

PN-ACQ-616

**The Willingness and
Ability of Residential
and Non-residential
Subscribers in
Greater Amman to
Pay More for Water**

**A Study Conducted
for the Water
Authority of Jordan**

Prepared for the United States Agency for International Development
under Contract #HNE-C-00-96-90027-00

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January 2000

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FORWARD



Collaborative Approaches for Resolving Water Issues

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TABLE OF CONTENTS

Acknowledgements	vii
Executive Summary and Major Findings (Arabic)	ix
Executive Summary and Major Findings (English)	xix
1. Background, Objectives, and Methodology	1
Background	1
Objectives.....	1
Approach and Methodology	2
Overview of the Report	3
2. Subscriber Focus Group Results	5
Residential Focus Groups.....	5
Non-residential Focus Groups	21
Post-crisis Residential and Non-residential Focus Groups	34
3. Residential Subscribers Survey Results	39
Introduction.....	39
Residential Subscriber Attitudes towards Water and WAJ	39
Willingness and Ability to Pay	61
Communication Medium and Method	74
Private Sector Involvement	74
Summer 1998 Water Crisis.....	76
4. Non-residential Subscribers Survey Results	79
Introduction.....	79
Non-residential Subscriber Attitudes Towards Water and WAJ	80
WAJ's Customer Services	88
Alternative or Additional Water Supply Sources.....	97
Water Storage	98
Water Uses and Practices	99
Awareness of and Support for Current Tariffs.....	99
Willingness and Ability to Pay More for Water	105
Communication Medium and Method	112
Private Sector Involvement	112
Summer 1998 Water Crisis.....	114
5. Conclusions and Recommendations	115
Conclusions.....	115
Recommendations on Customer Relations and Public Awareness.....	118

Annexes

A.	Study Methodology.....	123
B.	Discussion Guide for Residential Focus Groups.....	135
C.	Discussion Guide for Non-residential Focus Groups	139
D.	Post-crisis Discussion Guide for Residential and Non-residential Subscribers.....	143
E.	Residential Subscribers Survey Results (Whole Count).....	147
F.	Non-residential Subscribers Survey Results (Whole Count)	185

Figures

3.1	Subscriber's Belief in a Water Shortage in Jordan.....	40
3.2	Ownership of Pumps Jordan Study Methodology	41
3.3	Satisfaction with Water Sufficiency According to Season.....	41
3.4	Satisfaction with Color, Purity, Taste and Potability	45
3.5	Satisfaction with WAJ's Responsiveness to Billing Discrepancies.....	48
3.6	Satisfaction with WAJ's Responsiveness to Billing Discrepancies According to Residence	49
3.7	Satisfaction with WAJ's Meter Reading Practices.....	50
3.8	Satisfaction with Meter Reading According to Residence	50
3.9	Satisfaction with Quality of Pipes	51
3.10	Satisfaction Levels with WAJ's Water Pipes According to Residence.....	52
3.11	Satisfaction Levels with WAJ's Maintenance of Pipe Leakage	52
3.12	Satisfaction with WAJ's Responsiveness to Leakage According To Residence	53
3.13	Satisfaction with WAJ's Responsiveness to Supply Disruptions.....	53
3.14	Satisfaction with WAJ's Responsiveness to Complaints about Supply Disruptions...	54
3.15	Type of Residence.....	57
3.16	Number of Tanks Owned	58
3.17	Subscribers' Uses of Water.....	59
3.18	Subscribers' Water Habits and Practices	60
3.19	Subscribers' Uses, Habits and Practices with Water	61
3.20	Awareness of the Current Tariff System According to Water Consumption.....	62
3.21	Subscribers' Attitudes towards Current Tariff According to Consumption Levels.....	62
3.22	Awareness of Current Tariff According to Income	63
3.23	Subscribers' Attitudes towards Current Tariff According to Income	63
3.24	Awareness of the Current Tariff Rate According to Residence.....	64
3.25	Subscribers' Attitudes towards Current Tariff According to Residence	64
3.26	Views on Current Tariff Rates	65
3.27	Differences in Tariff Rates According to Consumption Levels	65
3.28	Willingness to Pay More	67
3.29	Ability to Pay More	67
3.30	Willingness and Ability to Pay More According to Income Level	68
3.31	Willingness and Ability to Pay More According to Consumption Levels	69
3.32	Willingness and Ability to Pay More According to Residence	70
3.33	Willingness to Pay More for Improved Services	70

