) User perceptions on the problems enroute to redressal.



The Sample segment of 125 Household units, combining 'ad hoc' as well as 'durable' categories of redressal, constituted the universe for the query. The sample responses reveals 70 household units (56%) indicating the concerned section officers as the node for prompt response, 8 household units (6%) had to approach concerned Dy.G.M, 11 household units (9%) had to approach concerned G.M and 3 household units (2%) had to approach concerned Chief General Manager for redressal.

On the element of lead time for solving the problem, only 15 household units (12%) indicated that the problem was solved the same day, 39 household units (31%) reported it in the range of 1 to 2 days. 21 household units (17%) reported it in the range of 3 to 5 days and 50 household units (40%) reported it in the range of exceeding 6 days.

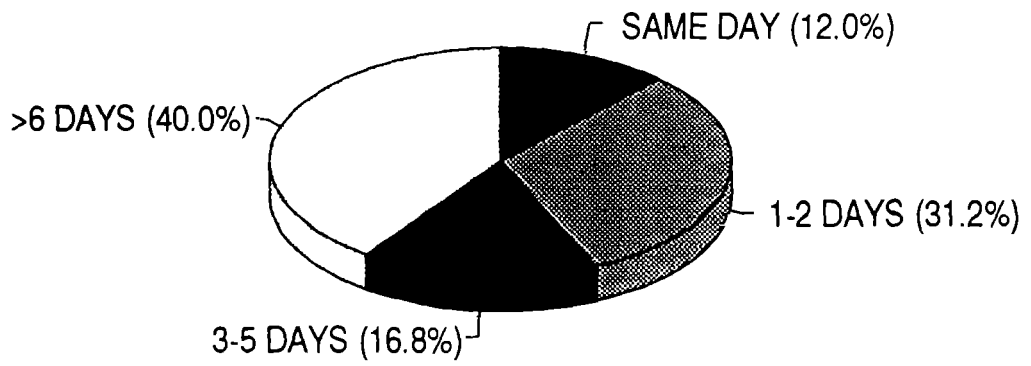
On the element of difficulties enroute to solution, 67 household units (53% of the segment sample) stated that they had not encountered any difficulty, as against 58 household units (47%) stating that they had positively felt at least one difficulty. On the nature of the difficulties, there were multiple responses. 49 household units (84% of the segment sample) stated that they had to 'frequently' remind the concerned officials, 27 household units (47% of the segment sample) stated that the concerned official was not accessible and 35 household units (60%) had attributed 'other reasons' and 53 household units (90%) had indicated a combination of more than one of the difficulties cited.

While 56% of the aggrieved segment of the consumers had indicated prompt and positive response on the part of field staff, the performance image suffers a set back viewed from the angle of the remaining segment reporting on staff indifference. As can be seen, 17% of the same segment, had to move up the hierarchy for redress and 27% displayed silent protest by returning a no response. The data returns on the lead time for redressal provides a clue to the adverse image manifestation, as 40% of the complainant segment indicated that it takes more than 6 days to obtain rectification, 48% of the segment indicated it in the range of 2 to 5 days and only 12% of the segment obtained it within a day. The image of "prompt response" as obtained from 56% of the sample appears hallow, in the context of the dominance of unduly long lead time for obtaining redress as reported by 40% of the sample. The element of difficulties enroute to redress, the predominance of too many reminders, lack of access to officers and 'others', compounds the situation and is indicative of lack of consumer orientation on the part of field staff

The employee training need on consumer sensitivity thus stands substantiated.

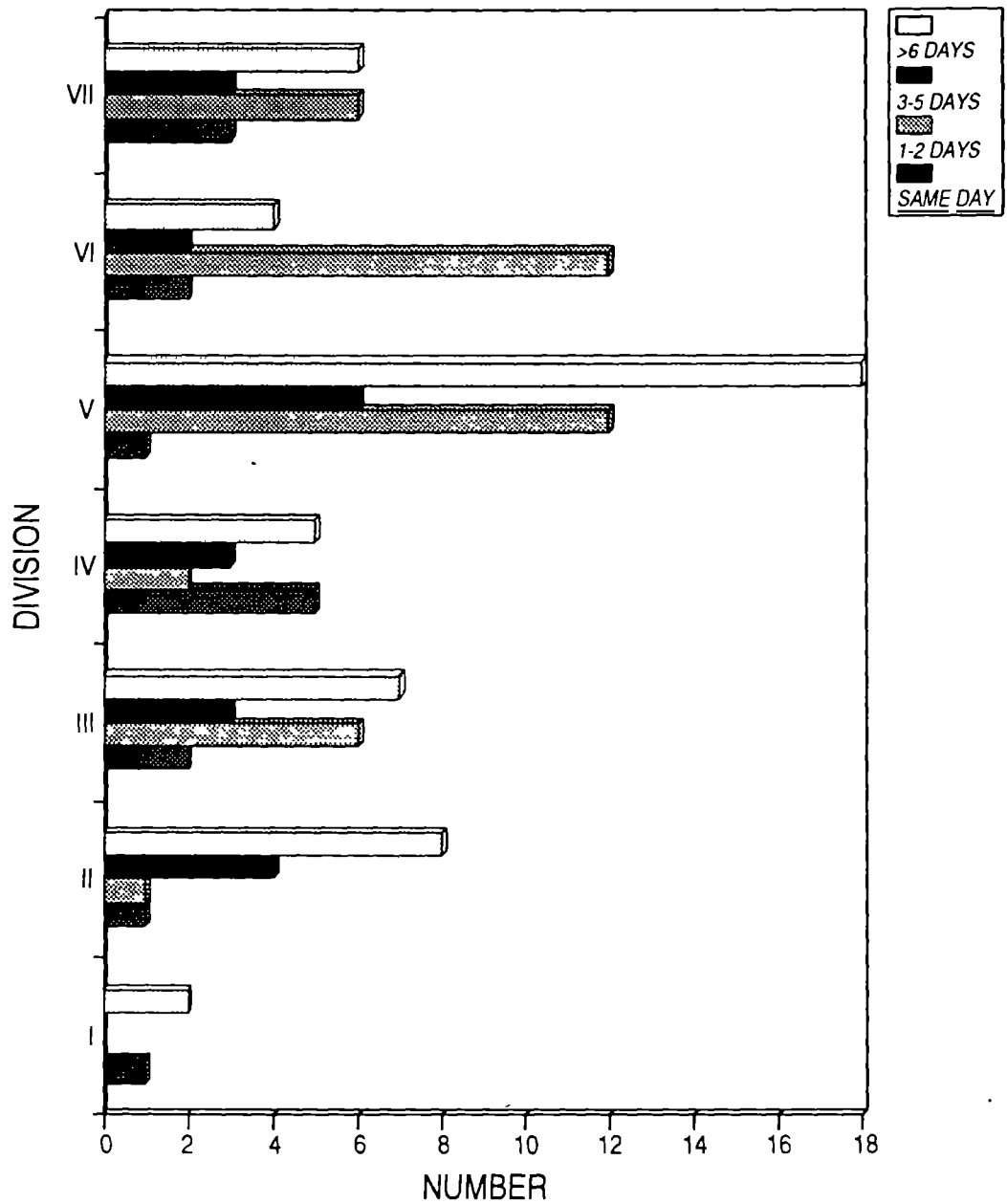


TIME TAKEN FOR SOLVING THE PROBLEM





TIME TAKEN FOR SOLVING THE PROBLEM





6. REVENUE ADMINISTRATION

Revenue administration constitutes yet another major determinant of consumer perspective on the state of service. The appraisal of Revenue Administration, to the extent of its interface with the consumers, was based on the following attributes: (Ref: survey schedule data nodes No 18 to 28).

- i) **Consumer awareness of service charges and tariff;**
- ii) **Metering, serviceability, reliability, billing and related issues; and**
- iii) **Errors in recording, billing and redressal of grievances.**

i) CONSUMER AWARENESS OF SERVICE CHARGES AND TARIFF:

Only the PPC segment of 1517 household units (92% of the total sample), constitutes the universe for the analysis as the PSP segment of consumers is not liable to pay for the service of water supply

The data on the level of consumer awareness of the water rate indicates, only 415 sample units (27% of the PPC segment) returning an affirmative response, implying positive awareness of the current rate of service charges as against a large majority of 1009 sample units (67%) in the negative response, implying lack of awareness and 93 sample units (6%) through being service users, opted to return a "no response". The two attributes viz for the "lack of awareness" as well as "no response", need to be viewed in the context of the following limitations.

- i) remittance of water charges by the employer - either public or private, or by house owners or the resident's society which in turn usually collects a flat subscription covering other services also.
- ii) proxy status - the respondent being only a relative, son/daughter/wife and not the head of the family.
- iii) outright indifference - the water bill being meagre vis-a-vis the household income, fails to receive the requisite attention.
- iv) clandestine character of the service connection; and
- v) outright hostility against the poor system itself



The divisional profiles of the three categories - 'affirmative', 'negative' and 'no response' as presented below:

Division - I:

The PPC sample segment of 142 household units (9% of the total segment) reveals, 86 household units (61%) in the negative category of response and 14 household units (10%) in the no response category as against 42 household units (30%) in the affirmative category.

Division - II:

The PPC sample segment of 198 household units (13% of the total segment) reveals 133 household units (67%) in the negative category and 4 household units (2%) in the category of no response as against 61 households (31%) in the affirmative category.

Division - III:

The PPC sample of 203 household units (13% of the total segment) reveals, 147 household units (73%) in the negative category and 16 household units (7%) in the category of no response as against 40 household units (20%) in the affirmative category.

Division - IV:

The PPC sample of 253 Household units (17% of the total segment) reveals, 163 household units (64%) in the negative category and 18 household units (7%) in the category of no response as against 72 household units (28%) in the affirmative category.

Division - V:

The PPC sample segment of 334 household units (22% of the total segment) reveals, 213 household units (64%) in the negative category and 14 household units (4%) in the category of no response as against 107 household units (32%) in the affirmative category

Division - VI:

The PPC sample segment of 156 household units (10% of the total segment) reveals, 109 household units (70%) in the negative category and 17 household units (11%) in the category of no response as against 30 household units (19%) in the affirmative category.

Division - VII:

The PPC sample segment of 232 household units (15% of the total segment) reveals, 158 household units (68%) in the negative category and 11 household units (5%) in the category of no response as against 63 household units (27%) in the affirmative category.

The profile on the awareness of water tariff reveals, the negative category as high as (73%) in Division No III followed by Division No.VI (70%), Division No.VII (68%), Division No.II (67%), Division No.IV & V (64% each) and Division No.I (61%) at the least. The magnitude of negative category even at the least slab at 61%, should certainly be a cause for alarm.

The no response category is found dominant in Division No VI (11%), followed by Division No.I (10%), Division No III & IV (7% each), Division No.VII (5%) Division No.V (4%) and Division No.II (2%).

The data trends pertaining to the "lack of awareness" and the "no response" categories, deserve immediate attention of the Board. A comprehensive programme of publicity on water tariff its components and methods of calculation may be launched immediately, to improve the existing levels of low public awareness.

To the query on awareness of any rise in the tariff 757 sample units (50% of the segment sample) replied in affirmative implying positive awareness on increase in the tariff, 628 household units (41%) were in the negative category connoting contrary to the first group as against 132 household (9%) in the category of no response. The negative as well as no response categories may also be the manifestations of 'occupation' status, by which the respondent may not be directly involved in the transaction; out right indifference because of marginality of bill amount as well as any increase vis-a-vis the household income status, or the intermediary role of 'Residents service societies'. However, there appears to be a difference between consumers and the staff on the meaning and implication of the term "increase" in water tariff.



In the absence of proper dissemination of information on tariff structure, the consumers, are left to perceive any rise in the bill amount not accompanied with a commensurate felt increase in the supply of water, as a rise in the tariff. The staff, on other hand instead of clarifying the attributes of billing, draw the public attention to the inclusion of sewerage service charge here-to-fore levied by the MCH. The MCH, like any other local body in A.P , was the competent authority to levy and collect sewerage service within the twin cities and the levy was in the form of sewerage cess as a percentage of property tax, till the transfer of the service function along with the concerned personnel to the Board in 1988. While the removal of sewerage cess component from property tax structure and the consequent reduction in the tax liability has escaped public attention, the levy of sewerage service charge as a percentage of water consumption charge - the current practice becomes a suspect as a clandestine attempt to raise water tariff on the part of the Board. There is, thus, a clear need for improving public awareness, on billing components and the rate structure as well as procedures of billing. In the absence of relevant information adverse opinion will continue to grow and billing based grievances against the Board are likely to flourish further.

ii) **METERING, SERVICEABILITY/RELIABILITY AND BILLING**

Public revenue management stipulates, unambiguous procedures for recording the service usage or consumption, regularity in the time cycles of metering as well as service of bills and collection of revenue. In order to identify the current state of operations on the elements mentioned, the following data nodes were included in the survey schedule.

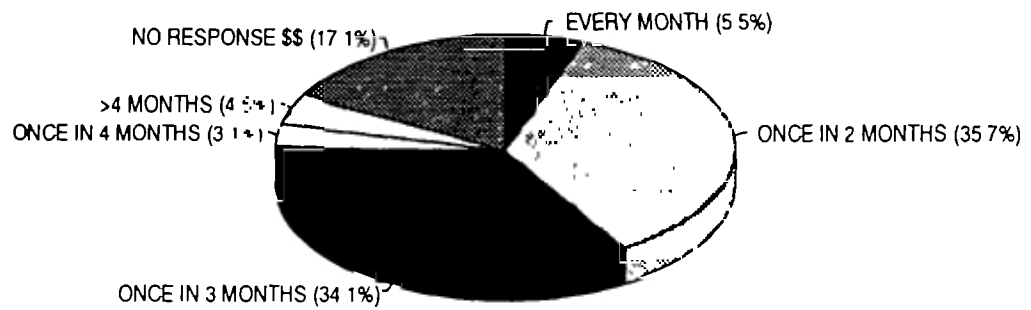
- a) Periodicity of metering and billing; and
- b) Average yield of revenue per month per service connection

'Meter recording' constitutes a nebulous plane of contact between consumer and the concerned staff and both share the onus for discrepancies and the consequent slippage in revenue

The data on the meter reading/recording cycle reveals, 84 sample units (6% of the PPC segment) stating that the reading and recording is done every month, 542 household units (36%) were in the reading and recording cycle of once in 2 months, 517 household units (34%) were in the cycle of once every quarter. 47 household units

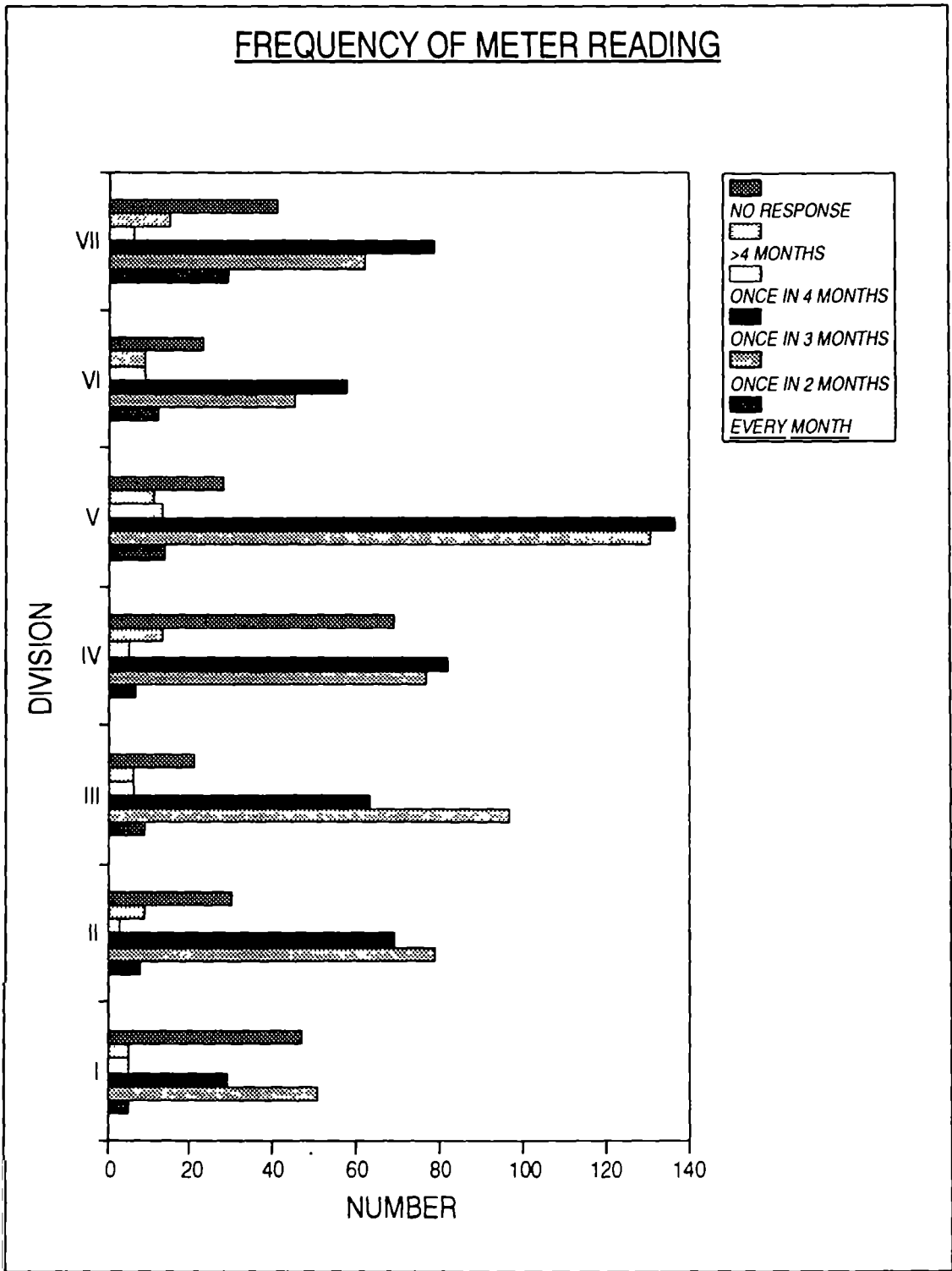


FREQUENCY OF METER READING





FREQUENCY OF METER READING





(3%) were in the cycle of once in four months, 68 household units (4%) indicated it as exceeding four months and 259 household units (17%) were in the category of no response.

On the parameter of billing cycle, the sample segment of 1517 PPC units reveals, 2 household units (0.13%) in the category of monthly bill service, 578 households (38%) in the category of bimonthly bill service, 600 household units (40%) in the category of quarterly bill service, 119 household units (8%) in the category of exceeding the quarterly range, and 90 household units (6%) indicated randomness, implying no specific time cycle in the service of bills and 128 household units (8%) returned a no response, implying absence of bill service to individual household units for the reasons already mentioned.

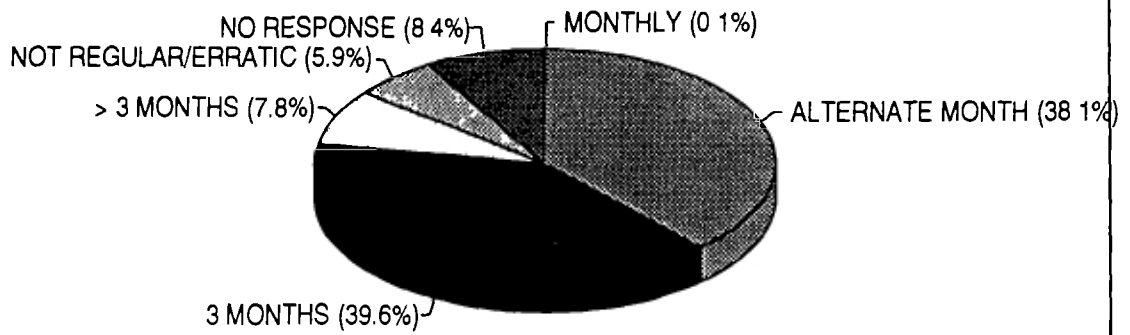
The data on metering analyzed in conjunction with the data on receipt of water bills by consumers reveals wide gaps. While meter recording at monthly intervals is reported by 29 household units (13%), only 2 household units have acknowledged receipt of bills, while, 542 household units (36%) reported bimonthly meter recording as many as 578 household units (38%) acknowledged receiving bimonthly bills. While 517 household units (34%) reported quarterly recording, bill receipts of the same cycle, indicate 600 household units (40%). While 115 household units (7%) reported the recording interval exceeding quarterly, the corresponding class intervals for receipt of bills indicate 119 households (8%). While 259 household units (17%) have returned a no response on the element of 'meter reading', the combined categories of "irregular" and "no response" in respect of bill receipt indicate 218 households (14%).

The gaps could be on account of prevarication' on the part of consumers as well as indicative of randomness on the part of staff. Individual interviews with select consumers as well as staff, reveal, that it is not uncommon to find consumers suggesting 'under recording' to suit their convenience and the staff indulging in exaggeration of the recording, for different reasons. The cumulative effect of repeated under recording, suddenly descends on the consumer, with a change in the staff.. The slippage on account of the gaps ranging from 2% to 13%, can be staggering if projected on the plane of actuals. Thus, it can be inferred that there is an immediate need to install an on line monitoring system in respect of Demand, Supply, Metering and Revenue collection

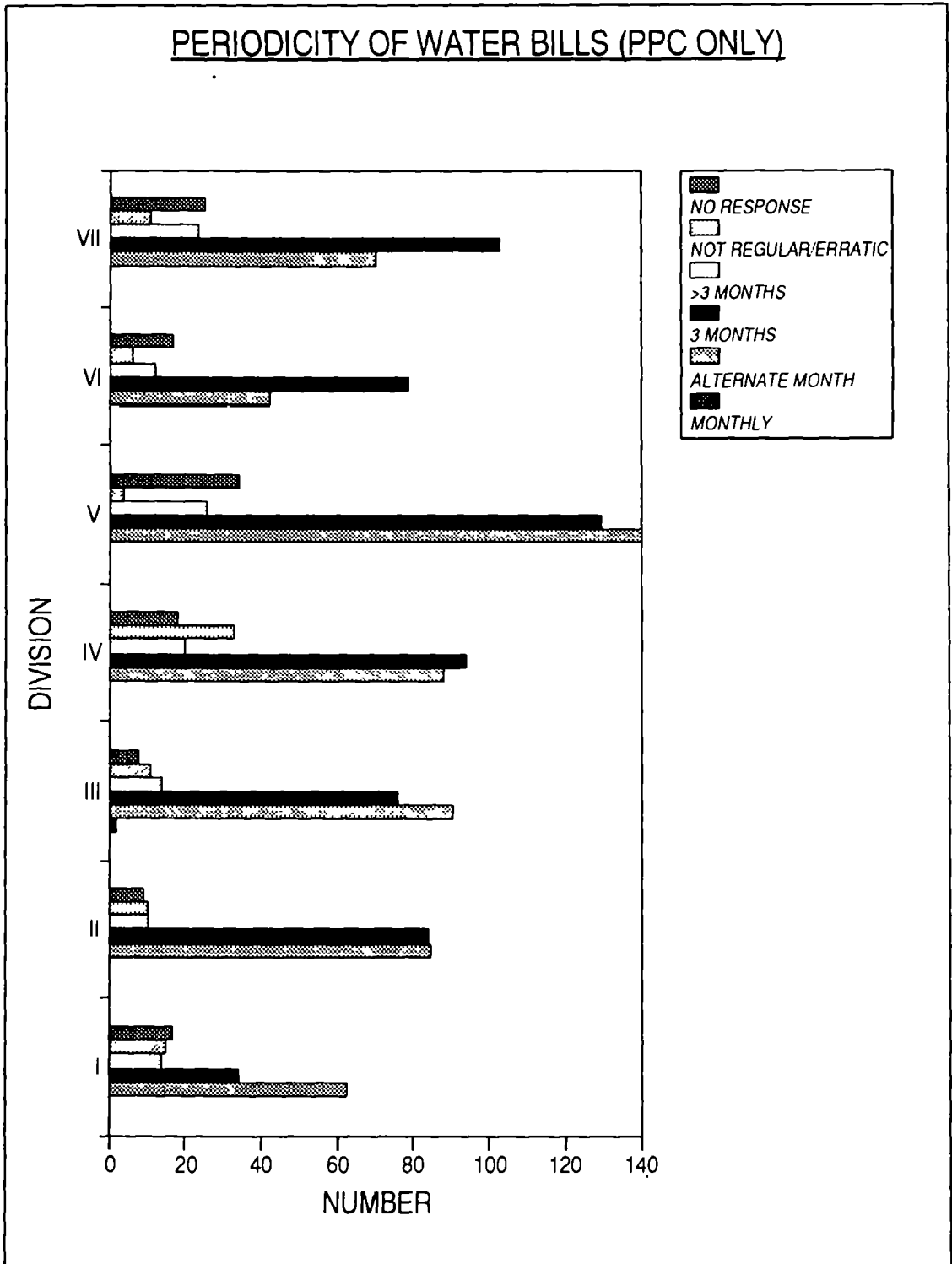
As can be seen, the diverse patterns of recording and billing cycles not only compounds the problems of users but also leads to uneven in flow of funds. The huge



PERIODICITY OF WATER BILLS (PPC ONLY)



PERIODICITY OF WATER BILLS (PPC ONLY)



scale of accumulated arrears in revenue pertaining to water supply can be directly traced to the wide inter as well as intra divisional inconsistencies in the cycles of meter reading, recording and service of bills. Monthly recording and billing may increase costs of billing and longer periods of billing cycles may stretch the burden of liability on consumers. The Board would be well advised to initiate appropriate measures to balance the counter veiling interests through a systematic analysis of its revenue inflow and expenditure rhythm and the thresholds of paying capacity of consumers. The category patterns of "irregular" as well as "no response", demand further analysis, case by case; to identify the causal factors and remedial measures.

ii) AVERAGE YIELD OF REVENUE PER MONTH.

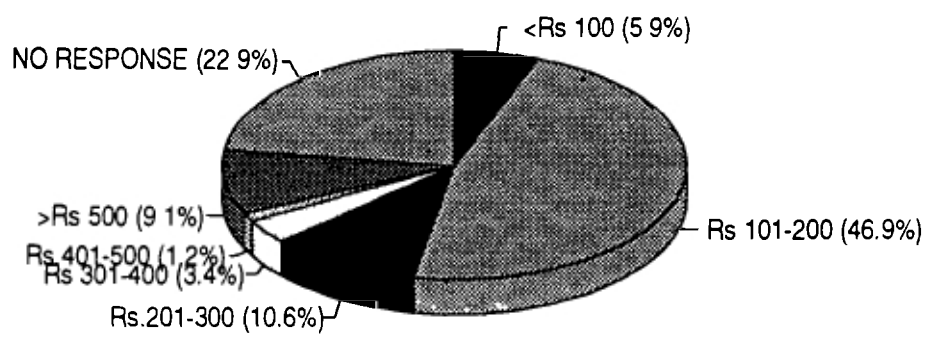
The data profile on average yield of revenue reveals, 90 sample units (6% of the total PPC segment of the sample) in the range of less than Rs 100/ per cycle period, 711 sample units (47%) in the range of Rs.100 to Rs.200, 161 sample units (11%) in the range of Rs.200 to Rs 300, 52 sample units (3%) in the range of Rs.300 to Rs.400, 18 sample units (1%) in the range of Rs.400 to Rs 500, and 138 households (9%) in the range of exceeding Rs.500, while 347 household units (23%) returned a no response. The no response category appears fairly large due to inclusion of household categories, not liable to pay the water charges directly (tenants - private as well as public and members of housing societies)

Divisional data profile reveals, division No VII dominant (2% of the sample segment) in the category of bills in the range of less than Rs.100 as against Division No.I with a nil return in the same category, Division No.V appears dominant (23% of the segment sample) in the range of Rs.100 to Rs.200 as against the least (8%) in Division No.6. Division No.5 again appears high (12%) in the range of Rs.200 to 300 as against the least (9%) in Division No.II. The same Division appear high (29%) even in the range of Rs.300 to Rs.400. Division No.VI appears high (4%) in the range of Rs.400 to Rs.500. It is again Division No.V which appears high (25%) in the range of exceeding Rs.500 and once again the same Division ranks high (4%) in the category of no response.

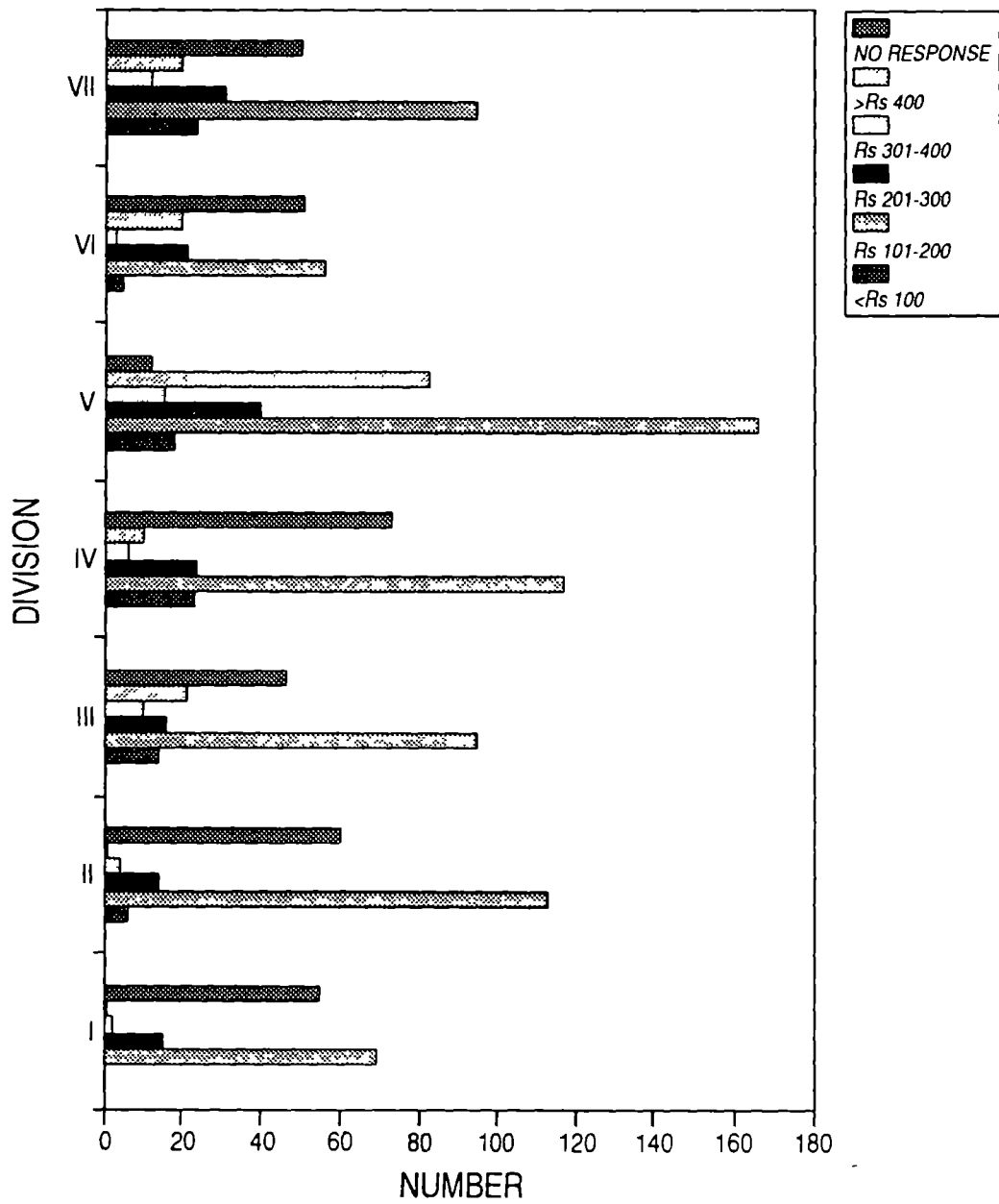
Viewed in conjunction with the element of billing cycle, Division No.V ranks high in the categories of bimonthly as well as, quarterly cycles of billing and also the cyclic periods exceeding 3 months, as against Division No IV which ranks high in the category of no regular cycle period of billing



RANGE OF CONSUMPTION CHARGES



RANGE OF CONSUMPTION CHARGES





Statistical analysis of the combined data on billing cycle in all the Divisions reveals the average cycle period of billing varying from 2.5 to 3 months.

With a view to identify the average household expenditure on water in relation to average household income, the following 4 parameters have been used and the data is tabulated:

- i) Average cycle period of billing;
- ii) Average bill amount for the period,
- iii) Average bill per month; and
- iv) Average Household income per month

Table No.3
THE TIME CYCLES OF BILLING, BILL AMOUNTS AND AVERAGE BILL PER MONTH VIS-A-VIS HOUSEHOLD INCOME

Division No.	Average cycle period of billing	Average bill amount per cycle period in Rs	Average household bill per month in Rs	Average household income per month in Rs	Average household expenditure on water as a percentage of income
I	2.85 months	175.28	61.50	1.9801	3.10%
II	2.7 months	164.49	60.92	2.2001	2.76%
III	2.7 months	216.02	80.00	2.2101	3.61%
IV	2.99 months	178.33	59.64	1.9001	3.13%
V	2.64 months	269.25	101.98	1.8201	5.60%
VI	2.87 months	240.47	83.78	2.3801	3.50%
VII	2.56 months	208.24	81.34	2.2600	3.55%
Total Segment Sample	2.79 months	216.75	77.68	2.0700	3.75%

The per capita expenditure per month on water by size range of household unit population is tabulated below

Table No.4
EXPENDITURE ON WATER BY HOUSEHOLD SIZE

Household unit size Range	Expenditure per month in Rupees.
5	15.53
5-10	10.35
10-15	6.21
15-20	4.43



The analysis reveals an inverse relationship between the household size and expenditure on the service of water supply. The inference could be larger the size range of a household, lower the household expenditure on water, indicative of lower the scale of supply of water and higher level of dissatisfaction on the Quantity of water accessed.

The present norms of relating the size of service connection to the plot or house as a unit, need to be revised to accommodate the vectors of household size/additional households also. This may result in increased supply and decrease the complaints on account of inadequacy. The technical and legal implication of the suggested revision needs further technical and financial appraisals.

iii) **ERRORS IN RECORDING AND BILLING - REDRESSAL OF CONSUMER GRIEVANCES:**

The process and procedure for recording water consumption (meter reading) appears as the base, for a series of consumer grievances. The sample analysis reveals 121 sample units (8% of the PPC segment) in the category of observed errors or discrepancies in meter recording, as against 823 household (54%) who had no complaint on the same and 573 households (38%) returned a no response. Divisional profile reveals Division No.V high (11% of the divisional segment of PPC) on the parameter of grievances on account of errors and discrepancies in meter reading as against the least (4%) in Division No.I

On the point of difficulties to obtain correction of the errors, the sample reveals 38 sample units (26% of the effected segment) in the category of no difficulty, 54 sample units (36%) reporting indifference on the part of staff, 26 sample units (18%) reporting on the time consuming nature of procedures for rectifying errors and 30 units (20%) attributing other factors. Interestingly, 27 household units (18%) of the same group indicated more than one of the above categories of difficulties.

Further probing to identify the morphological base of errors revealed, that they mainly arise on account of the 'remarks' recorded in the bills. 143 household units (55% of the aggrieved segment of the sample) were in the "Minimum charges" category of remarks and 110 household units (43%) in the "meter not working" category. The remarks of "minimum charges" and 'meter not working' are recorded without any intimation to the consumer and the bills so remarked do not indicate the reading- either the current or the previous. The consumers were emphatic in stating that these two categories of remarks are often used either as a means of intimidation or to initiate "under hand dealings"

The data on the category of household units in the category of "meter not working", revealed 30 household units (27% effected segment) stating the remark notations are found frequently, 41 household units (37%) found them occasionally and 39 household (35%) opted to return a no response. Division No.VI ranks high in the categories of 'frequently' (39%) and 'no response' (33%) as against Division No.III in the category of 'occasionally' (55%).

On the point of lead time for effecting repairs of the faulty meter, 30 household units (27% of effected segment) were in the repair period range of at least 1 month, 42 household units (38%) were in the range exceeding 1 month and 38 household units (35%) returned a 'no response' On the point of charges incurred on repair/servicing, 38 household units (53% of effected segment) had put it in the range of Rs.100 to Rs.200 each time, as against 34 household units (47%) in the range of exceeding Rs.200 each time.

It is a common knowledge that domestic water meters belongs to durable and low cost category of measuring instruments Their operating mechanism are simple The market price of a new domestic water meter may vary between Rs.300 to Rs.500, of which the housing of the instrument constitutes the only item of high value. The housing does not need replacement or any specific servicing other than cleaning. Despite the low replacement costs of other parts, the charges for servicing as reported by the respondents, are patently unfair.

The Board may be well advised to address the issue of "unfair charges" by assuming the responsibility for meter servicing at site on 'maintenance contract' basis. The contract charges may be levied as a percentage of consumption or a flat rate depending upon the staffing and material costs.

On the point of 'charges', if any, paid to the meter reader, the data profile reveals 88 household units (6% of the PPC segment of the sample) in the affirmative, implying that the meter readers actually demand and are 'paid', 1159 Household units (76%) in the negative implying no such payment, and 270 household units (18%) were noncommittal by returning a no response. On the point of reasons for the 'charges', 8 household units (9% of the affirmative category) attributed it to condonation of delay in getting the meter repaired, 14 household units (16%) to motivate the meter reader in effecting "correct calculation" and 66 household units (75%) were non committal, by returning a 'no response'.

In the absence of any official provision, the 'charge' situation reflects plain collusion between consumer and the concerned staff. The reasons attributed bear ample testimony, especially in the context where the staff is neither authorised to condone the delay nor to collect towards 'correct calculation'. The third category of response viz 'no response' merely reflect attempts to camouflage collusion. Statistical projections reveal that the gross leakages in revenue on account of the situation, can be in the range of 6% to 10%

While streamlining the function of metering, the following suggestions from consumers certainly merit positive consideration. The percentages indicate the strength of sample units behind the recommendation vis-a-vis, the total sample

- i) On spot intimation of recording to the consumer - 3%
- ii) Advance intimation to the consumers on the schedule of meter reading - 5%
- iii) On spot correction of errors : 5%.

On the point of difficulties in effecting Bill remittances, the data profile reveals, 1166 household units (77% of the PPC sample segment) in the category of no difficulty, 77 household units (5%) complaining on the excessive distance to the collection centre, 43 household units (3%) complaining on "over crowding" at the collection centre and 114 Household units (7.5%) on the cash or draft modes of remittance insisted by the Board, while 351 household units (23%) returned a multiple response, and 117 households (8%) were non committal by returning a no response.



7. MAINTENANCE OF THE DISTRIBUTION SYSTEM

Public vigilance on the state of operations and maintenance of the system, standards of service and staff performance, constitutes a powerful tool to sustain constitutes the systemic effectiveness. The survey schedule included the following data nodes on the level of public vigilance and user stance on cooperation with the Board (Ref: survey schedule data node number 31 to 34).

- i) **State of operation and maintenance of PSPs in the locality;**
- ii) **water leakage from the distribution system; and**
- iii) **Feedback and response.**

1) STATE OF OPERATION AND MAINTENANCE OF PSPs IN THE LOCALITY

The data profile reveals 935 respondents (56% of the total sample), affirmative on availability of public stand posts in their respective localities, as against 701 respondents (42%) indicating non availability (absence) of the same and only 20 respondents (1%) were in the category of no response.

The affirmative segment of respondents on the availability of PSPs in their respective localities, was probed further to generate data on the state of operation and maintenance of the PSPs under reference

On the point of the facility of a 'platform' around the PSP under reference in respective localities, 773 respondents (83% of the segment sample) replied in affirmative, implying the presence of a platform as against 162 respondents (17%) who replied in the negative. Asked about the facility of a "drain channel" from the under reference, 733 respondents (95% of the segment sample) replied that the platforms under reference, have drain channels as against 40 respondents (5%) who replied in the negative, implying "no drain channel"

On the point of leakage from the PSPs in their respective localities, 211 respondents (23% of the segment sample) found the PSPs under reference consistently leaking as against 724 respondents (77%) who said that the PSPs under reference are normally leak-tight



On the state of water stagnation at the premises of the PSPs under reference, 247 respondents (26% of the segment sample) replied in affirmative implying stagnation of water, as against 688 respondents (74%) who replied in the negative implying no stagnation.

On the availability of tap head (stop cock), 235 respondents (25% of the segment sample) said that the PSPs under reference are normally without a stop cock as against 72 respondents (8%) found it consistently missing and 628 respondents (68%) returned a no response, indicating indifference to the maintenance or state of serviceability the system.

ii) **LEAKAGES**

On the point of leakages in the local distribution system, 25 respondents (2% of the total sample) said the distribution system in their locality consistently springs leakages, 149 (9%) indicated that the leakages are frequent, 213 respondents (13%) indicated the occurrence of leakage as rare and 917 respondents (55%) were in the category of never found the system leaking, while 352 respondents (21%) returned a no response - indicating either indifference or prevarication.

The category of "consistent" leakages was found dominant in Division No I, the category of "frequent" leakages was dominant in Division No. IV and Division No.V appears top in the remaining the category of 'rare' and 'never' as well as 'no response'.

There was also the extremely vigilant segment of 230 respondents (14% of the total sample) which did not miss to observe the leakages even out side their locality, and 55 respondents (24% of the segment) even went to the extent of reporting their observation, to the Board

iii) **FEEDBACK AND RESPONSE**

The state of feedback from the user public on leakage as well as the staff response is profiled below

Of the 351 respondents who had observed leakages from the system 260 respondents (74%) claimed to have brought it to the notice of staff, as against 91 respondents (26%) who opted to remain passive observers only Of the segment of respondents who had reported on the leakages, 78 respondents (30%) found the

rectification 'ad hoc'. 132 respondents (51%) found the rectification durable 42 respondents (16%) found the leakage continuing, implying no corrective effort and 8 respondents (3%) found the staff totally non responsive to their component. The last two of the observed categories viz "no corrective effort" and "no response to the complaint" indicate dereliction of duty on the part of concerned staff. The combined percentage of the two segments of observation (19%) provides a clue to the low public image on staff performance. Roughly one in every five of the consumers with a complaint, find the staff either not responsive or not performing duties as expected. Division No.I and III rank high (33% of the segment sample) in the two categories under reference, followed by Division No.IV (24%), Divisions V and VI (21%), Division No II (8%) and Division No.VII (6%)

On the point of lead time for repair and rectification 35 of the respondents (17%) reported corrective action coming-forth the same day, 93 (44%) reported it in the range of 2 to 3 days and 72 (39%) reported it in the range of exceeding 3 days.

8. SEWERAGE

The scenario on the state of sewerage service is based on the data generated on the following elements.(Ref: survey schedule data nodes number 35 to 40).

- i. **Access to sewerage service: current status;**
- ii. **Awareness of the current pattern of levy of sewerage charges;**
- iii. **State of maintenance; and**
- iv. **Grievances and redressal.**

i) **ACCESS TO SEWERAGE SERVICE: CURRENT STATUS:**

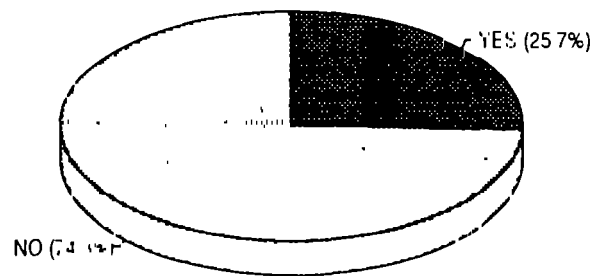
It is interesting to find that amongst the 1656 sample respondents only 425 (26%) respondents had the knowledge to distinguish between drainage and sewerage. The profile on access to sewerage service reveals, 1540 household units (93% of the total sample) having sewerage service connection. Interestingly, the number of households connected to sewerage service appears higher than the number of households (1517) in the category of PPC indicating to the existence of 23 households having a sewerage service connection but not connected to water supply service conversely, there were 116 household units (7%) amongst the PPC category, without a sewerage service connection. The household segment without service connection to sewerage, was probed further to identify the methods adopted for disposing the household sewage. The data profile reveals 34 household units (29% of the segment sample) using own septic tank, 14 household units (12%) using community septic tank, 40 household units (34%) letting out to open surface drains and 28 household units (24%) returning a no response. The last two categories methods of disposal are mainly found in the slums and the under developed areas only.

ii) **AWARENESS OF THE CURRENT PATTERN OF LEVY OF SEWERAGE CHARGES:**

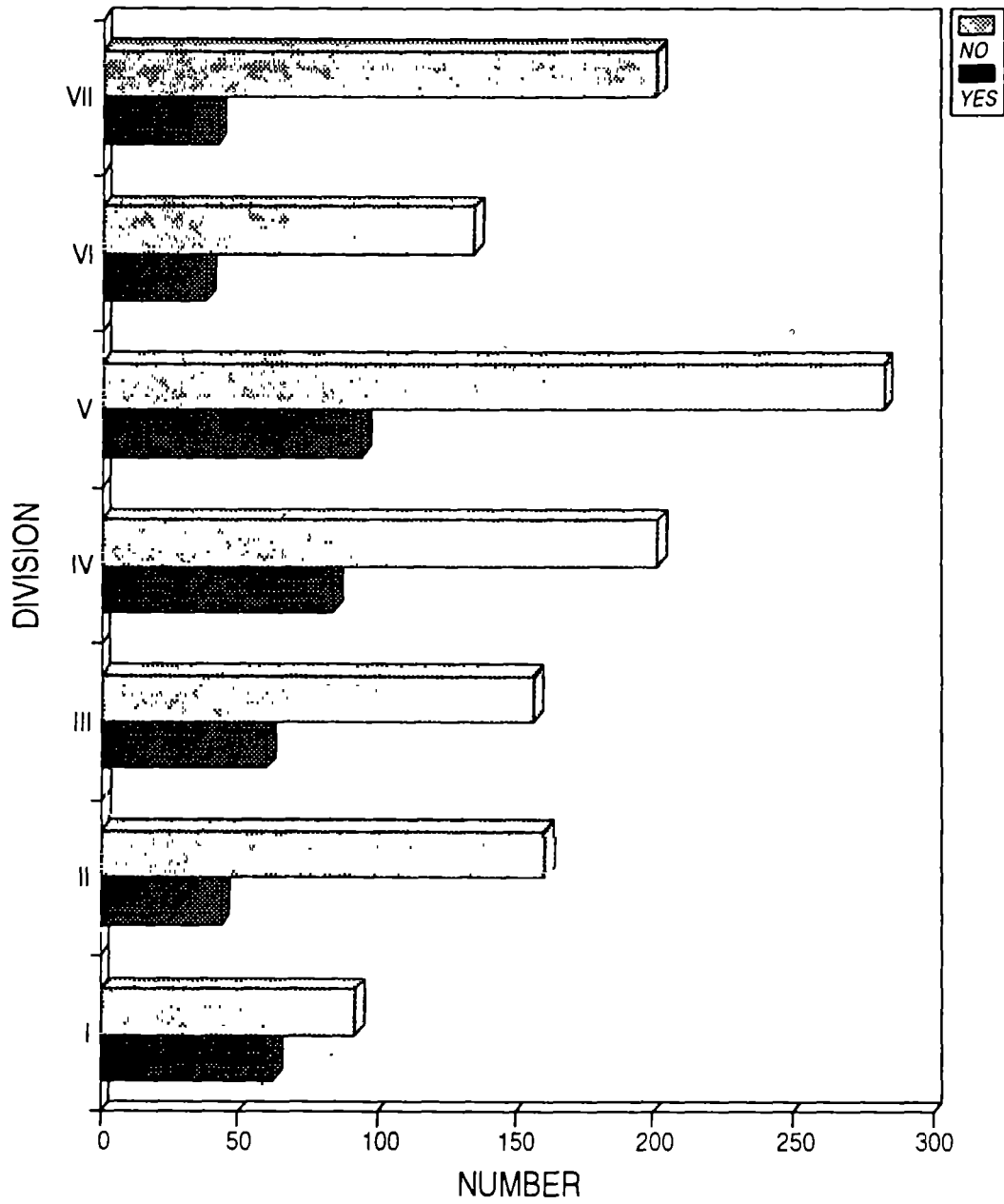
The function of sewerage service, which was formerly the responsibility of the MCH was transferred to the Board in 1988. Sewerage tariff as a percentage of charges on water consumption, is currently levied. The pattern of levy of sewerage charge being comparatively recent, data on the element of consumer awareness of the pattern was generated. The entire sample segment of PPC class - 1517 household units (92% of the total sample) constituted the universe for the analysis.