3.34	Willingness to Pay More for Improved Services	71
3.35	Amount Subscribers Are Able to Pay	72
3.36	Amount Subscribers Are Able to Pay According to Income Level	72
3.37	Views on Private Sector Participation	75
3.38	Management Contracting with a Foreign Company	75
4.1	Subscribers Belief that the Water Situation in Jordan is a Serious Problem	80
4.2	Satisfaction with Color, Purity, Taste and Potability	85
4.3	Satisfaction with WAJ's Responsiveness to Billing Discrepancies.....	89
4.4	Satisfaction with WAJ's Responsiveness to Billing Discrepancies According to Geographical Location	89
4.5	Satisfaction with WAJ's Responsiveness to Billing Discrepancies According to Type of Sector (Activity)	90
4.6	Satisfaction with WAJ's Meter Reading Practices.....	90
4.7	Satisfaction with Meter Reading Practices According to Consumption Levels.....	91
4.8	Satisfaction with WAJ's Meter Reading Practices According to Type of Sector.....	91
4.9	Satisfaction with WAJ's Meter Reading Practices According to Geographical Location	92
4.10	Satisfaction with Quality of Pipes	93
4.11	Satisfaction with Quality of Pipes According to Type of Sector.....	93
4.12	Satisfaction with Quality of Pipes According to Geographical Location.....	94
4.13	Satisfaction with WAJ's Maintenance of Pipe Leakage	94
4.14	Satisfaction with WAJ's Responsiveness to Pipe Leakage According to Type of Sector	95
4.15	Satisfaction with WAJ's Responsiveness to Pipe Leakage According to Geographical Location	95
4.16	Satisfaction with WAJ's Responsiveness to Complaints about Supply Disruptions	96
4.17	Satisfaction with WAJ's Responsiveness to Complaints about Supply Disruptions According to Type of Sector	96
4.18	Satisfaction with WAJ's Responsiveness to Complaints about Supply Disruptions According to Geographical Location	97
4.19	Subscribers' Uses of Water	100
4.20	Awareness of the Current Tariff System According to Consumption Levels	101
4.21	Subscribers' Attitudes towards Current Tariff According to Consumption Levels	101
4.22	Awareness of Current Tariff According to Type of Sector.....	102
4.23	Subscribers' Attitudes towards Current Tariff According to Type of Sector.....	102
4.24	Awareness of Current Tariff Rate According Geographical Location	103
4.25	Subscribers' Attitudes towards Current Tariff System According to Geographical Location	103
4.26	Views of Current Tariff Rate.....	104
4.27	Willingness to Pay More	106
4.28	Ability to Pay More.....	106
4.29	Willingness to Pay More According to Type of Sector	107
4.30	Ability to Pay More According to Type of Sector	107
4.31	Willingness to Pay More According to Consumption Levels.....	108
4.32	Ability to Pay More According to Consumption Levels	108
4.33	Willingness to Pay More According to Geographical Location	109
4.34	Ability to Pay More According to Geographical Location.....	109

4.35	Willingness to Pay More for Improved Services	110
4.36	Subscribers Willing to Pay More for Improved Services	110
4.37	Amount Subscribers Are Able to Pay According to Consumption Levels	111
4.38	Views on Private Sector Participation	113
4.39	Management Contracting through a Foreign Company	113

Tables

3.1	Subscribers' Satisfaction with Supply Frequency and Duration According to Water Consumption	42
3.2	Subscribers' Satisfaction with Supply Frequency and Duration According to Income	43
3.3	Subscribers' Satisfaction with Frequency and Duration According to Geographical Location	44
3.4	Subscribers' Satisfaction with Quality According to Consumption Levels	45
3.5	Subscribers' Satisfaction with Quality According to Incomes	46
3.6	Subscribers' Satisfaction with Quality According to Residence.....	47
4.1	Types of Entities Selected for the Survey.....	79
4.2	Subscribers' Satisfaction with Supply Frequency and Duration According to Consumption Levels	82
4.3	Subscribers' Satisfaction with Supply Frequency and Duration According to Sector	83
4.4	Subscribers' Satisfaction with Frequency and Duration According to Geographical Location	84
4.5	Satisfaction with Suitability of Water	85
4.6	Subscribers' Satisfaction with Quality According to Water Consumption	86
4.7	Subscribers' Satisfaction with Quality According to Type of Entity	87
4.8	Subscribers' Satisfaction with Quality According to Geographical Location.....	87

ACKNOWLEDGEMENTS

The study was conducted with the assistance of two marketing and research firms, Management Planning and Research Consultants (MPRC) of Beirut, Lebanon and Marketing Research Organization (MRO) of Amman, Jordan.

The MPRC effort was led by George Theodory, its chief executive, and was primarily responsible for overall conceptualization of the study, data analysis, and preparation of the final report.

MRO's participation, managed by Nadine Khoury, involved conducting the focus groups, carrying out the survey research, and overseeing data entry.

The firms shared responsibility for preparation of the focus group discussion guides and development of the survey instruments.