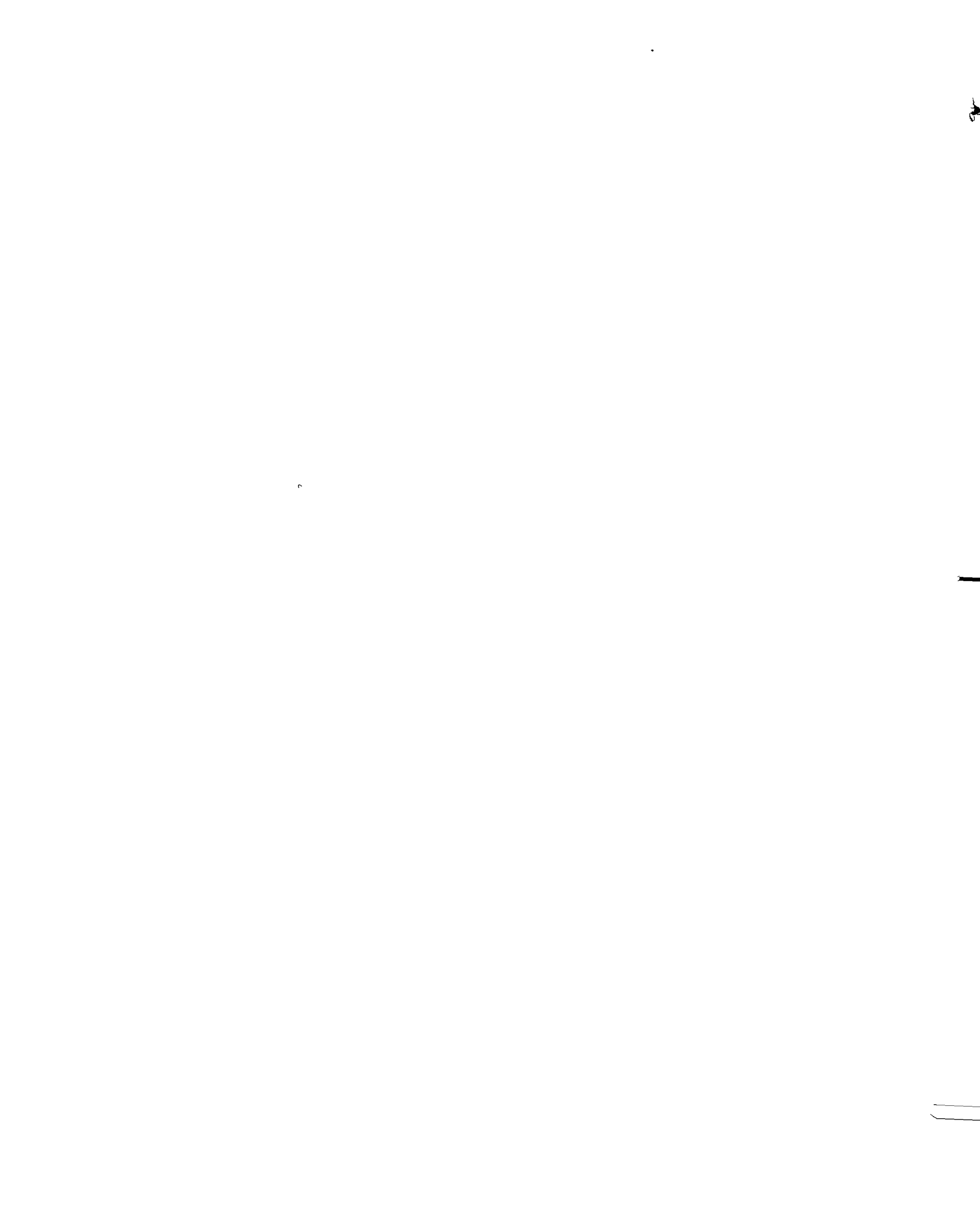


STORM WATER DRAIN & SEWERAGE-AWARENESS



STORM WATER DRAIN & SEWERAGE-AWARENESS





The sample reveals, 418 household units (28%) in the affirmative category implying positive knowledge of the new pattern as against 1008 household units (66%) in the negative category implying lack of knowledge and 91 household units (8%) in the no response category

The category of consumers without sewerage service connection, were asked whether they would be willing to obtain the service connection. Of the 116 respondents in the category, 71 respondents units (61% of the segment sample) expressed readiness as against 41 respondents (35%) replying in the negative implying unwillingness. The later category of respondents was again predominant in the slums and the under developed areas.

On the point of blockages occurring in the local sewer system, there were 974 household units (63% of the segment sample) who had experienced chockage/blockage at one time or other, as against to the segment of 566 household units (37%) not having experienced it any time. The divisional profile on the data reveals Division No.V dominating (25%) in the category of frequent occurrence of chockages as against Division No.VI (7%) in a comparatively better position

A majority of the effected sample segment - 827 units (85%) reported to have utilised the services of Boards staff for clearing the chockages and 128 household units (13%) used private service for the same Of the segment which utilised the Board Services, 153 households (19%) conceded to making payment to the regular staff, on job to job basis 19 households (2%) stated to have cleared it through self service.

Queried on the point of sewage overflow in the locality, 945 household units (57% of the total sample) stated that the occurrence is common in their locality, as against 640 household units (39%) stating that they have not observed it happening in their locality A small number of 71 sample units (4%) returned a no response

The feature of sewerage overflow as a common occurrence appears to be high in Division No.V as against Division No.VI which appears better placed amongst all the divisions.

On the state of manhole covers, 1310 respondents (79% of the total sample) said that the manholes in their locality are found to be properly covered, 259 respondents (16%) said that the manholes in their locality always appear open (uncovered) 5 respondents (less than 1%) said, that stones are substituted to cover the

manholes in their neighbourhood and 82 respondents (5%) returned a no response.

Queried on the occurrence of "theft" of manhole covers, 318 respondents (19% of the total sample) reported that it is a common occurrence in their locality, 1242 respondents (75%) stated that it is not so common and 96 respondents (6%) returned a no response. Division No VII appears high in the category of frequent missing of manhole covers

On the point of reporting the 'missing manhole covers', 149 respondents (47% of the segment sample) replied in affirmative implying that they had reported their observations to the concerned staff and 169 respondents (53%) appeared to have remained indifferent to the incidents. Of the sample segment who had reported, 45 respondents (30% of the segment sample) found immediate response in the form of prompt replacement, 33 respondents (22%) reported to have elicited only a promise to replace and, 3 respondents (2%) found the concerned staff pleading helplessness on account of some thing or other. 68 households (46%) found the concerned staff totally indifferent.

Division No.V appears high in the categories of prompt as well as indifferent categories of responses, as against Division No.VII which ranks high in the only promise category

9. POLLUTION: PREVENTION AND CONTROL

The level of pollution in the water accessed constitutes another major determinant of consumer perspectives and satisfaction. The survey attempted to develop a sample scenario on the state of Pollution prevention and Control in the twin cities. Generation of data pertaining to state of pollution covered the following points. (Ref survey schedule data numbers 41 to 50 02).

- i) **Level and frequency of water pollution;**
- ii) **Feedback and follow-up ;**
- iii) **Incidence of water borne diseases; and**
- iv) **Consumer awareness on causes for pollution as well as indicators, interface with Board staff.**

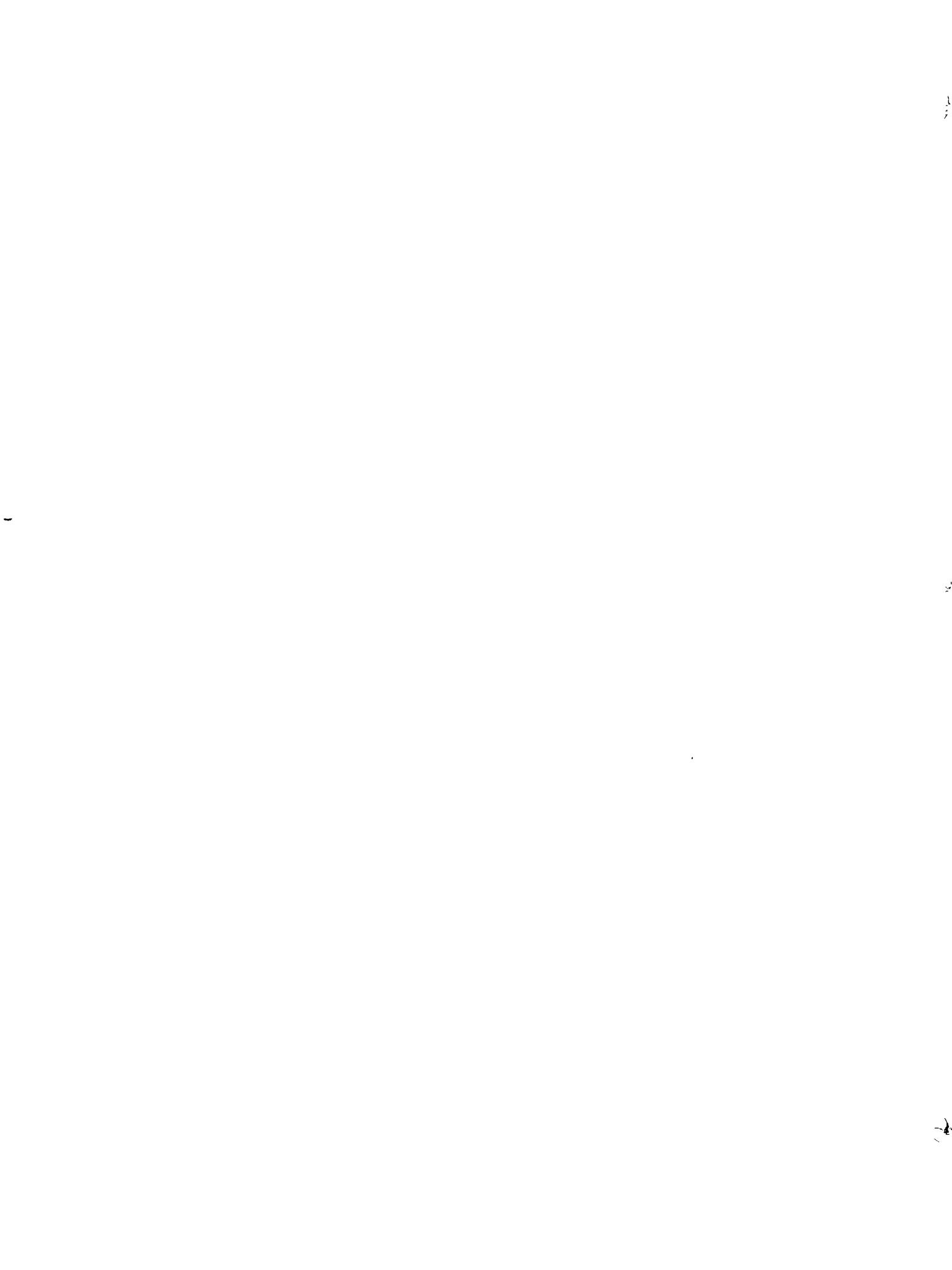
i) **LEVEL OF WATER POLLUTION:**

On the point of pollution in the water received, about one third i.e., 492 households (32% of the total sample) replied in affirmative implying that they had the experience of receiving polluted water supply as against 1025 households (68%) who replied in the negative. On the point of frequency of its occurrence, 204 sample units (41% of the segment sample) indicated that pollution of water as a common occurrence in their locality and 288 household units (59%) placed the occurrence as 'occasional'

Divisional profile on both the parameters reveal, Division No V high on the incidence as well as frequency of occurrence of water pollution. However, the distribution range of the incidence of pollution indicates variation of 23% to 42% in all the divisions

ii) **FEEDBACK AND FOLLOW-UP**

On the point of follow up action from the user end, 138 household units (28%) reported to have informed it direct to the staff of the concerned section, 30 household units (6%) chose to bring it to the notice of local leader, 61 household units (12%) reported it to the MCH and 263 household units (53%) remained indifferent by not reporting at all (Reliance on poor system of water purification was one of the reasons for the user inaction)



There appears to be a wide variation in the user understanding of the appropriate agency to report on pollution. Except for a small percentage of 28, a large number of effected people either reported the occurrence to "agencies" other than the Board or remained indifferent. The board staff, in the absence of direct information from the consumers, could do little by way of prevention or rectification. The Board is well advised to launch an intensive publicity program, to restrict the undesirable trend.

On the point of response time from the Board, the data profile reveals 56 household units (24% of the effected segment sample) indicating the range of rectification time between 1 to 2 days, 74 household units (32%) indicating it between 2 to 4 days, 80 household units (35%) indicating in the range of exceeding 4 days and 19 household units (8%) indicating that the problem has never been durably rectified

Discussion on the consequences of polluted water supply becomes moot and redundant, at this juncture. The high incidence of affirmative data in the two ranges viz, exceeding 4 days and non-durable rectification, make it imperative on the part of the Board to take up employee training programme, in the related areas of pollution detection, prevention, rectification and consumer orientation, concurrently with streamlining of the present procedures for implementing the correctives

iii) **INCIDENCE OF WATER BORNE DISEASES**

On the point of incidence of water borne diseases, the data profile reveals, 492 sample units (30% of the total sample) reporting to have already been effected by one or other of the diseases such as Cholera, Jaundice, Typhoid, etc , listed in the survey. The listing itself was illustrative rather than an exhaustive compendium on water borne diseases. However the incidence of the order of 30% - in fact as many as 83 household units (17%) have not even reported their sickness, makes it imperative on the part of the Board to initiate prophylactic measures against pollution on top priority. Improving consumer awareness on the 'causes' and 'consequences' of pollution, can be a supportive strategy in arresting the incidence of pollution.

iv) **CONSUMER AWARENESS**

An index of consumer awareness of the causes was sought to be established, during the survey and the data is profiled below



On the point of the contributory role of 'criss-crossing' of water supply and sewage service lines, 1356 household units (82% of the total sample) indicated positive awareness as against 161 household units (10%) who were in the category of no knowledge and 139 households (8%) returned a no response which is merely indicative of unwillingness to accept the ignorance

On the state of alignment of the service lines at the premises of respondents house, 89 sample units (6% of the segment sample) conceded to the fact of criss-crossing of the service lines at their respective premises, as against 1362 sample units (90%) indicating that the exigency is not applicable to them on account of having on-site septic tanks, and 66 household units (4%) returned a no response, indicative of unwillingness to accept the scope for pollution the felt threat of being required to change the alignment and the incidental investment Further analysis in clarifying the last option reveals 40 household units (45% of the segment sample) who expressed readiness to undertake realignment of service lines, 25 household units (28%) who for reasons of their own, expressed against any personal responsibility to effect realignment There were also 24 household units (27%) who returned a no response.

Pollution need not necessarily emanate from the public distribution system. It can also originate from within at the users premises Attempts, therefore, were made to assess the consumer awareness of the scope for pollution and preventive action at own premises. The data analysis on the issue is presented below:

On the point of storage of water, 306 sample units (20% of the PPC segment of the sample) were found to be storing water in overhead tanks, 336 household units (22%) in ground level sumps, 741 household units (49%) in steel drums and 134 household units (9%) in an assortment of containers such as metal vessels, earthen pots, PVC carboys, cement tubs, etc

The data on household segment with ground level sumps for storage of water reveals, 69 sample units (21% of the segment sample) indicating automatic water flow into the sump on commencement of supply, 234 sample units (70%) indicated 'manual filling' and 33 household units (10%) returned a no response The combined categories of manual filling and no response constitute the likely group to use suction pumps to draw water from the system.

The sample segment in the category of automatic flow into the sump reveals, 29 household units (42%), wherein, the delivery head normally gets submerged and in



case of not being closed on the cessation of supply, the water above the delivery head returns into the system 40 sample units (58%) replied that the delivery tap is so high, that water level doesn't even normally reach it. The observation assumes significance especially in the light of data on the user habit of closing the delivery tap after use. The data on the point reveals 1229 sample units (81% of the PPC segment of the sample) indicating affirmative, implying that they deliberately close the tap after use as against 71 sample units (5%) replying in the negative, implying that they do not deliberately close the tap for their own reasons and 217 household units (14%) returned a no response.

The analysis indicates low level of awareness of the consequences of the water re-entering the system. The suggested public awareness programme, should also include information on the consequences of allowing water into the system from the user ends

To the query on the state of maintenance of the overhead tanks, 299 sample units (98% of the segment sample) replied that their overhead tanks are "adequately" covered and 7 household units (2%) replied in the negative. The connotation "adequate" cover was generally loose with a wide band of differences. The material used for covering, ranged from wooden planks, GI/AC sheets, tarpaulins etc.

On the point of cleaning cycle of the overhead tanks, the data profile reveals, 21 sample units (7% of the segment sample) indicating total ignorance about the need for cleaning as well as the periodicity of cleaning. 193 sample units (63%) were in the frequency range of cleaning once in 3 months, 56 units (18%) in the range of 3 to 6 months, 14 units (5%) in the range of 6 to 9 months and 22 units (7%) in the range of exceeding 9 months

On the point of cleaning cycle of the ground level sumps, the data profile reveals, 18 sample units (5% of the segment sample) indicating total ignorance about the periodicity of cleaning, 236 units (70%) were in the frequency of once in 3 months, 56 units (17%) in the range of 3 to 6 months, 10 units (3%) in the range of 6 to 9 months and 16 sample units (5%) in the range of exceeding 9 months.

The combined effect of improper covering, and carelessness to cleaning, could prove counter to the Boards efforts towards prevention and control of pollution. A provision for staff inspection and certification of its state of maintenance could be included in the rules and regulation of water supply and sewerage

With a view to assess the consumer awareness of the Boards efforts against pollution, the following data nodes were included in the survey schedule.

- i) familiarity with chlorine smell;
- ii) frequency of chlorination as detected by consumer; and
- iii) visibility of Boards efforts pertaining to quality assurance.

To the query on familiarity with chlorine smell, 1377 respondents (81% of the total sample) replied in the affirmative implying positive familiarity, 281 respondents (17%) replied in the negative and 38 respondents (2%) remained non committal by returning a no response

On the point of frequency of chlorination as detected by smell in the water supply, 26 respondents (2% of the segment sample) indicated that the chlorination is felt frequently, 873 respondents (65%) indicated the felt chlorination cycle in the range of occasionally, 372 respondents (28%) indicated the felt chlorination cycle in the range of rarely and 66 respondents (5%) remained non committal

On the point of visibility of Boards efforts pertaining to quality assurance, 14 respondents (1% of the total sample) replied that they "frequently" observe the boards staff collecting water samples, 83 respondents (5%) indicated their observation in the range of occasionally and 127 respondents (8%) said rarely, 1228 respondents (70%) replied that they never observed the collection of samples and 204 respondents (12%) remained non committal.

The dominance of the category "never observed" is indicative of a need to improve of public awareness of an important function of the Board. The design of the suggested public awareness programme should also aim at bringing the ongoing efforts into public view



10. SERVICE IMPROVEMENT EFFORTS

As a part of organisational efforts on improving the service status of water supply and sewerage, the Board had initiated a number of schemes such as instant sanction in 1991. A few data nodes were included in the survey schedule, to assess the public awareness of the schemes. (Ref. survey schedule data nodal numbers 51 to 53)

Of the total sample of 1517 PPC category of consumers, 1287 sample units (84%) reported to have obtained the service connection prior to 1991 and therefore were not able to comment on the operation as well as the benefits of the scheme. Only 96 units (6%) reported to have obtained their service connection after 1991 and were in a position to comment as against 143 household units (9%) who declined to comment by returning a no response.

The dimensions on which comments were sought are presented below.

- i) **lead time for receiving the service connection from the date of application;**
- ii) **procedural difficulties encountered; and**
- iii) **views on removal of middlemen - plumbers.**

On the point of lead time for receiving the service connection from the date of application, 6 sample units (6% of the post 1991 segment of the sample) indicated the time range of less than 2 weeks, 19 units (20%) indicated it in the range of 2 to 4 weeks, 7 units (7%) indicated it in the range of 4 to 6 weeks, 26 units (27%) indicated the range of exceeding 6 weeks and 38 household units (40%) remained non committal.

To the query on procedural difficulties which normally characterise Indian Administration, 15 respondents (16% of the post 1991 segment of the sample) replied that the process of sanction was smooth and there was no need of any hasteners, 15 respondents (16%) said that they had to remind the concerned staff 3 to 4 times prior to actual release of the service connection, 17 respondents (18%) indicated that they had to remind more than 4 time and 49 respondents (51%) returned a no response.

On the point of any need to bring 'influence' to bear on the staff, 24 respondents (25% of the segment sample) replied in affirmative implying that they had to wield 'influence', 29 respondents (30%) replied in the negative implying that there was no need for any influence and 43 respondents (45%) remained non-committal



On the point of the 'medium' of influence, the data profile reveals 27 respondents (28% of segment sample) in the category of direct 'contact' with the concerned staff, 18 respondents (19%) used plumber as a medium for facilitating early connection and 51 respondents (53%) remained non committal (The data returns indicate variations from the previous node on account of 'no response' segment in both the nodes).

On the point of the Board's initiative at obviating the scope and role of plumbers, 27 respondents (28% of the segment sample) indicated that they are aware of the new initiative, as against 69 respondents (72%) who indicated that they were not at all aware of the modification.

On the point of utility value of the modification 49 respondents (51% of the segment sample) agreed on the beneficial nature of the initiative as against 47 respondents (49%) who said that the initiative in reality remains superficial only, as the civil works pertaining to the service connection, can only be carried out by plumbers. As can be seen, the administrative reforms as initiated by the Board are yet to make an impact on the consumers.

To the query whether there was any attempt on the part of the Board staff to meet consumers for developing service rapport, only 41 respondents (2% of the total sample) have replied in affirmative, implying that the Board staff has met them at one time or other to discuss consumer problems as against 1615 respondents (98%) who returned an emphatic no, implying that such a meeting has never taken place in the past.

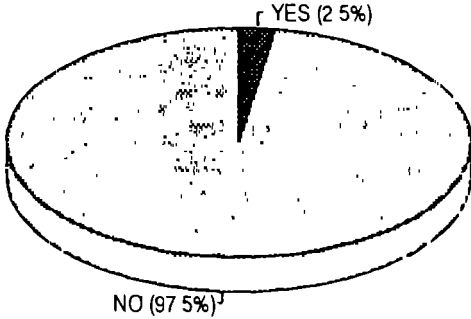
Business organisations need to develop close and cordial relations with their clientele, more so in case of public utility service organisations. Service managers need to develop contacts and rapport with the public to improve the public perspective of the service they render. The Boards image on its public responsiveness and relations with consumers appears highly deficient.