الملخص والنتائج الرئيسية

تمهيد

قد تم إجراء هذه الدراسة لمعرفة مدى رغبة وقدرة مشتركي سلطة المياه في محافظة عمان لرفع قيمة تعرفه المياه، وقد جرت هذه الدراسة في فترة كانت تسعى فيها سلطة المياه لإشراك القطاع الخاص في إدارة قطاع المياه. قامت سلطة المياه بتغيير نظام التعرفه لكافة المشتركين في تشرين الأول من عام ١٩٩٧، وقد أدى ذلك إلى زيادة في التعرفه بمعدل ١٢,٥%. كما أن سلطة المياه تسعى حالياً لإشراك القطاع الخاص في مسؤولية تزويد المياه، صيانة الأنظمة، إصدار الفولتير، تحصيل أقساط المياه، وتأهيل شبكات المياه. إن هذه الدراسة تهدف إلى مساعدة سلطة المياه في جهودها لإعادة هيكلة العلاقة ما بين سلطة المياه والمشاركين وذلك بتزويد المعلومات اللازمة لتغيير نظام تعرفه المياه والمياه العادمة في المستقبل.

الأهداف

تهدف الدراسة إلى الآتي:

- تزويد سلطة المياه بالمعلومات من مشتركين كافة القطاعات لتصميم أنظمة التعرفه التي تأخذ بعين الاعتبار مستويات الدخل، الاستهلاك واعتبارات أخرى.
- مساعدة أصحاب القرار على توقع ردود فعل المشتركين لإجراء تعديلات في التعرفه والتمهيد لذلك.
- توفير معلومات عن الأمور المتعلقة بخدمات المشتركين لإدارة مياه العاصمة التي تنوي القيام بتغييرات إجرائية أو تشغيلية.
- معرفة مدى دعم المواطنين لمساهمة القطاع الخاص بإدارة مرافق المياه وتقديم أفضل المقترحات للتعامل مع الأمور المتعلقة بذلك.
- المساهمة في تصميم برامج التوعية العامة الهادفة إلى دعم قرارات الحكومة لإدخال أية تغييرات في نظام التعرفه.

أساليب جمع البيانات

تمت الدراسة على مرحلتين باعتماد منهجين متكاملين وهما: مجموعات بحث ومسح إحصائي، حيث ضمت المرحلة الأولى سبعة عشر مجموعة تمثل مشتركى سلطة المياه في محافظة العاصمة قبل وبعد أزمة مياه صيف عام ١٩٩٨. اشتملت النقاشات على عدة مواضيع كخدمات سلطة المياه، مصادر المياه البديلة، تعرفه المياه، أساليب المحافظة على المياه بالإضافة إلى إشراك القطاع الخاص. كما أن نتائج نقاشات مجموعات البحث قدمت معلومات في غاية الأهمية لتصميم البحث الميداني وكتابة أسئلة الاستبيان بشكل يعكس اهتمامات سلطة المياه ومشاركى إدارة مياه محافظة العاصمة.

أما في المرحلة الثانية فقد تم استخدام نتائج مجموعات البحث وأراء مسؤولى سلطة المياه لتطوير نموذجي استبيان أحدهما للقطاع المنزلي والآخر لباقي القطاعات في محافظة عمان، حيث تم استطلاع أراء (١٠٠٠) من المشتركين المنزليين و (٤٠١) من مشتركى القطاعات الصناعية والتجارية والمؤسسية في الفترة ما بين شباط إلى نيسان من عام ١٩٩٩. وقد تم جمع المعلومات الآتية:

- الوعي العام بأمور المياه
- تزويد المياه
- نوعية المياه والخدمات المقدمة من قبل سلطة المياه
- المصادر الإضافية لتزويد المياه وتخزينها
- العادات والممارسات المتبعة
- قدرة ورغبة المشتركين على دفع فواتير المياه أو أية زيادات تعريفية في المستقبل
- نظام إصدار وتسديد الفواتير المتبع
- إشراك القطاع الخاص
- أزمة مياه عام ١٩٩٨
- خصائص المستفتين الذين تمت المقابلات معهم

الاستنتاجات الرئيسية

الاستنتاجات العامة

- لقد ترجم المشتركون وعيهم بمشكلة شح المياه في الأردن بالمحافظة عليها، حيث أصبح هذا السلوك واضحاً في كافة نواحي حياتهم اليومية. كما انهم اعتدوا أن شح المياه "هنا ليبقى" واقترحوا بأن تتخذ سلطة المياه دوراً فعالاً في توسعة إجراءات المحافظة على المياه.
- لا يلوم المشتركون سلطة المياه على شح المياه بل على عدم قدرتها على تأمين برنامج ضخم ثابت ومعتمد وخال من أي انقطاعات.
- بالنسبة للمشاركين المنزليين "التزويد المستمر" للمياه الذي يرضون به يعني تزويدهم بالمياه لمدة عشرين ساعة ضخ غير منقطعة لمدة يومين أو ثلاثة بالأسبوع مع توفر ضغط مناسب. أما بالنسبة للمشاركين غير المنزليين فإن جدول الضخ الحالي مناسب.
- إن مشركي سلطة المياه راضون نسبياً عن جودة المياه، ولكن زيادة اهتمام سلطة المياه لطعم، ونقاء، وصلاحية المياه للشرب يمكن أن تزيد من دعمهم لها بشكل ملحوظ.
- يعتقد العديد من المشاركين بأن سلطة المياه تتعمد الإهمال وعدم الاهتمام، حيث يرون هذا التصرف من خلال تدني مستوى الخدمات. إن عدم استجابة سلطة المياه لشكاوي انقطاعات الضخ وقرارات العدادات الخاطئة خلق انطباعاً سلبياً في عقول المستهلكين.
- بالرغم من عدم الرضى العام عن ممارسات تزويد المياه فإن المشاركين لا زالوا مخلصين لسلطة المياه والتي يمكن أن تصبح المزود الوحيد لجميع المشاركين، إذا قامت بتحسين برنامج تزويد المياه وجودتها. وبالتالي، سيقبل اعتماد المشاركين على شراء صهاريج المياه والمياه المعبئة بالزجاجات لبقى محصوراً على كبار المستخدمين وجزء قليل من المشاركين.
- من أهم أولويات سلطة المياه هي للتعامل بطريقة مقنعة مع أولئك المشاركين الذين لديهم القدرة على دفع زيادات جديدة على التعرفة الحالية ولكنهم غير راغبين في ذلك.

• أفاد معظم المشتركين بعدم تأييدهم للتعرفة الحالية، بالرغم من عدم معرفتهم بطريقة احتساب التعرفة وكذلك عدم رغبتهم وقدرتهم لدفع المزيد في المستقبل. لقد كان هذا الانطباع السائد لدى كافة المشتركين باختلاف نسب استهلاكهم ودخلهم. إن عدم التأييد لزيادة قيمة التعرفة يمكن نسبه لسببين :

أ. لم تؤدي زيادة التعرفة في الماضي لأية تحسينات ملموسة في خدمات سلطة المياه بل إنها ساعدت في كثير من الأحيان.

ب. عدم القدرة المالية لمعظم المشتركين على دفع المزيد.

• توجد دلائل بأن بعض المشتركين المنزليين لديهم الرغبة لدفع المزيد على أن تكون زيادة التعرفة متصلة مباشرة بعملية تأهيل وتحديث شبكات المياه وتحسين الخدمات المقدمة للمشاركين.

• يؤيد معظم المشتركين إشراك القطاع الخاص في إدارة مراقق المياه، إذا أدى ذلك إلى تحسين نوعية الخدمات دون زيادة في التعرفة إذ أن هذه الزيادة ستؤثر على تكاليف معيشتهم.

• إن التواصل بين سلطة المياه والمشاركين بحاجة إلى مزيد من الاهتمام والتحسين، ولا يدرك المشاركون برامج وخطط سلطة المياه، وإجراءاتها ومعوقات عملها. كما أنهم يعتقدون بأن سلطة المياه ليس لديها النية للاتصال مع مشاركيها بحيث تحاول تخفيف سوء الفهم السائد لديهم.

• لا يعرف معظم المشتركين طريقة احتساب التعرفة الحالية بالرغم من أن فهمها سيساعد سلطة المياه على إجراء أي تعديلات على التعرفة في المستقبل.

• إن قدرة ورغبة المشتركين المنزليين على دفع أي زيادة مستقبلية لا يتجاوز كمعدل (٣) ثلاثة دنانير/دورة واحدة، أما بالنسبة للمشاركين غير المنزليين فلا تزيد عن (٥) خمسة دنانير/دورة واحدة. وبالرغم من أن (٣) أو حتى (٥) دنانير قد لا تبدو قيمة عالية إلا أنها تعنى لمعظم المشتركين المنزليين مضاعفة قيمة الفواتير الحالية.

• لقد أبدى معظم المشتركين عدم رغبتهم في زيادة قيمة التعرفة حتى إذا تم تحسين شبكات وخدمات المياه. ويستدل من ذلك، إما أن المشتركين راضين عن مستوى الحالي و أن أي تحسين على الخدمات لا يستدعي أي زيادة على التعرفة أو أنهم لا يرغبون بدفع المزيد مقابل هذه التحسينات.