The profile of sample responses to the query on the state of serviceability and maintenance in of the water supply and sewerage service, as observed by the respondents is presented below

197 respondents (12% of the total sample) felt that the service in general has improved relatively over the past one year, whereas 37 respondents (2%) felt the

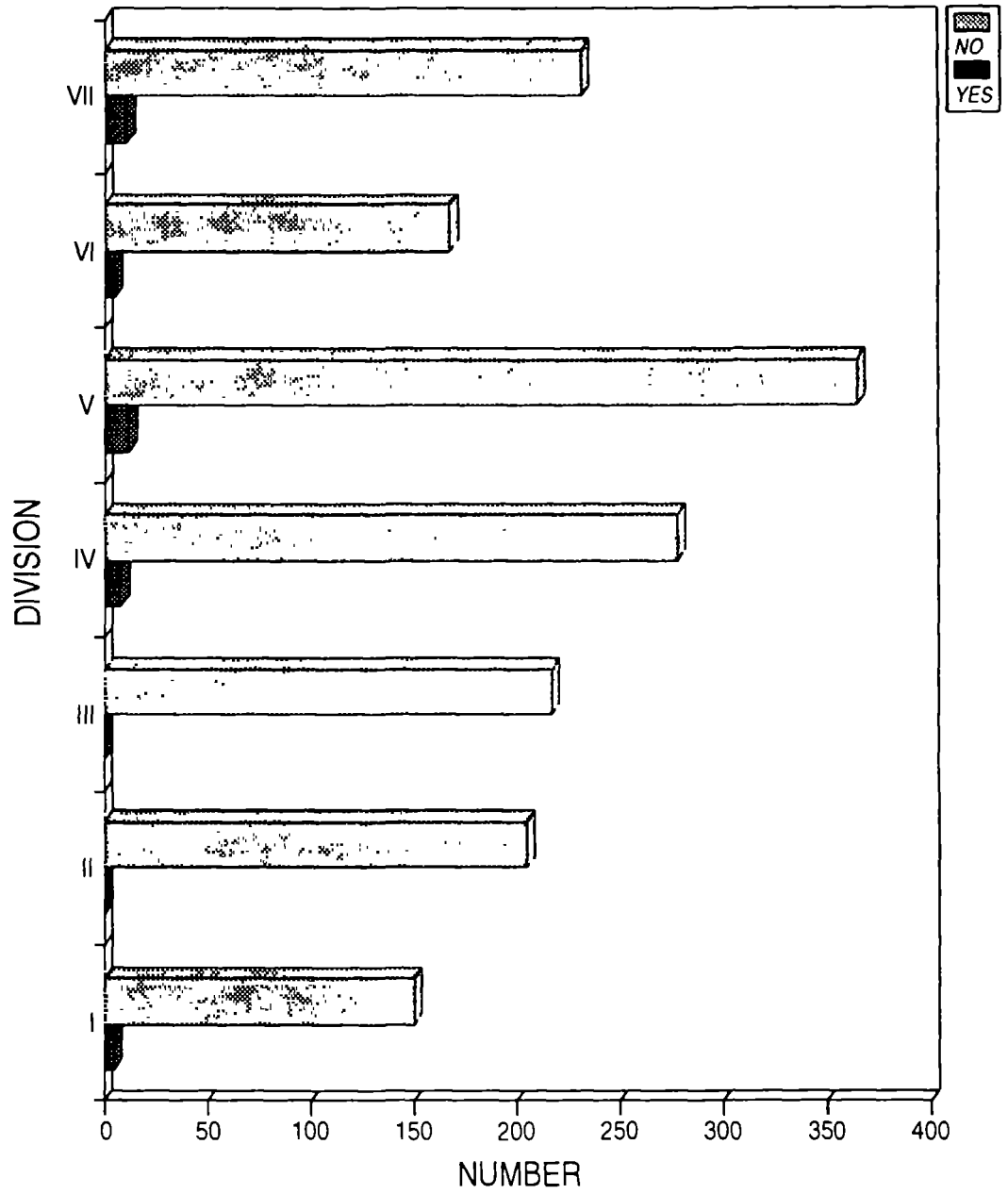


CONSUMER MEETS TO DISCUSS PROBLEMS





CONSUMER MEETS TO DISCUSS PROBLEMS





improvement has occurred in water supply only as against the 36 respondents (2%) who felt the improvement has occurred in sewerage service only. There were 1177 respondents (71% of the total sample) who felt no appreciable improvement, and 136 respondents (8%) opted to remain non-committal by returning a no response.

The water supply and sewerage service in the city has undergone numerous innovative changes in the areas of augmentation, storage, distribution, billing, accounting and personnel, etc. in recent times. The Board may be well advised to accord wide publicity on the initiatives, as absence of information on the nature interventions effected by the Board creates scope for the public to presume lack of management ability on the part of the Board or worse still - indifference to the plight of consumers



11. CONCLUSIONS

1. The Government of Andhra Pradesh (GOAP) through the Hyderabad Metropolitan Water Supply and Sewerage Act, 1989, constituted the Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB). The administrative organisation of the Board is designed to subserve the state objectives, policies, strategies and plans for effecting improvement to the water supply and sanitation services in the Hyderabad Metropolitan region.

The HMWSSB had formulated a comprehensive project, with the following major objectives:

- i) to provide health, economic efficiency and environmental benefits through
 - a) an increase in the quantity and an improvement in the reliability of water supply.
 - b) an improvement in both the capacity and the utilisation of facilities for the collection, treatment and disposal of waste water; and
 - c) achieving a major reduction on the number of households not having safe excreta disposal facilities.
- ii) to strengthen the management, technical and financial performance of sector institutions;
- iii) ensuring that the involuntarily displaced population is afforded with a reasonable opportunity to improve or at least maintain their productive base and income earning capacity, as members of a socially integrated community having social, religious and physical infrastructure; and
- iv) the preparation of future Urban water supply - sanitation project.

The project schema is arrayed into 6 Components:

- 1) **Hyderabad Water Supply and Sanitation Project;**
- 2) **Strengthening and Rehabilitation of existing water supply system;**
- 3) **Strengthening and Rehabilitation of existing sewerage system;**
- 4) **Low Cost Sanitation;**
- 5) **Resettlement and Rehabilitation of Project Affected Persons of Singur Dam; and**
- 6) **Institutional Strengthening**



Institutional Strengthening (Component-6), covers the following of the project elements:

- a) the services of the Dam Review Panel constituted as part of the project implementation.
- b) the services of independent social science research institutions to conduct independent monitoring and evaluation of the following:
 - i) surveys and infrastructure mapping;
 - ii) studies on unaccounted for water management;
 - iii) studies on water distribution analysis.
 - iv) studies leading to preparation of future Urban Water Supply/Sanitation Projects.
 - v) diagnostic studies on accounting and management information system, project planning and control systems, revenue billing and collection systems, materials management and stores inventory systems;
 - vi) evaluation studies of the resettlement and rehabilitation

The present study addresses - though on a limited scale, a few of issues cited in (iii) and (iv) of the major objective (b) The study seeks to service the objective by developing a data based scenario on user perceptions on the levels and quality of service delivery, state of maintenance of the water distribution system, Revenue administration, Sewerage service, Pollution prevention and control, the user - Board interface on grievances etc

The HMWSSB as a first step towards the realisation of organisation goals redesigned the administrative organisation to emerge as a distinct public utility undertaking. As a part of the efforts, the Board in collaboration with the sector resource institutions initiated comprehensive analysis of personnel cadres, positions, job contents including the nomenclature thereof, job specifications and service conditions in totality. The new organisation design relating to position classification job specifications and descriptions and service conditions including employee training and career advancement are tuned to optimise efficiency and effectiveness in all the functions and activities

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accompanied with the aberration of unplanned development within the city as well as in the metropolitan region, has only accelerated to the worsening of the situation.

The status of being the capital city of Andhra Pradesh, the utility service therein attracts the critical attention of all the segments of the society - polity, business, bureaucracy and the citizens in general. The Board's technical and managerial personnel often have to perform the unenviable task of mollifying volatile groups of dissatisfied consumers and in the process spend greater time and efforts on resolving an endless series of crises situations. Unmitigated dissatisfaction not only on the quantity and quality of the service but also the wide disparity in the service levels between various localities, appears as the reason, prima-facie, for the overflowing criticism against the Board and its personnel.

Evaluation of user perception being the objective of the study, attempts were made to generate empirical data on all the aspects latent or related to the demand dimension, followed by data on the systemic responses to the demand. The study sample of 1656 households amounting to 1% of the domestic category of consumers covered all the service divisions. Over 51 weighted attributes, were used to generate data on demand determinants, service delivery, consumer satisfaction, state of Operations and Maintenance, Quality Assurance and Control, Pollution - Prevention and Control, Revenue Administration, Public Relations and Consumer - Board interface etc.

DEMANDS DETERMINANTS

The study revealed great inconsistency between the actual determinants of the demand and systemic measures for estimating as well as meeting the same. The average size of the households included in the sample varied between 7 to 8 but the actual number of households dependent on the same service delivery point varied from 1 to 4 and the incidence of multiple household consumer units varied from 30% to 68% of the sample in each division. In summative terms, the average number of households dependent on the same service delivery point works out to 2.2 and the actual user population works out to 15 to 17 persons per point. The intensive levels of user population per point is the primary cause of the acute user dissatisfaction against the service levels in currency user satisfaction.



The other attributes likely to impinge on the level of satisfaction are:

- i) **timing and regularity of the supply;**
- ii) **pressure and duration of the supply;**
- iii) **quality of the water;**
- iv) **access threshold to alternate sources of water;**
- v) **metering, billing and collection of revenue;**
- vi) **redressal of grievances; and**
- vii) **the Board - Community interface.**

i) **TIMING AND REGULARITY OF THE SUPPLY**

Nearly one-fifth of the user population gets water between 12 midnight to 4 AM, which simply means one out of every five consumer households is deprived of sleep either waiting for or collecting the day's supply of water. The Board thus, becomes the natural target for venting the resentment, though the supply timing may actually be the result of the deliberate efforts on its part to provide increased quantity of water.

ii) **PRESSURE AND DURATION OF SUPPLY**

The level disparity on the factor of duration of supply is found high not only between various localities, but also within the same locality. Duration is subject to a wide band of systemic features as well as the practices at user ends - often not visible. Short duration *per se* may not be the sole reason for the user dissatisfaction. The apparent lack of technical control over the system and its inability to prevent the abuse of the system by a self centered few, combine to stoke it to volatile levels. The stipulated norm on locating the "ferrule" for effecting service connection is often violated, to provide adhoc relief to the most adversely affected initially, gets extended to others gradually, thereby accentuating the drop in the supply pressure at the subsequent delivery point. In fact it was found that the use of "ferrule" is more an exception rather than a practice to be complied with in general

iii) **QUALITY**

The Board has earned a very good image on the aspect of the quality assurance. However, there are a few localities endemic to pollution - not always on account of any deficiency in the system but contributed by the users themselves such as the persistence to use fire expired pipes, improperly covered and unhygienic water storage



iv) **ACCESS THRESHOLD TO ALTERNATE SOURCES OF WATER**

The incidence of multiple sources users varied from 29% to 6% and the category of users dependent specifically on ground water, varied from 17% to 7%. The range is indicative of good supply of underground water, which could be exploited to augment the system capacity, at least to the extent of the respective localities.

v) **METERING, BILLING AND COLLECTION OF REVENUE**

Here again, there are wide variations in the cycles of meter recording, ranging from once a month to total randomness, which extended to the service of bills also. The user - staff interface on metering, recording and billing, constitutes a nebular area, which merits immediate attention of the Board. The unaccounted leakage due to inconsistency in the cycles of metering, recording and billing, can be as much as 10% of the gross revenue of the Board.

vi) **REDRESSAL OF CONSUMER GRIEVANCES**

A good percentage of consumers find it difficult to get prompt redressal of their grievances on all the facets of water supply, sewerage service, metering, billing and revenue collection. Redressal is at times deliberately delayed for reasons not clear. The state of serviceability of water meter is nearer with great potential for graft. The metering staff does not find it necessary to inform the user public in advance on their visits or the nature of defect in the meter found during the visit. The meter repair service over which the unorganised private sector has a total hold, fleeces the consumers. Similarly personnel negligence of the need for advance information on service interruptions for carrying out maintenance as well as making alternate arrangements, was discernible in almost all the localities.

vii) **THE BOARD - COMMUNITY INTERFACE**

Proactive public vigilance on the state of maintenance and serviceability was conspicuous by absence. The public on account of their per-conceived notions about the staff indifference to grievance, do not feel it necessary to communicate on the incidents such as leakages, chockages, theft/collapse of manholes or covers, tap heads, graft etc. The field staff on its part, has developed a general bias of over exaggeration on consumer grievances. This has created a chasm between the field staff and the user community. The level alienation between consumers and field staff was certainly



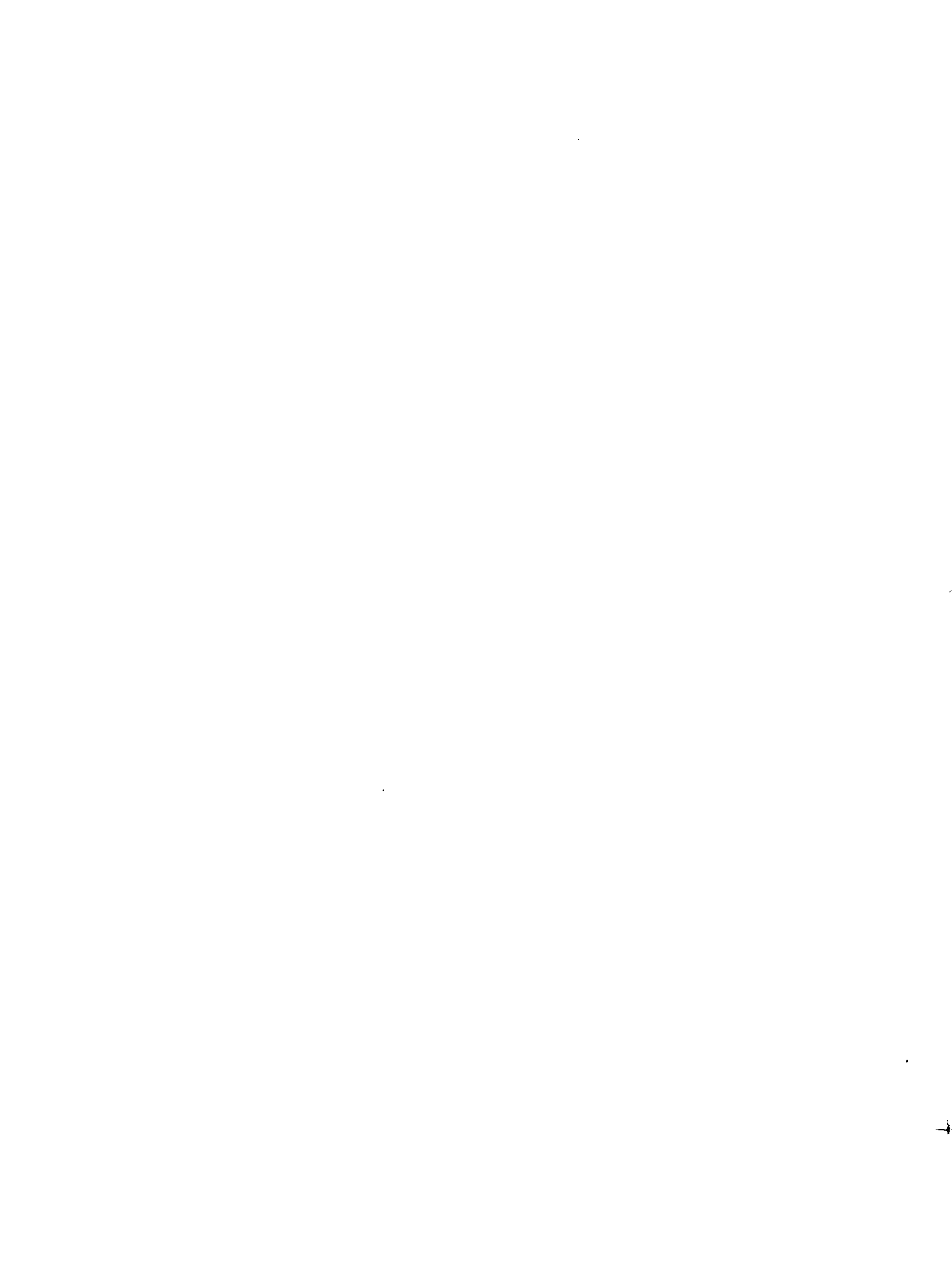
disturbing. A good share of responsibility for the situation can be attributed to paucity of organisational efforts on consumer education. The impersonal and bureaucratic approach on the part of staff, needs to be replaced with a consumer - friendly and problem solving approach.

A wide variety of limitation imposed by inadequate sources of water, the systemic under capacity to meet the rapidly growing demand, its vulnerability to frequent failures on account of age and power fluctuations, the user attitudes borne of anxiety conditioned by a scarcity syndrome, high expectations on the levels and quality of service, low thresholds of capacity as well as inclinations to pay for the service, are found to be adding to the complexity of the problems as against which, the managerial ability to conceive the entire gamut of operations in a "holistic" manner also seemed to be lacking.

The study has shown that the consumer satisfaction is not as inanimate as is perceived by the staff nor is entirely dependent on sheer scales of water quantity or quality. It can be nurtured by a stance of proactive service sensitivity on the part of the Board's staff, especially, the Operation & Maintenance segment which occupies the first point of contact between the Board and the user community

Resource augmentation and technology up-gradation, may positively improve the systemic capacity to meet the demand. But employee retraining in various areas of operation & Maintenance, Project Planning and Control, Problem analysis and Action planning, Management of personnel and other resources and Public relations will lead to a quantum improvement in the user - Board interface

The ongoing efforts at reorganising and streamlining the activities and processes are aimed at addressing a few of the issues brought out in the study



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WATER SUPPLY AND SEWERAGE SYSTEM IN HYDERABAD - LEVEL AND QUALITY OF SERVICE:

A STUDY OF USER PERCEPTIONS

Annexure-I (18 Pages)

DN.No	VARIABLE/DIVISION	I	IV	6H	II	8V	9H	III	8V	9H	IV	8V	9H	V	8V	9H	VI	8V	9H	VII	8V	9H	TOTAL	8V
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
2	RESIDENTIAL STATUS																							
	i) OWNER	129	83%	9%	165	80%	12%	180	83%	13%	234	82%	17%	317	84%	23%	140	81%	10%	198	81%	15%	1363	82%
	ii) TENANT	26	17%	9%	40	20%	14%	37	17%	13%	52	18%	18%	60	16%	20%	33	19%	11%	45	19%	15%	293	18%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
3	HOUSE HOLD INCOME IN RUPEES PER MONTH																							
	i) < 1K	10	6%	6%	5	2%	3%	6	3%	4%	24	8%	14%	68	18%	41%	26	15%	16%	27	11%	16%	166	10%
	ii) 1-2K	36	23%	9%	37	18%	9%	56	26%	13%	80	28%	19%	113	30%	27%	36	21%	9%	62	26%	15%	420	25%
	iii) 2-3K	22	14%	9%	34	17%	14%	25	12%	10%	42	15%	17%	56	15%	23%	16	9%	6%	52	21%	21%	247	15%
	iv) 3-4K	12	8%	9%	12	6%	9%	19	9%	15%	19	7%	15%	22	6%	17%	18	10%	14%	25	10%	20%	127	8%
	v) > 5K	1	1%	1%	4	2%	5%	8	4%	9%	4	1%	5%	20	5%	23%	28	16%	32%	23	9%	26%	88	5%
	vi) NO RESPONSE	74	48%	12%	113	55%	19%	103	47%	17%	117	41%	19%	98	26%	16%	49	28%	8%	54	22%	9%	608	37%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
4.	LENGTH OF RESIDENCE IN THE LOCALITY																							
	i) < 1 YEAR	6	4%	8%	13	6%	18%	11	5%	15%	11	4%	15%	16	4%	22%	8	5%	11%	9	4%	12%	74	4%
	ii) 2 -5 YEARS	12	8%	6%	30	15%	15%	36	17%	18%	28	10%	14%	40	11%	20%	30	17%	15%	26	11%	13%	202	12%
	iii) 6-10 YEARS	14	9%	6%	28	14%	13%	31	14%	14%	26	9%	12%	51	14%	23%	37	21%	17%	31	13%	14%	218	13%
	iv) 11-15 YEARS	13	8%	9%	15	7%	10%	26	12%	17%	23	8%	15%	42	11%	28%	15	9%	10%	17	7%	11%	151	9%
	v) 16 Yrs & APO	110	71%	11%	119	58%	12%	113	52%	11%	198	69%	20%	228	60%	23%	83	48%	8%	160	66%	16%	1011	61%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
5	HOUSE HOLD SIZE																							
	i) < 5	36	23%	6%	57	28%	9%	82	38%	13%	92	32%	14%	156	41%	24%	91	53%	14%	136	56%	21%	650	39%
	ii) 6-10	71	46%	10%	98	48%	14%	89	41%	12%	136	48%	19%	171	45%	24%	67	39%	9%	85	35%	12%	717	43%
	iii) > 10	47	30%	18%	49	24%	19%	46	21%	18%	50	17%	20%	27	7%	11%	15	9%	6%	22	9%	9%	256	15%
	iv) NO RESPONSE	1	1%	3%	1	0%	3%	0	0%	0%	8	3%	24%	23	6%	70%	0	0%	0%	0	0%	0%	33	2%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
6	# OF OTHER HH IN THE BUILDING																							
	i) 1	20	13%	6%	34	17%	10%	42	19%	12%	39	14%	11%	89	24%	26%	41	24%	12%	81	33%	23%	346	21%
	ii) 2	8	5%	5%	10	5%	6%	20	9%	13%	29	10%	18%	41	11%	26%	15	9%	10%	34	14%	22%	157	9%
	iii) 3	3	2%	3%	4	2%	5%	8	4%	9%	9	3%	10%	32	8%	36%	13	8%	15%	19	8%	22%	88	5%
	iv) > 3	14	9%	8%	20	10%	12%	9	4%	5%	25	9%	15%	57	15%	33%	16	9%	9%	31	13%	18%	172	10%
	v) NONE	108	70%	12%	136	66%	15%	138	64%	16%	184	64%	21%	158	42%	18%	88	51%	10%	78	32%	9%	890	54%
	vi) NO RESPONSE	2	1%	67%	1	0%	33%	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	3	0%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%