- معظم المشتركين راضين عن نظام إصدار ودفع الفواتير المعمول به حالياً، حيث أنهم يقومون بتسديد الفواتير مباشرة للجباية غير أن الكثير أيضاً يفضلون تسديد الفواتير مباشرة من خلال البنك.
- لقد اعتبر المشتركون استجابة سلطة المياه غير مرضية للشكاوى المقدمة عن تسرب المياه، واختلاف قراءة العدادات مع الفواتير، وعدم انتظام عملية الضخ. في حال عدم تحسين سلطة المياه لأدائها فإنها سوف تستمر بمواجهة المزيد من معارضة المشتركين لبرامجها. يجدر الإشارة بأن أقل من نصف العينة التي استبينت أجابت على هذه الأسئلة.
- تقريباً جميع المشتركين يملكون خزانات تزودهم بالمياه لفترة تتراوح بين ثلاثة إلى أربعة أيام. إن اقتناء هذه الخزانات زاد من قدرة المواطنين على التعامل مع مشكلة شح المياه وعدم انتظام فترات التوريد.
- يستخدم قسم قليل من مشركي سلطة المياه صهاريج المياه والمياه المعبئة بالزجاجات أو الأوعية، ولكنهم على استعداد لاستبدالها بمياه السلطة إذا كانت تلبى احتياجاتهم ومعاييرهم.
- إن جلسات الحوار التلفزيونية التي تضم مسؤولي وخبراء سلطة المياه هي أفضل أسلوب لإيصال المعلومات للمواطنين.

الاستنتاجات المتعلقة بالاشتراكات المنزلية

- إن المشتركين ذوي الدخل العالي وأعلى المتوسط والذين يقيمون في غرب وشمال غرب عمان هم أكثر المشتركين غير الراضين عن إجراءات سلطة المياه بتزويد المياه، وجودتها والخدمات المقدمة، كما أنهم أكثر المعارضين لنظام التعرفة الحالي.
- إن المشتركين ذوي الدخل المتوسط والمنخفض والمقيمون في وسط عمان هم الأكثر رضاً عن إجراءات سلطة المياه بتزويد المياه والخدمات المقدمة. ولكن الأقل رضاً عن جودة المياه وقوة ضخها.
- إن معظم مشركي سلطة المياه غير راضين عن خدمات الصيانة، وشكاوي تسرب المياه من الأنابيب، واختلافات في قراءة العدادات وعدم انتظام فترات الضخ.

- معظم المشتركين لا يكثرثون لتقديم شكوى بخصوص اختلافات قراءة العدادات مع الفواتير.
- من بين عدد كبير من المشتركين الذين لديهم القدرة على دفع زيادة التعرفة، فإن الغالبية تعارض ذلك. إن المشتركين ذوي الدخل العالي وأعلى المتوسط هم بين الأكثر الذين أبدوا عدم الرغبة والمقدرة على دفع المزيد، حيث أن عدم المقدرة هنا لا تعني القيمة الحقيقية وإنما الحد الأعلى الذي يعتبرونه مناسباً لقاء الخدمات التي يحصلون عليها.

الاستنتاجات المتعلقة بالاشتراكات غير المنزلية

- إن المدارس، والفنادق والمصانع هم أقل المشتركين رضاً عن ضخ المياه والفترات التي تزودهم بها السلطة بالمياه.
- معظم القطاعات غير راضية عن ضخ المياه ومدة تزويدها.
- إن عدم الرضى المتعلق باختلافات قراءة العدادات مع الفواتير هي الأعلى بالنسبة لمشركي جنوب شرق، وشرق، وشمال غرب عمان، وبخاصة المؤسسات التعليمية، والصناعية، والصحية.
- لقد اعتبر المشتركين غير المنزليين أداء سلطة المياه ضعيفاً فيما يتعلق بالاستجابة للشكاوي التي تتعلق بمدة التزويد. إن أكثر المشتركين انتقاداً هم مشركي الخدمات الصحية، والبنوك، والصناعة، والمؤسسات المتواجدة في شرق، وجنوب شرق وشمال غرب عمان.
- في بعض الحالات تعتمد الرغبة في دفع المزيد على مقدرة المؤسسة على تحميل التكلفة الإضافية على المستهلك.
- إن المؤسسات القليلة المستعدة لدفع المزيد تتركز في وسط عمان بإيها بعض المؤسسات في جنوب غربها وشرقها. والمؤسسات القليلة التي أبدت رغبة في دفع المزيد فإن معظمها يتواجد في جنوب غرب، وشرق، وشمال عمان.

توصيات بخدمات المشتركين والتوعية العامة

بينت هذه الدراسة مأزق سلطة المياه حيث أن المشتركين أبدوا استيائهم وعدم رضاهم عن أداء السلطة، كما أن الغالبية العظمى ليس لديها الرغبة لدفع المزيد لقاء تحسين الخدمات. وأن مشتركي السلطة لديهم رغبة أكبر بقبول الأوضاع الحالية على أن يدفعوا أكثر مقابل تحسينها، بالرغم من عدم الرضى عن ضخ المياه والخدمات المقدمة. والتفسير لهذا قد يكمن بأن ميزانية المشتركين مستنفذة حتى النهاية وليس لديهم المقدره على دفع المزيد. وبينما هذا هو حال ذوي الدخل المحدود، إلا أن المرجح أن مشتركي سلطة المياه لا يؤمنوا بأن زيادة قيمة التعرفة ستؤدي في الواقع لتحسين الخدمات بل على العكس أعرب المشتركون عن تخوفهم بزيادة قيمة التعرفة مع بقاء الخدمات على حالها أو حتى تنديها.

هناك عدم اكترات بشكل كبير بين المشتركين بالمعوقات التي تواجه عمل سلطة المياه بالإضافة إلى عدم التعاطف مع التحديات التي تواجهها، مما يحتم على السلطة أن تبادر بالاتصال بشكل سريع وصريح مع مشتركها. لقد قدمت هذه الدراسة بشكل جلي مؤشرات واضحة لاتطباعات وتوجهات المشتركين، ولكنها لا تقدم إي إجراءات تنفيذية تقوم بها سلطة المياه لزيادة ثقة المشتركين. وعليه، فإن أهم التوصيات قائمة على استخلاص نتائج للدراسة واعتبارها الأساس لتصميم برامج خدمة المشتركين والتوعية العامة. وتقوم سلطة المياه بالفعل بتطوير مبناها الرئيسي بحيث يسهل على المشترك مراجعة السلطة، حيث تم توفير غرف انتظار جديدة بالإضافة إلى إشارات توضيحية وبارزة.

تقترح للدراسة أخذ الأمور التالية بعين الاعتبار:

- تحديد واعتماد استراتيجيات لتطوير ومأسسة برامج تدريب خدمات المشتركين في سلطة المياه والتي تتمحور حول سلوكيات الموظفين وتصرفاتهم للتعامل بشكل فعال ولائق مع المشتركين.
- تحديد الكادر المشارك في مثل هذه الدورات.
- تطوير أسلوب ومحتوى حملات التوعية العامة التي تقوم بإيصال للرسائل للمشاركين. وتتضمن بعض الخيارات:
 - * لقاءات المدينة " والمتنزهة من مختلف المواقع (حضرية، ريفية) وموزعة على كافة أنحاء المملكة.

- * حلقات وثائقية تمكن المستهلك من التعرف على نشاطات سلطة المياه وخططها وتظهر الجوانب المختلفة لكيفية تزويد المياه وإجراءات مراقبة نوعية المياه.
- * برامج تلفزيونية تركز على مختلف المشاكل الناتجة عن إهمال المستهلكين أو عدم معرفتهم باستخدام المياه أو مشاكل أخرى.
- * نشرات أو أية مطبوعات أخرى توزع مع الفاتورة لتزويد المشتركين بالمعلومات اللازمة.
- * مناهج تعليمية للمدارس عن مصادر المياه، واستعمالاتها، ومراقبة الجودة والتكاليف.
- * عقد محاضرات تعليمية ودورات ومناقشات جماعية.

ملخص النتائج الرئيسية لدراسة الاشتراكات المنزلية
(١٠٠٠ مصنفتي)

رقم الصفحة في التقرير	الإجابة	النتائج
توريد المياه		
٤٠	%٥٦ صيفاً، %٤٨ شتاءً	استلام المياه حسب البرنامج (مرتين في الأسبوع)
٤٠	%٣٦ صيفاً، %٥٢ شتاءً	استلام المياه لمدة ٢٠ ساعة أو أكثر غير منقطعة
٤٠	%٥٢	الرضى عن قوة ضغط المياه
٤١	%٣٤	شراء مضخات لزيادة ضغط المياه
٤١	%٤٦ صيفاً، %٩٠ شتاءً	كفاية المياه للاحتياجات المنزلية
٤٢	%٥٥	الرضى عن فترات للضغط ومدة التوريد
٤٤	%٧٣	الرضى عن جودة المياه (اللون، الطعم، النقاء، صلاحية الشرب)
٤٧	%٩٠	الربط بنظام شبكة الصرف الصحي
٤٧	%٧٧	الرضى عن خدمات شبكة الصرف الصحي
إصدار الفواتير		
٤٨	%٧٤	تفضيل نظام إصدار للفواتير الربعي الحالي
٤٨	%٤٥	شكاوي متعلقة بالفواتير
٤٨	%١٦	عدم الرضى عن استجابة سلطة المياه للشكاوي المتعلقة بالفواتير
٤٩	%٦٨	الاعتقاد بأن قيمة الفاتورة تعكس قيمة استهلاك المياه
استعمالات وبدائل التوريد بالمياه		
٦٠	%١٦	غلي مياه العسلطة
٦٠	%٢٥	فلتر مياه العسلطة
٥٥	%٢٨	شراء مياه الصهاريج
٧٦	%٥٩	شراء مياه للصهاريج أثناء أزمة مياه صيف عام ١٩٩٨
٥٥	%١٤	شراء مياه معبئة بالزجاجات أو الأوعية
٧٦	%٤٦	شراء مياه معبئة بالزجاجات أو الأوعية أثناء أزمة مياه صيف عام ١٩٩٨
٦١	%٩٩	وجود خزانات مياه في المنازل
الرغبة والفكرة على الدفع		
٦١	%٢٨	المعرفة بنظام التعرف الحالي
٦٤	%٢٧	معارضة نظام التعرف الحالي
٦٧	%٢٧ راجع، %٧٣ غير راجع	الاستعداد للدفع لكثير مقابل المياه
٦٧	%٣٥ قادر، %٦٥ غير قادر	القدرة المالية لدفع للمزيد مقابل المياه
٦٧	%٤٧ راجع، %٥٤ قادر	القدرة والاستعداد لدفع للمزيد لنوي الدخل العالي
٦٨	%٢٠ راجع، %١١ قادر	القدرة والاستعداد لدفع للمزيد لنوي الدخل المنخفض
٧١	%٤٦	القدرة على دفع (٢) دقائق لكل فاتورة دورية مقابل خدمة أفضل (نظرياً)
٧١	%٩	القدرة على دفع (٣-٥) دقائق لكل فاتورة دورية مقابل خدمة أفضل (نظرياً)
٧١	%٤١	عدم القدرة على دفع أي مبلغ مقابل خدمة أفضل (نظرياً)
إشراك القطاع الخاص		
٧٤	%٦٧	الإمام بأي خطط للحكومة لإشراك القطاع الخاص في إدارة نظام المياه في صان
٧٥	%٥٥ دعم، %٢٠ معارضة	الدعم لمشاركة القطاع الخاص
أزمة مياه صيف عام ١٩٩٨		
٧٦	%٨٧	الاستمرارية في استعمال مياه السلطة خلال فترة الأزمة
٧٦	%٤٣	عدم فعل أي شيء لمعالجة مياه السلطة خلال فترة الأزمة
٧٦	%٤٧	الاعتقاد بأن الأزمة ممكن أن تحدث مرة أخرى
٧٦	%٣٩	الاعتقاد بأن أزمة أخرى لن تحصل لو كانت شركة خاصة مسؤولة عن إدارة المياه