Annexure-I

DN No	VARIABLE/DIVISION	I	IV	VI	II	IV	VI	III	IV	VI	IV	IV	VI	V	IV	VI	VI	IV	VI	VII	IV	VI	TOTAL	IV
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
6 01	TOTAL NUMBER OF PERSONS IN THE BUILDING:																							
	i) <5	0	0%	0%	30	15%	46%	15	7%	23%	20	7%	31%	0	0%	0%	0	0%	0%	0	0%	0%	65	4%
	ii) 5-10	81	52%	10%	101	49%	13%	100	46%	13%	134	47%	17%	204	54%	26%	66	38%	8%	93	38%	12%	779	47%
	iii) 11-15	40	26%	12%	41	20%	12%	49	23%	15%	58	20%	18%	72	19%	22%	28	16%	8%	43	18%	13%	331	20%
	iv) 16-20	19	12%	14%	21	10%	15%	25	12%	18%	18	6%	13%	35	9%	23%	7	4%	5%	13	5%	9%	138	8%
	v) >20	14	9%	10%	11	5%	8%	13	6%	10%	30	10%	22%	33	9%	25%	12	7%	9%	21	9%	16%	134	8%
	vi) DONT KNOW/NO	1	1%	0%	1	0%	0%	15	7%	7%	26	9%	12%	33	9%	16%	60	35%	29%	73	30%	35%	209	13%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
7	WHAT IS THE SOURCE OF WATER SUPPLY TO YOUR HOUSE?																							
	i) OWN CONNECTI	142	69%	9%	198	83%	13%	202	75%	13%	253	68%	17%	334	66%	22%	156	76%	10%	232	74%	15%	1517	72%
	ii) BOREWELL/HAND PUMP																							
	WITHIN THE P	20	10%	8%	26	11%	10%	19	7%	8%	44	12%	18%	84	17%	34%	27	13%	11%	28	9%	11%	248	12%
	iii) PSP	18	9%	11%	7	3%	4%	22	8%	13%	46	12%	28%	41	8%	25%	17	8%	10%	12	4%	7%	163	8%
	iv) OPEN WELL																							
	PRIVATE	24	12%	15%	8	3%	5%	25	9%	16%	25	7%	16%	34	7%	22%	4	2%	3%	35	11%	23%	155	7%
	PUBLIC	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	3	1%	100%	0	0%	0%	0	0%	0%	3	0%
	v) ANY OTHER	1	0.49%	4%	1	0.42%	4%	1	0.37%	4%	4	1.08%	15%	9	1.78%	35%	2	0.97%	8%	8	2.54%	31%	26	1.23%
	TOTAL	205	100%	10%	240	100%	11%	269	100%	13%	372	100%	18%	505	100%	24%	206	100%	10%	315	100%	15%	2112	100%
	MULTIPLE SOURCES	50	24%	11%	25	10%	6%	52	19%	12%	86	23%	19%	128	25%	29%	33	16%	7%	72	23%	16%	446	21%
	N	155	76%	9%	205	85%	12%	217	81%	13%	286	77%	17%	377	75%	23%	173	84%	10%	243	77%	15%	1656	78%
8	SINCE HOW LONG HAVE YOU HAD OWN WATER CONNECTION? (PPC ONLY)																							
	i) <1 YEAR	6	4%	7%	9	5%	10%	14	7%	16%	16	6%	18%	16	5%	18%	7	4%	8%	19	8%	22%	87	6%
	ii) 2-5 YEARS	10	7%	5%	27	14%	13%	43	21%	21%	20	8%	10%	38	11%	19%	26	17%	13%	40	17%	20%	204	13%
	iii) 6-10 YEARS	16	11%	7%	32	16%	14%	35	17%	15%	22	9%	10%	61	18%	27%	40	26%	18%	21	9%	9%	227	15%
	iv) >10 YEARS	108	76%	11%	124	63%	13%	105	52%	11%	195	77%	21%	187	56%	20%	81	52%	9%	151	65%	16%	951	63%
	v) NO RESPONSE	2	1%	4%	6	3%	13%	5	2%	10%	0	0%	0%	32	10%	67%	2	1%	4%	1	0%	2%	48	3%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	REFER RESPONSE #7 1																							
9	WHAT IS THE DISTANCE BETWEEN YOUR HOUSE CONNECTION (PPC) AND THE D L																							
	i) 5 MTRS	16	11%	4%	73	37%	16%	67	33%	15%	84	33%	19%	101	30%	23%	35	22%	8%	69	30%	16%	445	29%
	ii) 6-10	36	25%	10%	36	18%	10%	59	29%	72	28%	20%	88	26%	24%	36	23%	10%	36	16%	10%	363	24%	
	iii) 11-15	41	29%	18%	43	22%	19%	26	13%	12%	35	14%	16%	34	10%	15%	16	10%	7%	27	12%	12%	222	15%
	iv) 16-20	26	18%	20%	11	6%	8%	20	10%	15%	18	7%	14%	24	7%	18%	13	8%	10%	18	8%	14%	130	9%
	v) 20-30	13	9%	5%	26	13%	9%	21	10%	7%	28	11%	14%	71	21%	25%	49	31%	17%	75	32%	27%	283	19%
	vi) NO RESPONSE	10	7%	14%	9	5%	12%	9	4%	12%	16	6%	22%	16	5%	22%	7	4%	9%	7	3%	9%	74	5%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	REFER RESPONSE # 7 1																							

Annexure-I

DN. No.	VARIABLE/DIVISION	I	IV	8R	II	6V	8R	III	6V	8R	IV	6V	8R	V	6V	8R	VI	6V	8R	VII	6V	8R	TOTAL	6V
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
10	TIME OF BEGINNING THE WATER SUPPLY IN YOUR LOCALITY?																							
	i) 12 MIDNIGH 4 AM	54	35%	16%	31	15%	9%	44	20%	13%	86	34%	26%	66	18%	19%	13	5%	4%	36	16%	11%	343	21%
	ii) 4-7 AM	80	52%	10%	58	26%	7%	49	23%	6%	86	30%	11%	222	59%	29%	84	49%	11%	199	82%	26%	778	47%
	iii) 7-10 AM	2	1%	1%	50	24%	26%	44	20%	25%	24	8%	13%	30	8%	17%	28	16%	16%	0	0%	0%	178	11%
	iv) 10-1 PM	0	0%	0%	25	12%	28%	17	8%	19%	15	5%	17%	19	5%	21%	13	8%	15%	0	0%	0%	80	5%
	v) 1-4 PM	4	3%	5%	8	4%	10%	15	7%	18%	33	12%	42%	12	3%	15%	1	1%	1%	6	2%	5%	70	5%
	vi) 4-7 PM	9	6%	11%	6	3%	7%	20	9%	24%	25	9%	24%	21	6%	25%	3	2%	4%	0	0%	0%	64	5%
	vii) 7 10 PM	2	1%	3%	16	8%	23%	16	7%	23%	7	2%	10%	8	2%	9%	22	13%	32%	0	0%	0%	60	4%
	viii) NO SPECIFIC TIMIN	1	1%	3%	11	5%	35%	11	5%	35%	0	0%	0%	0	0%	0%	6	5%	26%	0	0%	0%	31	2%
	ix) NO RESPONSE	3	2%	50%	0	0%	0%	1	0%	17%	0	0%	0%	1	0%	17%	1	1%	17%	0	0%	0%	6	0%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	266	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
10.1	WHAT IS THE SUPPLY DURATION?																							
	i) >1Hr	3	2%	2%	14	7%	11%	9	4%	7%	3	1%	2%	83	25%	72%	5	3%	4%	2	1%	2%	129	8%
	ii) 1-2Hrs	66	43%	5%	148	72%	17%	120	55%	14%	103	36%	12%	136	36%	16%	102	59%	12%	174	72%	20%	649	51%
	iii) 2-3Hrs	48	31%	13%	21	10%	6%	50	23%	13%	84	29%	22%	81	21%	22%	40	23%	11%	51	21%	14%	375	23%
	iv) >3 Hrs	36	23%	12%	19	9%	7%	34	16%	12%	96	34%	33%	67	18%	23%	24	14%	8%	14	6%	5%	290	18%
	v) 24 Hrs (ROUND TH CLOCK)	2	1%	15%	3	1%	25%	4	2%	31%	0	0%	0%	0	0%	0%	2	1%	15%	2	1%	15%	13	1%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	266	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
11	WHAT IS THE REGULARITY OF WATER SUPPLY IN YOUR AREA?																							
	i) REGULARITY MAIN	121	78%	11%	153	75%	14%	148	68%	14%	181	63%	17%	258	63%	22%	102	59%	9%	149	61%	14%	1062	66%
	ii) CHANGING OCCASI	25	16%	8%	37	18%	12%	39	18%	13%	46	16%	15%	69	18%	21%	43	25%	14%	54	22%	17%	610	19%
	iii) CHANGING FREQU	7	5%	3%	15	7%	6%	27	12%	11%	49	17%	21%	73	19%	31%	27	16%	11%	36	16%	16%	256	14%
	iv) NO RESPONSE	2	1%	11%	0	0%	0%	3	1%	17%	10	3%	56%	0	0%	0%	1	1%	6%	2	1%	11%	18	1%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	266	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
12	IS THE WATER YOU RECEIVE ADEQUATE? (Including PSP user)																							
	i) YES	62	40%	7%	67	47%	11%	114	53%	13%	137	46%	16%	153	41%	18%	125	72%	15%	170	70%	20%	856	52%
	ii) NO	93	60%	12%	108	53%	14%	103	47%	13%	149	52%	19%	224	59%	28%	48	28%	6%	73	30%	9%	798	48%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	266	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
12.01	HOW MUCH WATER DO YOU APPROXIMATELY GET PER DAY?																							
	i) BUCKETS 20litr: <1	39	25%	15%	46	22%	17%	22	10%	8%	48	17%	18%	73	19%	27%	17	10%	6%	23	9%	9%	288	16%
	11-15	8	5%	10%	1	0%	1%	10	5%	13%	17	6%	21%	26	7%	35%	8	5%	10%	8	3%	10%	80	5%
	16-20	3	2%	6%	0	0%	0%	7	3%	14%	7	2%	14%	12	3%	24%	10	6%	20%	10	4%	20%	49	3%
	>20	1	1%	4%	0	0%	0%	0	0%	0%	4	1%	17%	8	2%	33%	3	2%	13%	8	3%	33%	24	1%
	ii) DRUMS/BARRELS																							
	50 ltr: <10	67	63%	10%	124	60%	12%	150	69%	15%	159	56%	16%	218	58%	22%	108	62%	11%	155	64%	15%	1011	61%
	11-15																							
	>15																							
	iii) CANS/TUB																							
	30 ltr: <10	2	1%	5%	4	2%	10%	1	0%	3%	8	3%	20%	25	7%	63%	0	0%	0%	0	0%	0%	40	2%
	11-15																							
	>15																							
	iv) NO RESPONSE	5	3%	3%	30	15%	18%	26	12%	16%	40	14%	24%	1	0%	1%	26	15%	18%	36	15%	22%	164	10%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	266	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%

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DN.No.	VARIABLE/DIVISION	I	IV	VR	II	VV	VR	III	AV	AR	IV	AV	VR	V	AV	AR	VI	AV	AR	VII	AV	AR	TOTAL	AV
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
12.02	IF NOT ADEQUATE, WHAT ARE THE REASONS? (Including PBP users)																							
	i) LOW PRESSURE	33	35%	7%	46	36%	9%	97	66%	20%	104	52%	21%	121	46%	24%	53	60%	11%	43	57%	9%	407	48%
	ii) DURATION SHORT	42	45%	14%	20	16%	7%	32	22%	10%	53	26%	17%	102	39%	35%	23	26%	8%	33	26%	11%	805	29%
	iii) LEAKAGE	1	1%	14%	0	0%	0%	1	1%	14%	1	0%	14%	1	0%	14%	0	0%	0%	3	3%	43%	7	1%
	iv) ILLEGAL USE OF PUMPS	10	11%	25%	4	3%	10%	3	2%	8%	16	8%	40%	7	0%	3%	0	0%	0%	6	5%	15%	40	4%
	v) TOO MANY TO SHAKE	7	8%	4%	58	45%	31%	15	10%	8%	27	13%	14%	38	14%	20%	12	14%	6%	31	27%	16%	188	18%
	TOTAL	93	100%	9%	128	100%	12%	148	100%	14%	201	100%	19%	263	100%	25%	88	100%	8%	116	100%	11%	1057	100%
	BASE: Refer response #12.ii	93	100%	12%	108	84%	14%	103	70%	13%	149	74%	19%	224	85%	28%	48	55%	6%	73	63%	9%	798	77%
	MULTIPLE RESPONSES				20	16%	8%	45	30%	19%	82	26%	22%	39	15%	16%	40	48%	17%	43	37%	16%	259	29%
13	ARE YOU SATISFIED WITH THE QUALITY OF WATER SUPPLIED? (Including PBP users)																							
	i) YES	129	85%	10%	166	81%	13%	169	78%	14%	202	71%	16%	250	66%	20%	140	81%	11%	190	78%	15%	1248	76%
	ii) NO	26	17%	6%	39	19%	10%	48	22%	12%	84	29%	20%	127	34%	31%	33	18%	8%	53	22%	13%	410	25%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1658	100%
13.01	IF NO WHAT ARE THE REASONS?																							
	i) COLOURED WATER	6	12%	5%	7	9%	5%	18	19%	14%	28	18%	20%	47	21%	36%	11	14%	8%	17	14%	13%	132	16%
	ii) FOUR SMELL	13	26%	8%	13	16%	8%	24	25%	16%	46	27%	29%	33	14%	20%	19	24%	12%	13	11%	8%	161	20%
	iii) CHEMICAL SMELL	1	2%	2%	4	5%	8%	3	3%	6%	4	2%	8%	8	3%	15%	10	13%	10%	22	18%	42%	52	6%
	iv) PRESENCE OF FOREIGN MATTER	8	10%	9%	5	7%	9%	2	2%	4%	11	6%	20%	19	8%	35%	8	10%	15%	5	4%	9%	85	7%
	v) MURKY WATER	25	50%	6%	45	61%	11%	50	52%	12%	84	49%	20%	122	53%	26%	30	38%	7%	63	53%	15%	419	51%
	TOTAL	50	100%	6%	74	100%	9%	97	100%	12%	171	100%	21%	229	100%	28%	78	100%	10%	120	100%	15%	819	100%
	MULTIPLE RESPONSES	24	48%	6%	35	47%	9%	49	51%	12%	87	51%	21%	102	45%	25%	45	58%	11%	67	56%	16%	409	
	BASE: Refer response #13.ii	26	52%	6%	39	53%	10%	46	49%	12%	84	49%	20%	127	55%	31%	33	42%	8%	53	44%	13%	410	
14	HAVE YOU EVER MADE A COMPLAINT ABOUT YOUR PROBLEM?																							
	i) YES	25	96%	8%	30	77%	9%	41	85%	12%	62	74%	19%	116	91%	35%	25	76%	8%	32	60%	10%	331	81%
	ii) NO	1	4%	1%	9	23%	11%	7	15%	9%	22	26%	28%	11	9%	14%	8	24%	10%	21	40%	27%	79	19%
	TOTAL	26	100%	6%	39	100%	10%	48	100%	12%	84	100%	20%	127	100%	31%	33	100%	8%	53	100%	13%	410	100%
	BASE: Refer to response #13.11																							
14.01	IF YES TO WHOM?																							
	i) SECTION OFFR./FLD.STY	14	52%	5%	27	68%	10%	30	59%	11%	60	70%	22%	85	83%	32%	27	64%	10%	26	62%	10%	289	63%
	ii) HIGHER OFFICERS	10	37%	11%	9	23%	10%	12	24%	13%	15	17%	16%	33	24%	35%	9	21%	10%	5	12%	5%	93	22%
	iii) ANY OTHER	3	11%	6%	3	8%	6%	7	14%	16%	8	9%	17%	17	13%	36%	5	12%	11%	4	10%	9%	47	11%
	iv) NO RESPONSE	0	0%	0%	1	3%	7%	2	4%	13%	3	3%	20%	1	1%	7%	1	2%	7%	7	17%	47%	15	4%
	TOTAL	27	100%	6%	40	100%	9%	51	100%	12%	66	100%	20%	136	100%	32%	42	100%	10%	42	100%	10%	424	100%
	MULTIPLE RESPONSES	2	7%	2%	10	25%	11%	10	20%	11%	24	26%	26%	20	15%	22%	17	40%	18%	10	24%	11%	93	22%
	BASE: Refer response #14.1	25	93%	8%	30	75%	9%	41	80%	12%	62	72%	19%	116	85%	35%	25	80%	8%	32	76%	10%	331	78%
14.02	WHAT WAS THE METHOD OF COMPLAINT?																							
	i) DIRECT (ORAL/PBR/WRIT)	25	100%	8%	34	100%	9%	43	100%	12%	69	87%	19%	119	98%	33%	35	97%	10%	34	100%	9%	362	96%
	ii) NO RESPONSE	0	0%	0%	0	0%	0%	0	0%	0%	2	3%	40%	2	2%	40%	1	3%	20%	0	0%	0%	5	1%
	TOTAL	25	100%	8%	34	100%	9%	43	100%	12%	71	100%	19%	121	100%	33%	36	100%	10%	34	100%	9%	367	100%
	MULTIPLE RESPONSES	3	11%	8%	4	12%	11%	2	5%	6%	9	13%	25%	5	4%	14%	11	31%	31%	2	6%	6%	36	10%
	BASE: Refer response #14.1	25	89%	8%	30	88%	9%	41	95%	12%	62	87%	19%	116	96%	35%	25	89%	8%	32	94%	10%	331	90%



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DN. No.	VARIABLE/DIVISION	I	IV	VR	II	6V	VR	III	6V	VR	IV	6V	VR	V	6V	VR	VI	6V	VR	VII	6V	VR	TOTAL	6V
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
16	WAS THE PROBLEM SOLVED?																							
	i) YES, TEMP. ONLY	3	12%	6%	3	10%	6%	8	20%	18%	7	11%	13%	16	14%	30%	13	52%	24%	4	13%	7%	54	16%
	ii) YES, PERMANENTLY	0	0%	0%	11	37%	15%	10	24%	14%	8	13%	11%	21	18%	30%	7	28%	10%	14	44%	20%	71	21%
	iii) NOT SOLVED	22	88%	11%	16	55%	8%	23	56%	11%	47	76%	23%	79	68%	58%	5	20%	2%	14	44%	7%	206	62%
	TOTAL	25	100%	8%	30	100%	9%	41	100%	12%	62	100%	19%	116	100%	35%	25	100%	6%	32	100%	10%	831	100%
	BASE: Refer response #14.1																							
15.01	AT WHAT LEVEL THE COMPLAINT WAS PROMPTLY ATTENDED?																							
	i) SECR.OFFR./FIELD.STAFF	2	66.67%	3%	10	71.43%	14%	12	66.67%	17%	15	100.00%	21%	20	54.05%	29%	4	20.00%	6%	7	38.89%	10%	70	56.00%
	ii) CIRCLE/SE/COM	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	3	17%	100%	3	2%
	iii) SUB.DIVN./DE/DCM	0	0%	0%	0	0%	0%	1	6%	13%	0	0%	0%	5	14%	63%	0	0%	0%	2	11%	25%	8	6%
	iv) DIVISION/EE/GM	0	0%	0%	0	0%	0	0	0%	0%	0	0%	0%	1	3%	9%	10	50%	91%	0	0%	0%	11	9%
	v) NO RESPONSE	1	33.33%	3%	4	28.57%	12%	5	27.78%	18%	0	0.00%	0%	11	29.73%	33%	6	30.00%	18%	6	33.33%	18%	33	26.40%
	TOTAL	3	100%	2%	14	100%	11%	18	100%	14%	15	100%	12%	37	100%	30%	20	100%	16%	18	100%	14%	125	100%
	BASE: Refer response #15(i+ii)																							
16	HOW MUCH TIME WAS TAKEN FOR SOLVING THE PROBLEM?																							
	i) SAME DAY	1	33.33%	7%	1	7.14%	7%	2	11.11%	13%	5	11.11%	33%	1	2.70%	7%	2	10.00%	13%	3	16.67%	20%	15	12.00%
	ii) 1-2 DAYS	0	0%	0%	1	7%	3%	6	33%	18%	2	13%	5%	12	32%	31%	12	60%	31%	6	33%	15%	39	31%
	iii) 3-5 DAYS	0	0%	0%	4	28%	18%	3	17%	14%	3	20%	14%	6	16%	29%	2	10%	10%	3	17%	14%	21	17%
	iv) >6 DAYS	2	66.67%	4%	6	57.14%	16%	7	38.89%	14%	5	33.33%	10%	18	48.65%	36%	4	20.00%	6%	6	33.33%	12%	50	40.00%
	TOTAL	3	100%	2%	14	100%	11%	18	100%	14%	15	100%	12%	37	100%	30%	20	100%	16%	18	100%	14%	125	100%
	BASE: Refer response #16.01(7)																							
17	WHAT WERE THE DIFFICULTIES IN GETTING IT SOLVED?																							
	i) NONE	1	20%	1%	6	40%	9%	14	58%	21%	12	48%	18%	18	33%	27%	7	28%	10%	9	30%	13%	67	58%
	ii) TOO MANY REMEDERS	2	40%	4%	3	20%	6%	6	25%	12%	6	24%	12%	16	30%	33%	5	20%	10%	11	37%	22%	49	28%
	iii) OFFICERS NOT ACCESSIBL	2	40%	7%	1	7%	4%	3	13%	11%	5	20%	19%	6	15%	30%	7	28%	26%	1	3%	4%	27	18%
	iv) ANY OTHER	0	0%	0%	5	33%	14%	1	4%	3%	2	8%	6%	12	22%	34%	6	24%	17%	9	30%	26%	35	20%
	TOTAL	5	100%	3%	15	100%	8%	24	100%	13%	25	100%	14%	54	100%	30%	25	100%	14%	30	100%	17%	178	100%
	MULTIPLE RESPONSES	2	40%	4%	1	7%	2%	6	25%	11%	10	40%	19%	17	31%	32%	5	20%	9%	12	40%	23%	53	30%
	BASE: Refer response #18.01	3	60%	2%	14	93%	11%	18	76%	14%	15	60%	12%	37	69%	30%	20	80%	16%	18	60%	14%	125	70%



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DN. NO.	VARIABLE/DIVISION	I	IV	9H	II	6V	9H	III	6V	9H	IV	6V	9H	V	6V	9H	VI	6V	9H	VII	6V	9H	TOTAL	6V
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
18	DO YOU KNOW THE PRESENT WATER RATE? PPC ONLY																							
	i) YES	42	30%	10%	81	31%	15%	40	20%	10%	72	28%	17%	107	32%	28%	30	19%	7%	65	27%	15%	415	27%
	ii) NO	88	61%	9%	133	67%	13%	147	73%	15%	163	64%	18%	213	64%	21%	109	70%	11%	158	68%	18%	1008	67%
	iii) NO RESPONSE	14	10%	15%	4	2%	4%	18	7%	16%	18	7%	18%	14	4%	15%	17	11%	18%	11	5%	12%	93	6%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	BASE:Refer response #7(i)																							
19	DO YOU KNOW ABOUT THE LEVY OF SEWERAGE CHARGES? PPC ONLY																							
	i) YES	43	30%	10%	68	34%	16%	47	23%	11%	80	32%	18%	93	28%	22%	33	21%	8%	54	23%	13%	418	28%
	ii) NO	65	60%	8%	128	64%	13%	145	72%	14%	155	61%	15%	222	66%	22%	106	68%	11%	169	73%	17%	1008	68%
	iii) NO RESPONSE	14	10%	15%	4	2%	4%	10	5%	11%	18	7%	20%	19	6%	21%	17	11%	18%	9	4%	10%	91	6%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	BASE:Refer response #7(i)																							
20	WHAT IS THE PERIODICITY OF YOUR WATER BILLS? PPC ONLY																							
	i) MONTHLY	0	0%	0%	0	0%	0%	2	1%	100%	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	2	0%
	ii) ALTERNATE MONTH	62	44%	11%	85	43%	15%	91	45%	16%	88	35%	15%	140	42%	24%	42	27%	7%	70	30%	12%	578	38%
	iii) 3 MONTHS	34	24%	6%	84	42%	14%	78	38%	13%	94	37%	16%	130	39%	22%	79	51%	15%	103	44%	17%	600	40%
	iv) > 3 MONTHS	14	10%	12%	10	5%	8%	14	7%	12%	20	8%	17%	28	8%	22%	12	8%	10%	23	10%	19%	119	8%
	v) NOT REGULAR/ERRATIC	15	11%	17%	10	5%	11%	11	5%	12%	33	13%	37%	4	1%	4%	8	4%	7%	11	5%	12%	80	5%
	vi) NO RESPONSE	17	12%	13%	9	5%	7%	8	4%	6%	18	7%	14%	34	10%	27%	17	11%	19%	25	11%	20%	128	8%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	BASE:Refer response #7(i)																							
21	WHAT WAS THE AMOUNT OF LAST BILL? PPC ONLY																							
	i) <Rs.100	0	0%	0%	6	3%	7%	14	7%	16%	23	9%	28%	18	5%	20%	5	3%	6%	24	10%	27%	90	6%
	ii) Rs.101-200	99	49%	10%	113	57%	16%	98	47%	13%	117	46%	16%	166	50%	23%	56	36%	8%	95	41%	13%	711	47%
	iii) Rs.201-500	15	11%	9%	14	7%	9%	16	8%	10%	24	9%	15%	40	12%	25%	21	13%	19%	31	13%	19%	161	11%
	iv) Rs.501-1000	2	1%	4%	4	2%	8%	10	5%	19%	6	2%	12%	15	4%	28%	3	2%	6%	12	5%	23%	82	5%
	v) >Rs.1000	1	1%	6%	0	0%	0%	3	1%	17%	2	1%	11%	0	0%	0%	7	4%	39%	8	2%	28%	18	1%
	vi) >Rs.500	0	0%	0%	1	1%	1%	18	9%	13%	8	3%	6%	83	25%	60%	13	8%	9%	15	6%	11%	188	12%
	vii) NO RESPONSE	55	39%	16%	60	30%	17%	46	23%	13%	73	29%	21%	12	4%	3%	51	33%	15%	50	22%	14%	347	23%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	BASE:Refer response #7(i)																							
21) 01	WAS THERE ANY UNEXPECTED INCREASE IN THE BILL AMOUNT? PPC ONLY																							
	i) YES	70	49%	9%	114	58%	15%	99	48%	13%	127	50%	17%	184	49%	22%	83	53%	11%	100	43%	13%	757	50%
	ii) NO	60	42%	10%	87	34%	11%	81	40%	15%	89	35%	14%	152	46%	24%	63	40%	10%	118	50%	18%	628	41%
	iii) NO RESPONSE	12	8%	9%	17	8%	13%	22	11%	17%	37	15%	28%	15	5%	14%	10	6%	8%	16	7%	12%	132	9%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	BASE:Refer response #7(i)																							
22	HAVE YOU AT ANY TIME FOUND ERRORS/DISCREPANCIES IN THE BILL? PPC ONLY																							
	i) YES	5	4%	4%	7	4%	6%	20	10%	17%	20	8%	17%	36	11%	30%	13	8%	11%	20	9%	17%	121	8%
	ii) NO	75	65%	9%	115	58%	14%	112	55%	14%	136	54%	17%	190	57%	23%	66	53%	10%	106	46%	13%	823	54%
	iii) NO RESPONSE	59	42%	10%	76	38%	13%	70	35%	12%	97	38%	17%	108	32%	19%	57	37%	10%	106	46%	15%	578	38%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	BASE:Refer response #7(i)																							