ملخص النتائج الرئيسية لدراسة الاشتراكات غير المنزلية
(الصناعية والتجارية والمؤسسات)
(٤٠١ مستفتى)

رقم الصفحة في التقرير	الإجابة	النتائج
تزويد المياه		
٨١	%٥٩	استلام المياه حسب البرنامج (مرتين في الأسبوع)
٨١	%٤٠	استلام المياه لمدة ٢٠ ساعة أو أكثر غير منقطعة
٨١	%٨٢	الرضى عن قوة ضخ المياه
٨١	%٧٧	كفاية المياه للاحتياجات العملية
٨٢	%٦٠	الرضى عن فترات الضخ ومدة التزويد
٨٤	%٨٦	الرضى عن جودة المياه (اللون، الطعم، النقاء، صلاحية الشرب)
٨٨	%٨٤	الربط بنظام شبكة الصرف الصحي
٨٨	%٩٧	الرضى عن خدمات شبكة الصرف الصحي
قراءة العداد وإصدار الفواتير		
٨٨	%٧٢	تفضيل إصدار الفواتير كل ثلاثة أشهر
٨٨	%٧٦	تفضيل استلام الفواتير عن طريق الجابي
٨٨	%٥٣	تفضيل دفع الفواتير عن طريق البنك
٩٠	%٨٠	الرضى عن ضبط قراءة العداد من قبل سلطة المياه
٨٩	%٤٨	إذا سبق وأقيمت شكوى بخصوص قيمة الفاتورة
٨٩	%٦٠	الرضى عن استجابة سلطة المياه للشكاوي المتعلقة بالفواتير
٨٩	%٥٢	الاعتقاد بأن قيمة الفاتورة تعكس قيمة استهلاك المياه
استعمالات وبدائل التزود بالمياه		
٩٩	%١٠	غلي مياه السلطة
٩٩	%١٣	فترة مياه السلطة
٩٧	%٢٧	شراء مياه الصهاريج
١١٤	%٤٨	شراء مياه الصهاريج أثناء أزمة مياه صيف عام ١٩٩٨
٩٨	%١١	شراء مياه معينة بالزجاجات أو الأوعية
١١٤	%٢٣	شراء مياه معينة بالزجاجات أو الأوعية أثناء أزمة مياه صيف عام ١٩٩٨
٩٩	%٩٧	وجود خزانات مياه في المنزل
الرغبة والقدرة على الدفع		
٩٩	%٤٢	المعرفة بنظام التعرفة الحالي
١٠٤	%٦٧	معارضة نظام التعرفة الحالي
١٠٦	%٢٦	الاستعداد للدفع أكثر مقابل المياه
١٠٦	%٣١	القدرة المالية لدفع المزيد مقابل المياه
١٠٧	%٤٢	القدرة والاستعداد لدفع المزيد لنوعي الدخل العالي
١٠٧	%٣٥	القدرة والاستعداد لدفع المزيد لنوعي الدخل المنخفض
١١١	%٣٠	القدرة على دفع المزيد مقابل تحسينات في الخدمات المقدمة من سلطة المياه (نظرياً)
إشراك القطاع الخاص		
١١٢	%٥٧	الإمام يأي خطط للحكومة لإشراك القطاع الخاص في إدارة نظام المياه في عمان
١١٢	%٥٨	الدعم لمشاركة القطاع الخاص
أزمة موسم صيف عام ١٩٩٨		
١١٤	%٩٨	الاستمرارية في استعمال مياه السلطة خلال فترة الأزمة
١١٤	%٧٣	عدم فعل أي شيء لمعالجة مياه السلطة خلال فترة الأزمة
١١٤	%٣٨	الاعتقاد بأن الأزمة ممكن أن تحدث مرة أخرى
١١٤	%٤٤	الاعتقاد بأن أزمة أخرى لن تحصل لو كانت شركة خاصة مسؤولة عن إدارة المياه