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DN.No.	VARIABLE/DIVISION	I	IV	VR	II	VV	VR	III	VV	VR	IV	VV	VR	V	VV	VR	VI	VV	VR	VII	VV	VR	TOTAL	VR
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
22 01	WHAT WERE THE DIFFICULTIES IN RESOLVING THE ERRORS? PPC ONLY																							
	i) NONE	2	40%	5%	1	10%	3%	9	32%	24%	0	0%	0%	12	29%	32%	5	29%	15%	9	41%	24%	88	28%
	ii) INDIFFERENT OFFERS	2	40%	4%	3	30%	6%	7	25%	13%	12	48%	22%	16	39%	30%	5	29%	9%	9	41%	17%	54	88%
	iii) TIME CONSUMING PROCEDURES	0	0%	0%	2	20%	8%	7	25%	27%	5	20%	19%	4	10%	15%	6	35%	25%	2	9%	6%	26	18%
	iv) ANY OTHER	1	20%	3%	4	40%	15%	5	18%	17%	8	32%	27%	9	22%	30%	1	6%	3%	2	9%	7%	30	20%
	TOTAL	5	100%	3%	10	100%	7%	28	100%	19%	25	100%	17%	41	100%	28%	17	100%	11%	22	100%	15%	148	100%
	MULTIPLE RESPONSES	0	0%	0%	3	30%	11%	8	28%	30%	5	20%	19%	5	12%	19%	4	24%	15%	2	9%	7%	27	18%
	BASE:Refer response #22(i)	5	100%	4%	7	70%	6%	20	71%	17%	20	80%	17%	36	88%	30%	13	78%	11%	20	91%	17%	121	82%
24	HAVE YOU EVER FOUND ANY OF THE FOLLOWING REMARKS IN YOUR BILL? PPC ONLY																							
	i) MINIMUM	8	40%	6%	18	75%	13%	2	9%	1%	15	71%	10%	53	69%	37%	31	72%	22%	18	32%	11%	143	55%
	ii) HOUSE LOCKED	0	0%	0%	0	0%	0%	1	4%	20%	0	0%	0%	1	1%	20%	2	5%	40%	1	2%	20%	5	2%
	iii) METER NOT WORKING	12	60%	11%	6	25%	5%	20	87%	18%	6	28%	5%	23	30%	21%	10	23%	9%	33	66%	30%	110	45%
	TOTAL	20	100%	6%	24	100%	6%	23	100%	9%	21	100%	8%	77	100%	30%	43	100%	17%	50	100%	19%	258	100%
	BASE:Refer response #7(i)	142	710%	9%	198	825%	13%	202	878%	13%	253	1205%	17%	334	434%	22%	166	363%	10%	232	464%	15%	1517	588%
	Difference between the B and the TOTAL is indicative of no response	122	610%	10%	174	725%	14%	179	778%	14%	232	1105%	18%	257	334%	20%	113	263%	9%	182	364%	14%	1259	458%
24 01	HOW OFTEN DOES YOUR WATER METER BECOME FAULTY?																							
	i) FREQUENTLY	0	0%	0%	1	17%	3%	2	10%	7%	3	50%	10%	6	35%	27%	3	30%	10%	13	39%	45%	30	27%
	ii) OCCASIONALLY	3	25%	7%	4	67%	10%	11	55%	27%	2	33%	5%	5	22%	12%	7	70%	17%	9	27%	23%	41	37%
	iii) NO RESPONSE	9	75%	23%	1	17%	3%	7	35%	18%	1	17%	3%	10	45%	26%	0	0%	0%	11	33%	28%	39	55%
	TOTAL	12	100%	11%	6	100%	6%	20	100%	16%	6	100%	5%	23	100%	21%	10	100%	9%	33	100%	30%	110	100%
	BASE:Refer response #24(i)																							
24.02	HOW LONG DID IT TAKE FOR REPAIRING THE METER?																							
	i) UP TO 1 MONTH	3	25%	10%	2	33%	7%	5	25%	17%	6	100%	20%	4	17%	13%	3	30%	10%	7	21%	25%	30	27%
	ii) >1 MONTH	0	0%	0%	3	50%	7%	8	40%	19%	0	0%	0%	9	39%	21%	7	70%	17%	15	45%	36%	42	36%
	iii) NO RESPONSE	9	75%	24%	1	17%	3%	7	35%	18%	0	0%	0%	10	43%	26%	0	0%	0%	11	33%	29%	35	35%
	TOTAL	12	100%	11%	6	100%	6%	20	100%	16%	6	100%	5%	23	100%	21%	10	100%	9%	33	100%	30%	110	100%
	BASE:Refer response #24(ii)																							
22 03	HOW MUCH MONEY HAVE YOU PAID FOR THE REPAIR?																							
	i) Rs.100-200	3	100%	8%	2	40%	5%	10	77%	28%	2	33%	5%	1	8%	3%	7	70%	18%	13	59%	34%	38	53%
	ii) >Rs.200	0	0%	0%	3	60%	9%	3	23%	9%	4	67%	12%	12	92%	35%	3	30%	9%	9	41%	26%	34	47%
	TOTAL	3	100%	4%	5	100%	7%	13	100%	18%	6	100%	8%	13	100%	18%	10	100%	14%	22	100%	31%	72	100%
	BASE:Refer response #24 02(i)+(ii)																							
25	WHAT IS THE FREQUENCY OF METER READING?																							
	i) EVERY MONTH	5	4%	6%	8	4%	10%	9	4%	11%	7	3%	8%	14	4%	17%	12	8%	14%	29	15%	38%	84	6%
	ii) ONCE IN 2 MONTHS	51	36%	9%	79	40%	15%	97	48%	18%	77	30%	14%	131	39%	24%	45	29%	8%	62	27%	11%	542	36%
	iii) ONCE IN 3 MONTHS	29	20%	6%	69	35%	13%	83	31%	12%	82	32%	16%	137	41%	28%	58	37%	11%	79	34%	15%	517	34%
	iv) ONCE IN 4 MONTHS	5	4%	11%	3	2%	6%	6	3%	13%	5	2%	11%	13	4%	28%	9	6%	16%	6	3%	13%	47	3%
	v) >4 MONTHS	5	4%	7%	9	5%	13%	8	3%	9%	13	5%	19%	11	3%	16%	9	6%	13%	15	6%	22%	68	4%
	vi) NO RESPONSE 66	47	33%	18%	30	15%	12%	21	10%	8%	69	27%	27%	28	8%	11%	23	15%	9%	41	18%	16%	299	17%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1817	100%
	BASE:Refer response #7(i)																							
	66 Includes the variable of "NO METER"																							

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DN. No.	VARIABLE DIVISION	I	IV	VI	II	V	VII	III	IV	VI	IV	V	VI	V	VI	VII	V	VI	VII	V	VI	TOTAL	V	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
26	WHAT ARE YOUR SUGGESTIONS TO IMPROVE THE METER READING PROCEDURES?																							
	i) ON SPOT CONFIRMATION	4	3%	9%	2	1%	4%	3	1%	7%	5	2%	11%	8	2%	17%	6	4%	13%	18	8%	39%	46	5%
	ii) ADVANCE INFORMATION	28	20%	35%	31	16%	39%	2	1%	3%	5	2%	6%	3	1%	4%	4	3%	5%	7	3%	9%	80	5%
	iii) CLARIFICATION ON SPOT	4	3%	5%	8	3%	7%	8	4%	10%	3	1%	4%	7	2%	9%	20	13%	24%	34	15%	41%	82	5%
	iv) NO RESPONSE	108	75%	8%	159	80%	12%	188	94%	14%	240	95%	18%	318	95%	24%	128	81%	10%	173	75%	13%	1309	86%
	TOTAL																							
	Refer response #7.1	142	100%	9%	188	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
27	DO YOU PAY ANY CHARGES FOR METER READING																							
	i) YES	5	4%	6%	6	3%	7%	8	3%	7%	8	3%	9%	15	4%	17%	30	19%	34%	18	8%	20%	88	6%
	ii) NO	95	67%	8%	160	81%	14%	178	87%	15%	180	71%	16%	284	85%	25%	93	60%	8%	171	74%	15%	1159	76%
	iii) NO RESPONSE	42	30%	16%	32	16%	12%	20	10%	7%	65	26%	24%	35	10%	13%	33	21%	12%	43	19%	16%	270	18%
	TOTAL	142	100%	9%	188	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	Refer response #7.1																							
27.01	IF YES, WHAT ARE THE REASONS?																							
	i) TO CORRECT DELAY IN REPAIR	1	20%	13%	1	17%	13%	1	17%	13%	0	0%	0%	1	7%	13%	0	0%	0%	4	22%	50%	8	9%
	ii) TO CALCULATE BILL AMOUNT	0	0%	0%	3	50%	21%	2	33%	14%	3	38%	21%	8	40%	43%	0	0%	0%	0	0%	0%	14	16%
	iii) NO RESPONSE	4	80%	8%	2	33%	3%	3	50%	5%	5	63%	8%	8	53%	12%	30	100%	45%	14	78%	21%	66	75%
	TOTAL	5	100%	6%	6	100%	7%	6	100%	7%	8	100%	9%	15	100%	17%	30	100%	34%	18	100%	20%	88	100%
	Refer response #27.1																							
28	WHAT IS YOUR MAJOR DIFFICULTY IN REGARD TO PAYMENT OF WATER BILLS?																							
	i) PAY POINT FAR AWAY	3	12%	4%	10	20%	13%	13	38%	17%	11	21%	14%	23	25%	30%	7	11%	9%	10	29%	13%	77	22%
	ii) OVER CROWDING AT THE	1	4%	2%	14	28%	33%	2	6%	5%	1	2%	2%	13	14%	30%	3	5%	7%	9	26%	21%	43	12%
	iii) INSISTANCE ON CASH PAY	2	8%	2%	5	10%	4%	8	18%	5%	21	40%	18%	42	46%	37%	24	38%	21%	14	40%	12%	114	32%
	iv) NO RESPONSE	19	76%	16%	21	42%	18%	13	38%	11%	19	37%	16%	13	14%	11%	30	47%	26%	2	6%	2%	117	35%
	TOTAL	25	100%	7%	50	100%	14%	34	100%	10%	52	100%	15%	91	100%	28%	64	100%	18%	35	100%	10%	351	100%
	Refer response #7.1	142	568%	9%	108	396%	13%	202	504%	13%	253	487%	17%	334	367%	22%	156	244%	10%	232	663%	15%	1517	452%
	Difference between the B and TOTAL is indicative of NO DIFFICULTY	117	468%	10%	148	266%	11%	168	484%	14%	201	367%	17%	243	287%	21%	92	144%	8%	197	563%	17%	1166	332%
29	WHAT IS YOUR OPINION ON WATER SUPPLY DURING SUMMER ON THE FOLLOWING?																							
	i) DURATION:																							
	SATISFACTORY	48	31%	11%	51	25%	11%	75	35%	17%	75	26%	17%	76	20%	17%	60	35%	13%	61	25%	14%	446	27%
	NOT SATISFACTORY	102	66%	9%	150	73%	13%	139	64%	12%	202	71%	17%	301	80%	25%	110	64%	9%	178	73%	15%	1182	71%
	UN DECIDED	5	3%	18%	4	2%	14%	3	1%	11%	9	3%	32%	0	0%	0%	3	2%	11%	4	2%	14%	28	2%
	ii) REGULARITY:																							
	SATISFACTORY	88	44%	11%	79	39%	13%	106	49%	17%	114	40%	18%	102	27%	16%	74	43%	12%	76	31%	12%	619	37%
	NOT SATISFACTORY	82	53%	8%	122	60%	12%	108	50%	11%	163	57%	16%	272	72%	27%	96	55%	10%	165	66%	16%	1008	61%
	UN DECIDED	5	3%	16%	4	2%	13%	3	1%	10%	9	3%	26%	3	1%	10%	3	2%	10%	4	2%	13%	31	2%
	iii) QUANTITY:																							
	SATISFACTORY	50	32%	11%	47	23%	10%	75	35%	17%	78	27%	17%	73	19%	16%	58	34%	13%	72	30%	16%	453	27%
	NOT SATISFACTORY	100	65%	9%	154	75%	13%	139	64%	12%	199	70%	17%	286	76%	25%	112	65%	10%	167	69%	14%	1157	70%
	UN DECIDED	5	3%	11%	4	2%	9%	3	1%	7%	9	3%	20%	18	5%	39%	3	2%	7%	4	2%	6%	46	3%
	iv) QUALITY:																							
	SATISFACTORY	115	74%	10%	183	80%	14%	168	77%	14%	213	74%	18%	246	65%	21%	119	69%	10%	159	65%	13%	1183	71%
	NOT SATISFACTORY	35	23%	6%	38	19%	7%	46	21%	8%	64	22%	12%	128	34%	24%	51	29%	9%	180	74%	33%	542	33%
	UN DECIDED	5	3%	16%	4	2%	13%	3	1%	10%	0	3%	29%	3	1%	10%	3	2%	10%	4	2%	13%	31	2%
	v) PRESSURE:																							
	SATISFACTORY	30	19%	8%	39	19%	11%	57	26%	16%	57	20%	16%	53	14%	15%	83	31%	15%	68	28%	19%	357	22%
	NOT SATISFACTORY	120	77%	10%	162	79%	13%	157	72%	12%	220	77%	18%	311	82%	25%	117	68%	9%	170	70%	14%	1257	76%
	UN DECIDED	5	3%	12%	4	2%	10%	3	1%	7%	9	3%	21%	13	3%	31%	3	2%	7%	5	2%	12%	42	3%
N:		155			205			217			286			377			173			243			1659	



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DN. No.	VARIABLE/DIVISION	I	IV	VI	II	V	VII	III	IV	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	TOTAL	XXI
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
30	HOW ARE YOU INFORMED OF INTERRUPTION/STOPPAGE OF SUPPLY?																							
	i) TV/RADIO/NEWS PAPER	87	87%	9%	117	94%	12%	110	90%	12%	158	91%	16%	229	97%	24%	120	98%	13%	133	85%	14%	982	92%
	ii) WATER BOARD STAFF	3	3%	7%	4	3%	10%	7	6%	17%	10	6%	24%	6	3%	14%	2	2%	5%	10	6%	24%	42	4%
	iii) NEIGHBOUR	10	10%	25%	3	2%	8%	5	4%	13%	6	3%	15%	2	1%	5%	0	0%	0%	14	9%	35%	40	4%
	TOTAL	100	100%	10%	124	100%	12%	122	100%	12%	172	100%	17%	237	100%	23%	122	100%	12%	157	100%	15%	1034	100%
	Diff: Refer response #30	155	155%	9%	205	165%	12%	217	178%	13%	286	168%	17%	377	159%	23%	173	142%	10%	243	155%	15%	1656	160%
	Diff: Refer response #30	55	55%	9%	81	65%	13%	95	78%	15%	114	66%	18%	140	59%	23%	51	42%	8%	86	55%	14%	622	60%
30 01	HOW IS THE WATER SUPPLIED DURING THE INTERRUPTION																							
	i) THROUGH TANKERS	10	45%	2%	66	87%	14%	77	100%	16%	82	93%	17%	135	85%	28%	25	61%	5%	89	95%	18%	484	90%
	ii) SUPPLIED AT OTHER TIME	0	0%	0%	2	3%	13%	0	0%	0%	4	5%	25%	4	3%	25%	1	2%	6%	5	5%	31%	16	3%
	iii) ANY OTHER	12	55%	30%	8	11%	28%	0	0%	0%	2	2%	5%	3	2%	8%	15	37%	38%	0	0%	0%	40	7%
	TOTAL	22	100%	4%	76	100%	14%	77	100%	14%	88	100%	18%	142	100%	26%	41	100%	8%	84	100%	17%	540	100%
	Diff: Refer response #30	185	705%	9%	205	270%	12%	217	282%	13%	286	325%	17%	377	285%	23%	173	422%	10%	243	259%	15%	1656	307%
	Diff: Refer response #30	133	605%	12%	129	170%	12%	140	182%	13%	188	225%	18%	235	165%	21%	192	322%	12%	148	159%	13%	1116	207%
31	ARE THERE PUBLIC TAPS (P&P) IN YOUR LOCALITY?																							
	i) YES	92	59%	10%	100	49%	11%	138	64%	15%	190	66%	20%	200	53%	21%	86	50%	6%	129	53%	14%	935	56%
	ii) NO	83	41%	9%	105	51%	15%	79	36%	11%	96	34%	14%	166	44%	24%	80	46%	11%	112	46%	16%	701	42%
	iii) NO RESPONSE	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	11	3%	55%	7	4%	35%	2	1%	10%	20	1%
	TOTAL: (N)	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
31 01	IF YES, IS THERE A PLATFORM AROUND THE TAP?																							
	i) YES	72	78%	9%	89	60%	9%	120	87%	16%	150	84%	21%	176	88%	23%	64	74%	8%	113	68%	15%	773	83%
	ii) NO	20	22%	12%	41	31%	16%	18	13%	11%	31	16%	10%	24	12%	15%	22	26%	14%	16	12%	10%	162	17%
	TOTAL	92	100%	10%	100	100%	11%	138	100%	15%	190	100%	20%	200	100%	21%	86	100%	9%	129	100%	14%	935	100%
	Base: Refer response #31.01																							
31.02	IS THE PLATFORM CONNECTED TO DRAINAGE?																							
	i) YES	69	96%	9%	64	93%	9%	118	88%	16%	151	95%	21%	160	91%	22%	61	95%	8%	110	97%	15%	733	86%
	ii) NO	3	4%	8%	5	7%	19%	2	2%	5%	8	5%	20%	16	9%	40%	3	5%	8%	3	3%	6%	40	5%
	TOTAL	72	100%	9%	69	100%	9%	120	100%	16%	159	100%	21%	176	100%	23%	64	100%	8%	113	100%	15%	773	100%
	Base: Refer response #31.01																							
31.03	IS THERE A LEAKAGE THROUGH THE TAP?																							
	i) YES	26	28%	12%	16	16%	8%	25	18%	12%	43	23%	20%	60	30%	28%	17	20%	8%	24	16%	11%	211	23%
	ii) NO	66	72%	9%	84	84%	12%	113	82%	16%	147	77%	20%	140	70%	19%	69	80%	10%	105	81%	15%	724	77%
	TOTAL	92	100%	10%	100	100%	11%	138	100%	15%	190	100%	20%	200	100%	21%	86	100%	9%	129	100%	14%	935	100%
	Base: Refer response #31.01																							
31.05	IS THERE WATER STAGNATION AROUND THE P&P?																							
	i) YES	27	26%	11%	28	26%	11%	27	20%	11%	63	33%	26%	65	33%	26%	11	13%	4%	28	20%	11%	247	26%
	ii) NO	65	71%	9%	72	72%	10%	111	80%	16%	127	67%	18%	135	68%	20%	75	87%	11%	103	80%	15%	688	74%
	TOTAL	92	100%	10%	100	100%	11%	138	100%	15%	190	100%	20%	200	100%	21%	86	100%	9%	129	100%	14%	935	100%
	Base: Refer response #31.01																							



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DN.No.	VARIABLE/DIVISION	I	IV	VI	II	V	VII	III	VI	VIII	IV	V	VIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	TOTAL	W
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25										
31 07	HOW OFTEN DO YOU FIND THE TAP HEAD MISSING?																																	
	i) ALWAYS	25	27%	13%	19	16%	10%	27	20%	14%	40	21%	20%	49	25%	25%	18	21%	9%	20	16%	10%	168	21%										
	ii) FREQUENTLY	6	7%	16%	5	5%	14%	2	1%	5%	4	2%	11%	6	3%	16%	3	3%	8%	11	9%	30%	37	4%										
	iii) RARELY	3	3%	4%	6	6%	8%	16	12%	22%	18	9%	25%	8	4%	11%	8	9%	11%	13	10%	18%	72	6%										
	iv) NO RESPONSE	58	63%	9%	70	70%	11%	93	67%	15%	128	67%	20%	137	69%	22%	57	66%	9%	65	66%	14%	628	67%										
	TOTAL	92	100%	10%	100	100%	11%	138	100%	15%	190	100%	20%	200	100%	21%	86	100%	9%	129	100%	14%	935	100%										
	Refer response #31.1																																	
31 08	WHAT ARE YOUR SUGGESTIONS TO PREVENT THE THEFT OF TAP HEADS																																	
	i) LOCKING/WELDING	11	32%	14%	6	20%	7%	11	24%	14%	16	26%	20%	18	29%	22%	8	28%	10%	11	25%	14%	81	26%										
	ii) LOW COST MATERIAL	1	3%	4%	2	7%	7%	1	2%	4%	8	13%	30%	3	5%	11%	7	24%	28%	5	11%	16%	27	9%										
	iii) NO RESPONSE	22	65%	11%	22	73%	11%	33	73%	17%	38	61%	19%	42	67%	21%	14	48%	7%	28	64%	14%	199	65%										
	TOTAL	34	100%	11%	30	100%	10%	45	100%	15%	62	100%	20%	63	100%	21%	29	100%	9%	44	100%	14%	307	100%										
	Refer response #31 07																																	
	i+ii+iii																																	
32	FREQUENCY OF LEAKAGE OF WATER IN YOUR LOCALITY																																	
	i) ALWAYS	7	5%	28%	0	0%	0%	2	1%	8%	2	1%	8%	5	1%	20%	4	2%	16%	5	2%	20%	25	2%										
	ii) FREQUENTLY	11	7%	7%	20	10%	13%	19	9%	13%	36	13%	24%	32	8%	21%	12	7%	8%	19	5%	13%	149	9%										
	iii) RARELY	8	5%	4%	29	14%	14%	29	13%	14%	33	12%	15%	56	15%	28%	24	14%	11%	34	14%	18%	213	13%										
	iv) NEVER	103	66%	11%	101	49%	11%	124	57%	14%	168	59%	18%	219	58%	24%	78	46%	9%	123	51%	13%	817	55%										
	v) NO RESPONSE	26	17%	7%	55	27%	16%	43	20%	12%	47	16%	13%	65	17%	18%	54	31%	15%	62	26%	18%	352	21%										
	TOTAL	156	100%	9%	205	100%	12%	217	100%	13%	269	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%										
32 01	WHAT IS THE FREQUENCY OF LEAKAGE REOCCURRING AT THE SAME PLACE?																																	
	i) ALWAYS	3	2%	12%	0	0%	0%	2	1%	8%	2	1%	8%	6	2%	24%	6	5%	24%	6	3%	24%	25	2%										
	ii) FREQUENTLY	6	5%	5%	18	11%	13%	16	9%	13%	30	13%	24%	31	10%	25%	9	8%	7%	16	9%	13%	124	9%										
	iii) RARELY	7	5%	3%	23	15%	11%	32	18%	19%	39	16%	19%	50	16%	25%	21	18%	10%	30	17%	15%	202	15%										
	iv) NEVER	10	8%	27%	10	7%	27%	6	3%	16%	0	0%	0%	6	2%	16%	0	0%	0%	6	3%	14%	37	3%										
	v) NO RESPONSE	103	60%	11%	101	67%	11%	124	69%	13%	168	70%	16%	219	70%	24%	83	70%	9%	124	69%	13%	922	70%										
	TOTAL	129	100%	10%	150	100%	11%	180	100%	14%	239	100%	18%	312	100%	24%	119	100%	9%	181	100%	14%	1310	100%										
	Refer response #32 01																																	
	i+ii+iii+iv																																	
32 02	HAVE YOU REPORTED THE LEAKAGE?																																	
	i) YES	15	94%	6%	37	95%	14%	38	76%	15%	59	70%	22%	60	69%	23%	23	64%	9%	31	60%	12%	280	74%										
	ii) NO	1	6%	1%	2	5%	2%	12	24%	1%	15	21%	16%	27	31%	30%	13	36%	14%	21	40%	23%	91	26%										
	TOTAL	16	100%	5%	39	100%	11%	50	100%	14%	71	100%	20%	87	100%	25%	36	100%	10%	52	100%	15%	351	100%										
	Refer response #32 01																																	
	i+ii																																	
32 03	IF YES, WAS THE LEAKAGE RECTIFIED?																																	
	i) YES, BUT TEMPORARILY	4	27%	5%	12	32%	15%	8	21%	10%	19	34%	24%	20	33%	28%	5	22%	6%	10	32%	13%	78	30%										
	ii) YES, PERMANENTLY	6	40%	5%	22	59%	17%	21	55%	16%	24	43%	18%	27	45%	20%	13	57%	10%	19	61%	14%	132	51%										
	iii) NO	5	33%	12%	2	5%	5%	7	18%	17%	11	20%	26%	11	18%	26%	4	17%	10%	2	6%	5%	42	16%										
	iv) NO RESPONSE	0	0%	0%	1	3%	13%	2	6%	25%	2	4%	25%	2	9%	25%	1	4%	13%	0	0%	0%	8	3%										
	TOTAL	15	100%	6%	37	100%	14%	38	100%	16%	56	100%	22%	60	100%	23%	23	100%	9%	31	100%	12%	280	100%										
	Refer response #32.02 i																																	



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IN. No.	VARIABLE/DIVISION	I	IV	VI	II	V	VII	III	VI	VIII	IV	VI	IX	V	X	XI	VI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	TOTAL	XXIV
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
32 04	HOW MUCH TIME WAS TAKEN FOR THE REPAIR?																														
	i) SAME DAY	1	10%	3%	4	12%	11%	6	21%	17%	4	9%	11%	10	21%	29%	5	28%	14%	5	17%	14%	35	17%							
	ii) 2-5 DAYS	2	20%	2%	20	59%	22%	12	41%	13%	11	26%	12%	17	36%	18%	10	56%	11%	21	72%	23%	63	44%							
	iii) >5 DAYS	7	70%	11%	9	28%	14%	9	31%	14%	22	51%	33%	18	32%	23%	2	11%	3%	2	7%	3%	68	31%							
	iv) NO RESPONSE	0	0%	0%	1	3%	6%	2	7%	13%	6	14%	38%	5	11%	31%	1	6%	6%	1	3%	6%	18	8%							
	TOTAL	10	100%	5%	34	100%	16%	29	100%	14%	43	100%	20%	47	100%	22%	18	100%	9%	29	100%	14%	210	100%							
	BASE (Refer response #32 03(i+ii))																														
33	HAVE YOU COME ACROSS LEAKAGES ANY WHERE ELSE?																														
	i) YES	18	12%	8%	20	10%	9%	32	15%	14%	39	14%	17%	78	20%	33%	18	10%	8%	27	11%	12%	230	14%							
	ii) NO	137	88%	10%	185	90%	13%	185	85%	13%	247	86%	17%	301	80%	21%	155	90%	11%	216	89%	15%	1429	86%							
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%							
33 02	HAVE YOU REPORTED THE LEAKAGE?																														
	i) YES	5	28%	9%	8	40%	15%	3	9%	5%	10	26%	18%	13	17%	24%	6	33%	11%	10	37%	18%	55	24%							
	ii) NO	13	72%	7%	12	60%	7%	29	91%	17%	29	74%	17%	63	83%	36%	12	67%	7%	17	63%	10%	175	76%							
	TOTAL	18	100%	8%	20	100%	9%	32	100%	14%	39	100%	17%	78	100%	33%	18	100%	8%	27	100%	12%	230	100%							
	Refer response #33 i																														
34	HAVE YOU FOUND ANY IMPROVEMENT IN THE WATER SUPPLY/SEWERAGE SERVICE IN YOUR LOCALITY IN RECENT YEAR?																														
	i) YES:																														
	WATER SUPPLY ONLY:	3	18%	8%	3	11%	8%	5	17%	14%	7	15%	16%	4	6%	11%	3	8%	8%	12	25%	32%	37	14%							
	SEWERAGE ONLY:	3	10%	8%	3	11%	8%	10	33%	28%	5	10%	14%	6	10%	17%	2	5%	6%	7	18%	18%	36	13%							
	BOTH:	10	63%	5%	21	78%	11%	15	50%	8%	36	75%	18%	53	84%	27%	33	87%	17%	29	60%	15%	197	73%							
	ii) NO:	16	10%	6%	27	13%	10%	30	14%	11%	48	17%	18%	63	17%	23%	38	22%	14%	48	20%	18%	270	16%							
	WATER SUPPLY ONLY:	3	2%	8%	3	2%	8%	10	7%	28%	5	2%	14%	6	2%	17%	2	2%	6%	7	4%	19%	36	3%							
	SEWERAGE ONLY:	3	2%	8%	3	2%	8%	5	4%	14%	7	3%	19%	4	1%	11%	3	2%	8%	12	7%	32%	37	3%							
	BOTH:	127	95%	11%	166	97%	14%	122	89%	10%	214	95%	18%	266	96%	23%	125	96%	11%	157	89%	13%	1177	94%							
	iii) NO RESPONSE	6	4%	4%	6	3%	4%	50	23%	37%	12	4%	9%	38	10%	28%	5	3%	4%	19	8%	14%	136	8%							
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%							
35	IS THERE A SEWERAGE CONNECTION TO YOUR HOUSE?																														
	i) YES	150	97%	10%	196	96%	13%	202	93%	13%	264	92%	17%	353	94%	23%	158	91%	10%	217	89%	14%	1540	93%							
	ii) NO	5	3%	4%	9	4%	8%	15	7%	13%	22	8%	16%	24	6%	21%	15	9%	13%	26	11%	22%	116	7%							
	TOTAL	155	100%	0%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%							

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DM.No	VARIABLE/DIVISION	I	IV	NR	II	VV	NR	III	IV	NR	IV	VV	NR	V	VV	NR	VI	VV	NR	VII	IV	NR	TOTAL	IV
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
35 01	IF NO. HOW DO YOU DISPOSE OF YOUR SEWAGE?																							
	i) OWN SEPTIC TANK	0	0%	0%	2	22%	8%	5	33%	15%	3	14%	9%	8	33%	24%	4	27%	12%	12	48%	35%	34	28%
	ii) COLONY (COMMUNITY)S.	2	40%	14%	2	22%	14%	2	13%	14%	0	0%	0%	2	8%	14%	3	20%	21%	3	12%	21%	14	12%
	iii) OPEN DRAIN	0	0%	0%	0	0%	0%	5	33%	13%	9	41%	23%	8	33%	20%	8	55%	20%	10	38%	25%	40	34%
	iv) NO RESPONSE	3	60%	11%	5	56%	18%	3	20%	11%	10	45%	36%	8	25%	21%	0	0%	0%	1	4%	4%	28	24%
	TOTAL	5	100%	4%	9	100%	8%	15	100%	13%	22	100%	19%	24	100%	21%	15	100%	13%	26	100%	22%	116	100%
	BASE:Refer response #35(ii)																							
36	ARE YOU AWARE OF THE DIFFERENCE BETWEEN STROM WATER DRAIN AND SEWERAGE?																							
	i) YES	83	41%	15%	44	21%	10%	80	28%	14%	84	29%	20%	84	25%	22%	38	22%	9%	42	17%	10%	425	28%
	ii) NO	92	59%	7%	161	78%	13%	157	72%	13%	202	71%	18%	283	75%	23%	135	78%	11%	201	83%	16%	1231	74%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
37	DID YOU EXPERIENCE CHORAGE/BLOCKATGE IN SEWERAGE LINES NEAR YOUR HOUSE?																							
	i) YES	97	85%	10%	132	87%	14%	109	54%	11%	180	68%	18%	240	68%	25%	87	42%	7%	149	69%	15%	974	63%
	ii) NO	53	35%	9%	84	33%	11%	93	46%	16%	84	32%	15%	113	32%	20%	91	58%	18%	68	31%	12%	586	37%
	TOTAL	150	100%	10%	186	100%	13%	202	100%	13%	264	100%	17%	353	100%	23%	158	100%	10%	217	100%	14%	1540	100%
	BASE:Refer response #35(i)																							
37 01	IF YES, WHAT DID YOU DO TO CLEAR THE CHORAGE?																							
	i) BY THE BOARD	79	81%	12%	113	66%	17%	85	78%	13%	147	82%	22%	114	48%	17%	48	68%	7%	90	60%	13%	674	69%
	ii) PRIVATE LABOUR	5	5%	4%	2	2%	2%	3	3%	2%	17	9%	13%	87	28%	52%	7	10%	5%	27	16%	21%	128	13%
	iii) PAID TONGLR STAFF	5	5%	3%	17	13%	11%	21	19%	14%	10	6%	7%	56	23%	37%	14	21%	9%	30	20%	20%	153	16%
	iv) SELF SERVICE	8	8%	42%	0	0%	0%	0	0%	0%	8	3%	32%	3	1%	16%	0	0%	0%	2	1%	11%	19	2%
	TOTAL	97	100%	10%	132	100%	14%	109	100%	11%	180	100%	18%	240	100%	25%	87	100%	7%	149	100%	15%	974	100%
	BASE:Refer response #37(i)																							
38	SEWERAGE OVER-FLOW IN THE LOCALITY:																							
	i) YES	85	55%	9%	122	60%	13%	107	48%	11%	182	64%	19%	242	64%	26%	88	38%	7%	141	58%	15%	945	57%
	ii) NO	65	42%	10%	80	39%	13%	101	47%	16%	95	33%	15%	117	31%	18%	100	58%	16%	82	34%	13%	640	39%
	iii) NO RESPONSE	5	3%	7%	3	1%	4%	9	4%	13%	9	3%	13%	18	5%	25%	7	4%	10%	20	8%	28%	71	4%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
39	ARE THE MAN HOLES IN YOUR LOCALITY PROPERLY COVERED?																							
	i) YES	144	93%	11%	181	88%	14%	188	87%	14%	234	82%	18%	281	75%	21%	120	89%	9%	182	67%	12%	1310	79%
	ii) NO	8	4%	2%	20	10%	8%	23	11%	9%	38	13%	15%	75	20%	29%	41	24%	16%	56	23%	22%	259	16%
	iii) COVERED WITH STONES	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	3	1%	60%	2	1%	40%	0	0%	0%	5	0%
	iv) NO RESPONSE	5	3%	6%	4	2%	5%	6	3%	7%	14	5%	17%	18	5%	22%	10	6%	12%	25	10%	30%	82	5%
	TOTAL	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%
39 01	DO YOU FIND THE MAN HOLE COVERS MISSING?																							
	i) YES	20	13%	6%	18	9%	8%	26	12%	8%	45	16%	14%	97	26%	31%	36	21%	11%	76	31%	24%	318	19%
	ii) NO	140	84%	10%	184	90%	15%	181	84%	15%	228	79%	16%	259	69%	21%	125	72%	10%	135	56%	11%	1242	75%
	iii) NO RESPONSE	5	3%	5%	1	1%	3%	8	4%	8%	15	5%	16%	21	6%	22%	12	7%	13%	32	13%	35%	98	6%
	TOTAL	165	100%	8%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%

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DM No.	VARIABLE/DIVISION	I	IV	VI	II	AV	VI	III	AV	VI	IV	AV	VI	V	AV	VI	VII	AV	VI	VII	AV	VI	TOTAL	AV
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
39.02	HAVE YOU REPORTED ON THE MISSION MAN HOLE COVERS?																							
	i) YES	11	55%	7%	7	39%	5%	4	15%	3%	20	44%	13%	71	73%	48%	6	17%	4%	30	39%	20%	149	47%
	ii) NO	9	45%	5%	11	61%	7%	22	85%	13%	25	56%	15%	26	27%	15%	30	83%	18%	46	61%	27%	169	53%
	TOTAL	20	100%	6%	18	100%	6%	26	100%	8%	45	100%	14%	97	100%	31%	36	100%	11%	76	100%	24%	318	100%
	BASE:Refer response #39.01(i)																							
39.03	IF YES, WHAT WAS THE RESPONSE?																							
	i) IMMEDIATELY REPLACE	3	27%	7%	6	86%	13%	0	0%	0%	15	75%	33%	19	27%	42%	0	0%	0%	2	7%	4%	45	30%
	ii) ONLY PROMISED TO RE	3	27%	9%	1	14%	3%	3	75%	9%	5	25%	15%	7	10%	21%	4	67%	12%	10	33%	30%	33	22%
	iii) PLEADED HELPLESSES	0	0%	0%	0	0%	0%	1	25%	33%	0	0%	0%	2	3%	67%	0	0%	0%	0	0%	0%	3	2%
	iv) INDIFFERENT	5	45%	7%	0	0%	0%	0	0%	0%	0	0%	0%	43	61%	63%	2	33%	3%	18	60%	26%	68	46%
	TOTAL	11	100%	7%	7	100%	5%	4	100%	3%	20	100%	13%	71	100%	48%	6	100%	4%	30	100%	20%	149	100%
	BASE:Refer response #39.02(i)																							
40	WOULD YOU BE READY TO APPLY FOR A SW CONNECTION?																							
	i) YES	5	100%	7%	9	100%	13%	8	53%	11%	4	18%	6%	13	54%	18%	9	60%	13%	23	88%	32%	71	61%
	ii) NO	0	0%	0%	0	0%	0%	1	7%	25%	1	5%	25%	2	8%	50%	0	0%	0%	0	0%	0%	4	3%
	iii) NO RESPONSE	0	0%	0%	0	0%	0%	6	40%	15%	17	77%	41%	9	38%	22%	6	40%	15%	3	12%	7%	41	35%
	TOTAL	5	100%	4%	9	100%	8%	15	100%	13%	22	100%	19%	24	100%	21%	15	100%	13%	26	100%	22%	116	100%
	BASE:refer response #35(ii)																							
41	DID YOU AT ANY TIME RECEIVE POLLUTED WATERFORM YOUR PPC?																							
	i) YES	41	29%	8%	61	31%	12%	51	25%	10%	95	38%	19%	143	43%	29%	47	30%	10%	54	23%	11%	492	32%
	ii) NO	101	71%	10%	137	69%	13%	151	75%	15%	158	62%	15%	191	57%	19%	109	70%	11%	178	77%	17%	1025	68%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	BASE:Refer response #7(i)																							
41.01	DOES IT OCCUR FREQUENTLY?																							
	i) YES	14	34%	7%	22	36%	11%	21	41%	10%	50	53%	25%	60	42%	29%	21	45%	10%	16	30%	8%	204	41%
	ii) NO	27	66%	9%	39	64%	14%	30	59%	10%	45	47%	16%	83	58%	29%	26	55%	9%	38	70%	13%	288	59%
	TOTAL	41	100%	8%	61	100%	12%	51	100%	10%	95	100%	19%	143	100%	29%	47	100%	10%	54	100%	11%	492	100%
	BASE:Refer response #41(i)																							
41.02	TO WHOM HAVE YOU REPORTED ON THE POLLUTION?																							
	i) SECTION OFFR/MNGR	29	71%	21%	30	49%	22%	20	39%	14%	24	25%	17%	26	18%	19%	1	2%	1%	8	15%	6%	138	28%
	ii) LOCAL LEADER	0	0%	0%	2	3%	7%	3	6%	10%	7	7%	23%	12	8%	40%	5	11%	17%	1	2%	3%	30	6%
	iii) MUNICIPAL OFFICE	2	5%	3%	9	15%	15%	7	14%	11%	17	18%	28%	21	15%	34%	0	0%	0%	5	9%	8%	61	12%
	iv) NO RESPONSE	10	24%	4%	20	33%	8%	21	41%	8%	47	49%	18%	84	59%	32%	41	87%	16%	40	74%	15%	263	53%
	TOTAL:	41	100%	8%	61	100%	12%	51	100%	10%	95	100%	19%	143	100%	29%	47	100%	10%	54	100%	11%	492	100%
	BASE:Refer response #41.i																							
41.03	HOW LONG HAD IT TAKEN TO RECTIFY THE PROBLEM?																							
	i) <2 DAYS	4	13%	7%	6	15%	11%	9	30%	16%	12	25%	21%	11	19%	20%	3	50%	5%	11	79%	20%	56	24%
	ii) 2-4 DAYS	16	52%	22%	18	44%	24%	11	37%	15%	12	25%	16%	17	29%	23%	0	0%	0%	0	0%	0%	74	32%
	iii) >4 DAYS	8	26%	10%	12	29%	15%	10	33%	13%	19	40%	24%	29	49%	36%	2	33%	3%	0	0%	0%	80	35%
	iv) NOT SOLVED	3	10%	16%	5	12%	26%	0	0%	0%	5	10%	26%	2	3%	11%	1	17%	5%	3	21%	16%	19	8%
	TOTAL	31	100%	14%	41	100%	18%	30	100%	13%	48	100%	21%	99	100%	26%	6	100%	3%	14	100%	6%	229	100%
	BASE:Refer response #41.02:i+ii+iii																							

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DN.No.	VARIABLE/DIVISION	I	IV	NR	II	AV	6H	III	AV	NR	IV	AV	6H	V	AV	6H	VI	AV	6H	VII	AV	6H	TOTAL	AV
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
42	WAS THERE A CASE OF THE FOLLOWING AILMENTS IN RECENT TIMES?																							
	i) JAUNDICE	5	17%	6%	5	12%	6%	11	18%	14%	24	20%	31%	19	12%	24%	5	13%	6%	9	19%	12%	78	16%
	ii) GASTROENTERITIS	1	3%	4%	1	2%	4%	0	0%	0%	7	6%	27%	9	6%	35%	1	3%	4%	7	15%	27%	28	5%
	iii) DIARRHOEA	3	10%	3%	12	28%	11%	14	23%	12%	33	28%	29%	36	24%	32%	8	21%	7%	8	17%	7%	114	23%
	iv) UN EXPLAINED FEVER	15	50%	8%	19	44%	10%	21	34%	11%	41	34%	21%	64	42%	33%	20	53%	10%	15	32%	6%	108	40%
	v) CHOLERA	2	7%	17%	2	5%	17%	2	3%	17%	1	1%	8%	2	1%	17%	2	5%	17%	1	2%	8%	12	2%
	vi) TYPHOID	4	13%	6%	4	9%	6%	13	21%	19%	14	12%	21%	23	15%	34%	2	5%	3%	7	15%	10%	87	14%
	TOTAL	30	100%	6%	43	100%	9%	61	100%	12%	120	100%	24%	153	100%	31%	38	100%	8%	47	100%	10%	492	100%
	BASE: Refer response 42(i)	155			205			217			286			377			173			243			1686	
42 01	DID YOU REPORT THE SICKNESS?																							
	i) YES	17	57%	9%	9	21%	5%	25	41%	13%	51	43%	27%	69	45%	37%	12	32%	6%	6	13%	3%	189	38%
	ii) NO	5	17%	6%	13	30%	16%	8	13%	10%	9	8%	11%	12	8%	14%	16	42%	19%	20	43%	24%	85	17%
	iii) NO RESPONSE	8	27%	4%	21	49%	10%	28	46%	13%	60	50%	27%	72	47%	33%	10	26%	5%	21	45%	10%	220	48%
	TOTAL	30	100%	6%	43	100%	9%	61	100%	12%	120	100%	24%	153	100%	31%	38	100%	8%	47	100%	10%	492	100%
	BASE: Refer response 42(i)																							
42 02	IF YES, WHERE DID YOU REPORT?																							
	i) GOVT. GEN. HOSPITAL	3	18%	7%	0	0%	0%	0	0%	0%	1	2%	25%	0	0%	0%	0	0%	0%	0	0%	0%	4	2%
	ii) PRIVATE CLINIC	14	82%	8%	9	100%	5%	25	100%	14%	50	98%	29%	57	83%	33%	12	100%	7%	6	100%	3%	175	92%
	iii) GOVT. FEVER HOSPITAL	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	12	17%	100%	0	0%	0%	0	0%	0%	12	8%
	TOTAL	17	100%	9%	9	100%	5%	25	100%	13%	51	100%	27%	69	100%	37%	12	100%	6%	6	100%	3%	189	100%
	BASE: Refer response 42 01(i)																							
42 03	IF NOT REPORTED, WHAT ARE THE REASONS?																							
	i) NO RESPONSE/CANT SA	5	100%	6%	13	100%	16%	8	100%	10%	9	100%	11%	12	100%	14%	16	100%	19%	20	100%	24%	83	100%
	ii) SELF TREATMENT	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%
	iii) CANT AFFORD	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%
	iv) ANY OTHER	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%	0	0	0%
	TOTAL	5	100%	6%	13	100%	16%	8	100%	10%	9	100%	11%	12	100%	14%	16	100%	19%	20	100%	24%	83	100%
43	YOU KNOW THAT CRISCROSSING OF W S & SEWERAGE LINES IS UNDESIRABLE?																							
	i) YES	137	96%	10%	179	90%	13%	183	91%	13%	216	85%	16%	320	96%	24%	132	85%	10%	189	81%	14%	1358	89%
	ii) NO	5	4%	3%	19	10%	12%	19	9%	12%	37	15%	23%	14	4%	9%	24	15%	15%	43	19%	27%	181	11%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	Refer response # 7.1																							

Annexure-I

DN.No.	VARIABLE/DIVISION	DIVISIONS																				TOTAL	CV	
		I	IV	VI	II	V	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
44	DOES YOUR W.S. & SEWAGE LINES CROSS EACH OTHER?																							
i) YES		8	6%	9%	7	4%	8%	11	5%	12%	16	6%	18%	20	6%	22%	8	5%	9%	19	8%	21%	88	6%
ii) NO		124	87%	9%	183	92%	13%	187	93%	14%	219	87%	16%	308	92%	23%	139	89%	10%	202	87%	15%	1383	88%
iii) NO RESPONSE		10	7%	13%	8	4%	12%	4	2%	6%	18	7%	27%	6	2%	9%	9	6%	14%	11	5%	17%	88	6%
TOTAL		142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1617	100%
	Refer response # 7.1																							
44.01	IF YES, WOULD YOU BE READY TO REALIGN THEM/TAKE PREVENTIVE MEASURES?																							
i) YES		4	50%	10%	2	29%	5%	4	36%	10%	4	25%	10%	15	75%	38%	4	50%	10%	7	37%	18%	40	45%
ii) NO		3	38%	12%	2	29%	8%	6	55%	24%	3	19%	12%	5	25%	20%	2	25%	8%	4	21%	16%	25	28%
iii) NO RESPONSE		1	13%	4%	3	43%	13%	1	9%	4%	9	56%	38%	0	0%	0%	2	25%	8%	8	42%	33%	24	27%
TOTAL		8	100%	9%	7	100%	8%	11	100%	12%	16	100%	18%	20	100%	22%	8	100%	9%	19	100%	21%	88	100%
	Refer response # 44.1																							
45	CAN YOU IDENTIFY THE SMELL OF CHLORINE IN WATER?																							
i) YES		124	80%	9%	167	81%	12%	181	83%	14%	225	79%	17%	284	75%	21%	147	85%	11%	209	86%	18%	1337	81%
ii) NO		31	20%	11%	38	19%	14%	36	17%	13%	61	21%	22%	64	17%	23%	18	10%	6%	33	14%	17%	281	17%
iii) NO RESPONSE		0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	29	8%	76%	8	5%	21%	1	0%	3%	28	3%
TOTAL		155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1658	100%
45.01	HOW FREQUENTLY DO YOU DETECT THE CHLORINE SMELL IN THE W.S?																							
i) FREQUENTLY		0	0%	0%	1	1%	4%	1	1%	4%	5	2%	19%	4	1%	15%	6	4%	23%	9	4%	35%	28	2%
ii) OCCASIONALLY		81	65%	9%	112	67%	13%	112	62%	13%	113	50%	13%	185	65%	21%	113	77%	13%	157	75%	18%	873	88%
iii) RARELY		24	19%	6%	51	31%	14%	59	33%	16%	92	41%	25%	85	30%	23%	18	12%	5%	43	21%	19%	373	28%
iv) NO RESPONSE		19	15%	29%	3	2%	5%	9	5%	14%	15	7%	23%	10	4%	15%	10	7%	15%	0	0%	0%	85	5%
TOTAL		124	100%	9%	167	100%	12%	181	100%	14%	225	100%	17%	284	100%	21%	147	100%	11%	209	100%	18%	1337	100%
	Refer response # 45.1																							
46	HOW OFTEN HAVE YOU SEEN THE BOARD STAFF COLLECTING WATER SAMPLES IN YOUR L																							
i) FREQUENTLY		5	3%	36%	1	0%	7%	1	0%	7%	0	0%	0%	3	1%	21%	1	1%	7%	3	1%	21%	14	1%
ii) OCCASIONALLY		9	6%	11%	3	1%	4%	6	3%	7%	22	8%	27%	31	8%	37%	6	3%	7%	6	2%	7%	83	6%
iii) RARELY		9	6%	7%	15	7%	12%	18	8%	14%	30	10%	24%	31	8%	24%	8	5%	6%	16	7%	12%	127	8%
iv) NEVER		122	79%	10%	184	90%	15%	59	27%	5%	221	77%	18%	276	73%	22%	150	87%	12%	216	89%	18%	1228	74%
v) NO RESPONSE		10	6%	5%	2	1%	1%	133	61%	65%	13	5%	6%	36	10%	18%	8	5%	4%	2	1%	1%	204	15%
TOTAL		155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1658	100%



Annexure-I

DN.NO.	VARIABLE/DIVISION	I	IV	VI	II	IV	VI	III	IV	VI	IV	IV	VI	V	IV	VI	VI	IV	VI	VII	IV	VI	TOTAL	IV
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
50.01	WHAT IS THE FREQUENCY OF CLEANING YOU OMT?																							
	i) NO IDEA	1	25%	5%	1	4%	5%	0	0%	0%	2	6%	10%	7	11%	33%	3	9%	14%	7	9%	33%	21	7%
	ii) <3 MONTHS	3	75%	2%	21	75%	11%	25	57%	13%	22	63%	11%	40	62%	21%	39	71%	20%	43	57%	22%	193	63%
	iii) 3-6 MONTHS	0	0%	0%	4	14%	7%	12	27%	21%	5	14%	9%	10	15%	18%	7	13%	13%	18	24%	32%	56	18%
	iv) 6-9 MONTHS	0	0%	0%	0	0%	0%	4	9%	29%	1	3%	7%	2	3%	14%	3	5%	21%	4	5%	29%	14	5%
	v) >9 MONTHS	0	0%	0%	2	7%	9%	3	7%	14%	5	14%	23%	6	9%	27%	3	5%	14%	3	4%	14%	22	7%
	TOTAL	4	100%	1%	28	100%	9%	44	100%	14%	35	100%	11%	65	100%	21%	55	100%	18%	75	100%	25%	306	100%
	Refer response # 47.i																							
50.02	WHAT IS THE FREQUENCY OF CLEANING YOUR SUMP?																							
	i) NO IDEA	2	13%	11%	1	2%	6%	0	0%	0%	2	5%	11%	2	2%	11%	4	9%	22%	7	13%	39%	18	5%
	ii) <3 MONTHS	13	87%	6%	43	93%	18%	33	65%	14%	29	74%	12%	57	67%	24%	24	53%	10%	37	67%	16%	236	70%
	iii) 3-6 MONTHS	0	0%	0%	1	2%	2%	13	25%	23%	2	5%	4%	20	24%	36%	12	27%	21%	8	15%	14%	56	17%
	iv) 6-9 MONTHS	0	0%	0%	0	0%	0%	2	4%	20%	4	10%	40%	0	0%	0%	2	4%	20%	2	4%	20%	10	3%
	v) >9 MONTHS	0	0%	0%	1	2%	6%	3	6%	19%	2	5%	13%	6	7%	38%	3	7%	19%	1	2%	6%	16	5%
	TOTAL	15	100%	4%	46	100%	14%	51	100%	15%	39	100%	12%	85	100%	25%	45	100%	13%	55	100%	16%	336	100%
	Refer response # 47.ii																							
51	WHEN DID YOU OBTAIN WATER CONNECTION?																							
	i) PRIOR TO 1991	101	71%	8%	183	92%	14%	172	85%	13%	196	77%	15%	302	90%	24%	133	85%	10%	191	82%	15%	1278	84%
	ii) AFTER 1991	5	4%	5%	8	4%	8%	15	7%	16%	30	12%	31%	13	4%	14%	6	4%	6%	19	8%	20%	96	6%
	iii) NO RESPONSE	36	25%	25%	7	4%	5%	15	7%	10%	27	11%	19%	19	6%	13%	17	11%	12%	22	9%	15%	143	9%
	TOTAL	142	100%	9%	198	100%	13%	202	100%	13%	253	100%	17%	334	100%	22%	156	100%	10%	232	100%	15%	1517	100%
	Refer response # 7.i																							
51.01	WHAT WAS THE LEAD TIME?(AFTER 1991)																							
	i) <2 WEEKS	1	20%	17%	0	0%	0%	2	13%	33%	1	3%	17%	2	15%	33%	0	0%	0%	0	0%	0%	6	4%
	ii) 2-4 WEEKS	1	20%	5%	3	38%	16%	3	20%	16%	4	13%	21%	0	0%	0%	1	17%	5%	7	37%	37%	19	20%
	iii) 4-6 WEEKS	0	0%	0%	0	0%	0%	0	0%	0%	3	10%	43%	3	23%	43%	0	0%	0%	1	5%	14%	7	7%
	iv) >6 WEEKS	2	40%	8%	3	38%	12%	4	27%	15%	2	7%	8%	5	38%	19%	1	17%	4%	9	47%	35%	26	27%
	v) NO RESPONSE	1	20%	3%	2	25%	5%	6	40%	16%	20	67%	53%	3	23%	8%	4	67%	11%	2	11%	5%	38	40%
	TOTAL	5	100%	5%	8	100%	8%	15	100%	16%	30	100%	31%	13	100%	14%	6	100%	6%	19	100%	20%	96	100%
	Refer response # 51.ii																							
51.02	# OF REMINDERS NECESSARY																							
	i. NOT NECESSARY	2	40%	13%	0	0%	0%	2	13%	13%	2	7%	13%	6	46%	40%	1	17%	7%	2	11%	13%	15	16%
	ii. 3-4 TIMES	1	20%	7%	3	38%	20%	2	13%	13%	2	7%	13%	2	15%	13%	1	17%	7%	4	21%	27%	15	16%
	iii) >4 TIMES	1	20%	6%	3	38%	18%	2	13%	12%	3	10%	18%	0	0%	0%	0	0%	0%	8	42%	47%	17	18%
	iv) NO RESPONSE	1	20%	2%	2	25%	4%	9	60%	18%	23	77%	47%	5	38%	10%	4	67%	8%	5	26%	10%	49	51%
	TOTAL	5	100%	5%	8	100%	8%	15	100%	16%	30	100%	31%	13	100%	14%	6	100%	6%	19	100%	20%	96	100%
	Refer response # 51.ii																							
51.03	WAS IT NECESSARY TO USE INFLUENCE?																							
	i) YES	2	40%	8%	1	13%	4%	3	20%	13%	3	10%	13%	5	38%	21%	3	50%	13%	7	37%	29%	24	25%
	ii) NO	2	40%	7%	5	63%	17%	4	27%	14%	4	13%	14%	3	23%	10%	2	33%	7%	9	47%	31%	29	30%
	iii) NO RESPONSE	1	20%	2%	2	25%	5%	8	53%	19%	23	77%	53%	5	38%	12%	1	17%	2%	3	16%	7%	43	45%
	TOTAL	5	100%	5%	8	100%	8%	15	100%	16%	30	100%	31%	13	100%	14%	6	100%	6%	19	100%	20%	96	100%
	Refer response # 51.ii																							

Annexure-I

DN.No	VARIABLE/DIVISION	I	IV	VI	II	V	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	TOTAL	XXI
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
51.04	WHAT WAS THE MEDIUM OF INFLUENCE?																									
	i) DIRECT CONTACT	1	20%	4%	5	63%	19%	2	13%	7%	11	37%	41%	0	0%	0%	2	33%	7%	6	32%	22%	27	28%		
	ii) PLUMBER	3	60%	17%	1	13%	6%	3	20%	17%	6	20%	33%	1	8%	6%	0	0%	0%	4	21%	22%	18	19%		
	iii) NO RESPONSE	1	20%	2%	2	25%	4%	10	67%	20%	13	43%	25%	12	92%	24%	4	67%	8%	9	47%	18%	51	53%		
	TOTAL	5	100%	5%	8	100%	8%	15	100%	16%	30	100%	31%	13	100%	14%	6	100%	6%	19	100%	20%	96	100%		
	Refer response # 51.ii																									
52	ARE YOU AWARE OF THE REMOVAL OF THE NEED FOR MIDDLEMEN?																									
	i) YES	2	40%	7%	1	13%	4%	6	40%	22%	11	37%	41%	1	8%	4%	2	33%	7%	4	21%	15%	27	28%		
	ii) NO	3	60%	4%	7	88%	10%	9	60%	13%	19	63%	28%	12	92%	17%	4	67%	6%	15	79%	22%	69	72%		
	TOTAL	5	100%	5%	8	100%	8%	15	100%	16%	30	100%	31%	13	100%	14%	6	100%	6%	19	100%	20%	96	100%		
	Refer response # 51.ii																									
52.01	YOUR OPINION ON THE REMOVAL OF MIDDLEMEN?																									
	i) BENEFICIAL/USEFUL	3	60%	6%	1	13%	2%	12	80%	24%	26	87%	53%	1	8%	2%	4	67%	8%	2	11%	4%	49	51%		
	ii) NOT USEFUL	2	40%	4%	7	88%	15%	3	20%	6%	4	13%	9%	12	92%	26%	2	33%	4%	17	89%	36%	47	49%		
	TOTAL	5	100%	5%	8	100%	8%	15	100%	16%	30	100%	31%	13	100%	14%	6	100%	6%	19	100%	20%	96	100%		
	Refer Response # 51.ii																									
53	HAS ANY OF THE OFFICERS OF THE BOARD MET YOU TO DISCUSS PROBLEMS?																									
	i) YES	5	3%	12%	0	0%	0%	0	0%	0%	8	3%	20%	12	3%	29%	5	3%	12%	11	5%	27%	41	2%		
	ii) NO	150	97%	9%	205	100%	13%	217	100%	13%	278	97%	17%	365	97%	23%	168	97%	10%	232	95%	14%	1615	98%		
	TOTAL (N)	155	100%	9%	205	100%	12%	217	100%	13%	286	100%	17%	377	100%	23%	173	100%	10%	243	100%	15%	1656	100%		

**WATER SUPPLY AND SEWERAGE SYSTEM IN HYDERABAD - LEVEL AND QUALITY OF SERVICE:
A STUDY OF USER PERCEPTIONS**

Door Number: Section: Sub-Division: Division: Circle:

A. Respondent Profile

- | | | | | | | |
|------|---|--|-------------|---------------|----------------|-----------------------------------|
| 1. | Name | | | | | |
| 2. | Residential status | | (i) Owner | (ii) Tenant | | |
| 3. | House hold income per month in Rupees | | (i) <1K | (ii) 1-2K | (iii) 2-3K | (iv) 3-4K (v) 5K and above |
| 4. | Length of residence | | (i) <1Y | (ii) 2-5Y | (iii) 6-10Y | (iv) 11-15Y (v) 16 and above |
| 5. | Household size: | | (i) <5 | (ii) 6-10 | (iii) >10 | |
| 6. | Number of other households in the building? | | (i) 1 | (ii) 2 | (iii) 3 | (iv) >3 |
| 6.01 | Total number of persons in the building | | (i) 5 to 10 | (ii) 11 to 15 | (iii) 16 to 20 | (iv) >20 |

B. Water Supply

- | | | | | | | |
|-----|------------------------------|---|---|---------------------------|---|----------------------------|
| 7. | Source of water supply | (i) Own connection
(PPC Metro Board) | (ii) Borewell/
handpump within the
house premises | (iii) Public
Tap (PSP) | (iv) Open well
(A) Private (B)
Public | (v) Any other
(specify) |
| 8. | Time since obtaining the PPC | (i) <1Y | (ii) 2-5Y | (iii) 6-10Y | (iv) >10Y | |
| 9. | Distance from the mains | (i) 5 | (ii) 6-10 | (iii) 11-15 | (iv) 16-20 | (v) 21-25 (vi) 26-30 |
| 10. | Supply timings | (i) Morning | From | To | (ii) Evening | From To |



Annexure - II

Regularity of water supply in your locality	(i) Regularity (same time every day) maintained	(ii) Changing occasionally	(iii) Changing frequently			
Aadequacy of thereof	(i) Yes	(ii) No				
How much water do you get approxdmately per day	(i) Buckets Number	(ii) Drums /Barrels Number	(iii) Jerry Cans Number			
Reasons for inadequacy	(i) Low pressure	(ii) Supply duration short	(iii) Leakage in the line	(iv) Use of pumps	(v) Too many households to share the water	(vi) Any other (specify)
Satisfaction	(i) Yes----- <u>go to 19</u>	(ii) No				
Reasons for no satisfaction	(i) Coloured water (Please state the usual colour)	(ii) Foul Smell	(iii) Chemical Smell	(iv) Presence of foreign matter	(v) Murky Water	(vi) Any other (Please Specify)

Service Levels

Have you made a complaint	(i) Yes	(ii) <u>No--go to 19</u>				
If yes. to whom?	(i) Section Officer	(ii) Higher Officers	(iii) CE/MD	(iv) Any other		
Method of complaint	(i) Direct Oral	(ii) Direct Written	(iii) By Phone	(iv) Any other (Please specify)		
Was the problem solved?	(i) Yes but temporarily	(ii) Yes	(iii) No			
Level of prompt attendance	(i) SO	(ii) Dy.GM	(iii) GM	(iv) CGM	(v) Dir/MD	(vi) Dont know
Lead time for solving	(i) Same day	(ii) 1-2	(iii) 3-5	(iv) >6 days		

06	Difficulties/Constraints	(i) None	(ii) Too many reminders	(iii) Putting off on some pretext	(iv) Officer concerned was not accessible	(v) Any other	(vi) Indifferent officers
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Billing

	Do you know the present water rate?	(i) Yes	(ii) No				
	Do you know about the levy of sewerage charges?	(i) Yes	(ii) No				
	What is the periodicity of your water bill?	(i) Alternate month	(ii) 3 months	(iii) >3 months			
	What was the amount of the last bill?	Rs.					
.01	Was there any unexpected increase in the bill amount?	(i) Yes	(ii) No				
.02	Errors/discrepancies	(i) Yes	(ii) No				
.03	Difficulties in resolving	(i) None	(ii) Indifferent officers	(iii) time consuming procedures	(iv) Any other (Please specify)		
.04	Suggestions for improvement						
	Have you ever found any of the following remarks in the bill?	(i) Minimum charges	(ii) House locked	(iii) Meter Not working	(iv) Any other (Pl.Specify)	(v) No remarks	
.01	In case of meter not working; how long did it take for getting it meter repaired?	(i) <15 days	(ii) 15-30 days	(iii) >30 days			
.02	How much money have you paid for the repairs?	(i) < Rs.100	(ii) Rs.100-150	(iii) Rs.150-200	(iv) > Rs.200		

.03	how often does your water meter become 'faulty'?	(i) Frequently	(ii) Occassionally	(iii) Never			
.	What is the frequency of meter reading ?	(i) Frequently	(ii) Occasionally	(iii) Never			
.	Suggestions for improvement of meter reading:	(i) Once in 2 months	(ii) Once in 2 months	(iii) 3 months	(iv) 4 months	(v) 6 months (Please specify)	
.	Do you pay any charges for meter reading?	(i) Yes	(ii) No				
.01	If yes, what is the reason for the charges ?	(i) towards the delay in repair		(ii) Calculating the bill		(iii) any other	
.02	What are your difficulties in regard to payment of bills?	(i) No difficulty	(ii) Payment centre far	(iii) Overcrowding at the centre	(iv) Insistence on cash payment	(v) Any other	(vi) Dont know

Consumer Satisfaction

.	What is your opinion on the water supply during summer regarding the following:						
.01	Duration	(i) satisfactory	(ii) not satisfactory				
.02	Regularity	(i) satisfactory	(ii) not satisfactory				
.03	Quantity	(i) satisfactory	(ii) not satisfactory				
.04	Quality	(i) satisfactory	(ii) not satisfactory				
.05	Pressure	(i) satisfactory	(ii) not satisfactory				
.	How are you informed of interruption or stoppage of supply?	(i) No information	(ii) T.V/Radio/News Paper	(iii) Water supply staff	(iv) Neighbour	(v) Any other	(vi) No interruption
.	How is the water supplied during the period of interruption or stoppage?	(i) Tankers	(ii) Supply at other time	(iii) No supply	(iv) No response	(iii) Not applicable	

Consumer Awareness

.	Are there public taps (PSP) in your locality?	(i) Yes	(ii) No	(iii) Dont know
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Annexure - I

.01	Is there a platform around the tap?	(i) Yes	(ii) No	(iii) Dont know		
.02	Is the platform connected to drainage?	(i) Yes	(ii) No	(iii) Dont know		
.03	Is there leakage of water through the tap?	(i) Yes	(ii) No	(iii) Dont know		
.04	Your suggestions to reduce the leakage?					
05	Is there water stagnation/slush around the platform?	(i) Yes	(ii) No			
.06	If yes. what are your suggestions to prevent it?					
07	How often the tap head is found missing?		(i) Always	(ii) Frequently	(iii) Rarely	(iv) Dont know (v) Never
08	What are your suggestions to prevent theft?					
	How frequently have you noticed leakages from the water distribution pipelines in your locality?		(i) Always	(ii) Frequently	(iii) Rarely	(iv) Never (v) Not noticed
01	What is the frequency of the leakages occurring at the same place?		(i) Always	(ii) Frequently	(iii) Rarely	(iv) Dont know
02	Have you reported the leakage?		(i) Yes	(ii) No		
03	If yes. was the 'leakage' rectified?		(i) Yes	(ii) No		
04	How much time was taken to effect the repair?		(i) Same day	(ii) 2-3 days	(iii) >3 days	(iv) Dont know
	Have you come across leakages any where else also?		(i) Yes	(ii) No		

Q1	If yes, please specify the place				
Q2	Have you ever reported the leakages?	(i) Yes	(ii) No		
Q3	What are your suggestions to reduce the leakages in the pipeline?				
Q4	Have you found any improvement in the water supply and sewerage service to your locality over the years?		(i) Yes	(ii) No	(iii) N/A
			Both....		
			W.S.....		
			S.W.....		

What are the deficiencies on water supply and sewerage, specific to your locality?

Sewerage

	Is there a sewerage connection to your house?	(i) Yes	(ii) No		
Q1	If no, how do you dispose the sewage?	(i) Own septic tank	(ii) Colony septic tank	(iii) Open drain	(iv) any other (v) Kutch Drn.
	Are you aware of the difference between storm water drain and sewerage		(i) Yes	(ii) No	(iii) No response
	Did you at any time experience chokages/blockage in the sewerage lines near your house?			(i) Yes	(ii) No
Q1	If yes, what did you do to clear the chokage?	(i) Reported to the Board/ Municipal Office	(ii) Employed private labour	(iii) Paid to the regular sewage staff	(iv) Did nothing (v) Self-service
	Do you find sewage overflowing from manholes?	(i) Yes	(ii) No	(iii) Dont know	
	Are the 'manholes' in your locality properly covered?	(i) Yes	(ii) No	(iii) Dont know	(iv) covered with stones

Annexure - II

01	Do you find the manhole covers frequently missing	(i) Yes	(ii) No	(iii) Dont know	(iv) No man holes/covers
02	Have you at any time brought the cases of missing manhole covers /sewage overflow etc.. to the notice of the Board's officers?	(i) Yes	(ii) No		
03	If yes. what was their response?	(i) Arranged for immediate replacement	(ii) Only promised to replace	(iii) pleaded helplessness due to non availability of replacements	(iv) Remained indifferent (v) Any other (Please specify)
	In case you do not have a sewage connection, would you be ready to apply for it now?		(i) Yes	(ii) No	
01	If no. what are the reasons?				

Pollution

	Did you any time receive polluted water from your house tap?	(i) Yes	(ii) No			
01	Does it occur frequently?	(i) Yes	(ii) No			
02	To whom have you made the complaint about the pollution?	(i) Sec.Officer	(ii) Local Leader	(iii) Municipal Office	(iv) Any other	(v) None
03	How long had it taken to remove the pollution?	(i) <2 days	(ii) 2-4 days	(iii) >4 days	(iv) No Idea	(v) No response
	Was there a case of any of the following ailments in your household in recent times?	(i) Jaundice (Hepatitis)	(ii) G.E. (Gastro-enteritis)	(iii) Diarrhoea	(iv) Unexpected fever	(v) Cholera (vi) Typhoid
01	Did you report the sickness?	(i) Yes	(ii) No			
02	If yes. where?					
03	If no. why?					

Annexure - I.

0.	Do you know that crisscrossing of pipelines of water supply and sewerage is not desirable from the pollution point of view?		(i) Yes	(ii) No	
1	Does your water connection and sewerage connection cross each other?	(i) Yes	(ii) No	(iii) Don't know	
1.01	If yes, would you be ready to realign the pipeline or take preventive treatment	(i) Yes	(ii) No		
2	What assistance do you expect from the Board to carry out realignment of your service connections?				
3.	Can you identify the smell of 'chlorine' in fresh water supply?	(i) Yes	(ii) No		
3.01	How frequently do you detect the chlorine smell in the water?	(i) Frequently	(ii) Occasionally	(iii) Rarely	(iv) Never
4.	How often have you noticed the Board staff collecting samples of water in your locality?	(i) Frequently	(ii) Occasionally	(iii) Rarely	(iv) Never
5.	Where do you store water for other purposes than drinking?	(i) OHT	(ii) Sump	(iii) Drums	(iv) Any other
6.	Does the water automatically fall into your house sump/tank?	(i) Yes	(ii) No		
6.01	Does the water level reach higher than the delivery tap in the sump?	(i) Yes	(ii) No		
7.	Is the tap in your house at a lower level than the ground?	(i) Yes	(ii) No		
8.	Do you keep the tap closed after drawing the water?	(i) No	(ii) No		
9.	Is your OHT properly covered?	(i) Yes	(ii) No		
9.01	What is the frequency of cleaning your Over Head Tank	(i) No idea	(ii) <3 months	(iii) 3-6 months	
9.02	What is the frequency of cleaning the sump	(i) No idea	(ii) <3 months	(iii) 3-6 months	
50.	When did you obtain your water connection	(i) Prior to'91	(ii) After 1991		
51	How much time has it taken to get it?	(i) <2 weeks	(ii) 2-4 weeks	(iii) 4-6 weeks	(iv) > 6 weeks
51.01	How many visits were necessary?	(i) NN	(ii) 3-4 times	(iii) >4 times	(iv) Never



Annexure

51.02	Was there a need for influence?	(i) Yes	(ii) No	
51.03	What was your approach?	(i) Directly	(ii) Through plumber	(iii) Any other
51.04	What was the indirect expenditure?		Rs.	
52.	Do you know the removal of middlemen?	(i) Yes	(ii) No	
53.	Did you ever meet the staff officers to discuss your problems	(i) Yes	(ii) No	
54	Your suggestions to improve (i) Cooperation:	(i) Cooperation		(ii) Level of service

PROJECT\LP\WSMH