EXECUTIVE SUMMARY AND MAJOR FINDINGS

Background

In October 1997, WAJ changed its residential and non-residential tariff systems. On average, municipal and industrial tariffs have been increased by 12.5 percent. WAJ is presently transferring responsibility for water delivery, system maintenance, billing and collection, and the rehabilitation of deteriorated networks to a private operator. The study of the willingness and ability of residential and non-residential subscribers in Greater Amman to pay more for water services seeks to contribute to a reframing of the relationship between WAJ and its customers and to better inform any efforts to restructure water and wastewater tariffs in the future.

Objectives

The objectives of the study are to:

- Provide information from residential and non-residential customers to design tariff scenarios which are sensitive to income and consumption levels, and other characteristics;
- Help decision-makers anticipate and prepare for the likely reaction of consumers to any tariff adjustments;
- Provide insights on customer service issues to AGWA management who are considering procedural and operational changes;
- Clarify the extent of people's support for private sector participation in the management of water utilities and suggest how issues might be best addressed; and
- Assist the design of public awareness programs that will support government actions on tariff adjustments.

Data Collection Methods

The study was carried out in two phases using complementary methods: focus groups and a statistical survey.

The first phase involved conducting 17 focus groups of residential and non-residential customers representing a cross-section of Amman Governorate Water Authority subscribers before and after the summer 1998 water crisis. The discussions covered a range of topics, including WAJ water services, alternative water sources, water tariffs, water conservation practices, and private sector participation.

The results of the focus groups were used to design two survey questionnaires, one for residential consumers and the second to reflect the interests of both WAJ and its AGWA subscribers non-residential consumers.

In the second phase, 1000 residential and 401 non-residential users were interviewed from February to April 1999. The information collected included the following:

- water awareness issues
- water supply
- quality and services
- additional supply sources and storage
- habits and practices
- willingness and ability to pay
- billing practices
- private sector participation
- 1998 water crisis
- characteristics of the interviewees

Major Conclusions

Overall Conclusions

- The public has translated its awareness of Jordan's water shortages into water conservation behavior that is apparent in every aspect of their daily routine. Water shortages are "here to stay," and people have suggested that WAJ should play an active role in expanding water conservation measures.
- Subscribers do not believe that WAJ is responsible for water shortages, but they do blame the Authority for its inability to assure a reliable and consistent delivery schedule which is free of disruptions.
- A satisfactory "continuous" supply for residential subscribers means at least twenty uninterrupted hours of delivery two or three days per week with adequate water pressure. For non-residential entities, the currently designated schedule is sufficient.
- Subscribers are relatively satisfied with the quality of network water. Modest attention by WAJ to water taste, purity, and overall potability may significantly increase its support among subscribers.
- Many subscribers believe that WAJ is deliberately negligent and uncaring. They see this attitude expressed in its poor delivery of services. WAJ's unresponsiveness to water supply disruptions and billing/meter discrepancies has diminished its image in the minds of consumers.
- Despite their general disapproval of WAJ's delivery practices, customers remain faithful to the Authority. If WAJ were to improve supply and quality it would be the exclusive supplier of water for nearly all customers. In that event, the tanker and bottle water

markets would largely disappear, with the exception of the largest users and isolated segments of the population.

- One of WAJ's priorities is to deal convincingly with those who can afford the current tariff and future increases but are unwilling to pay more.
- Although most subscribers do not know the current tariff, they are opposed to it, and are unwilling and unable to pay more in the future. This attitude pervades all consumption and income groups and is found among residential and non-residential subscribers. The general lack of support for future tariff increases can be explained in two ways: (a) tariff increases have not historically yielded any tangible improvements in WAJ's services and in many cases services have actually deteriorated, and (b) the majority of subscribers cannot afford to pay more.
- There are indications that some residential respondents are willing to pay more . However, tariff increases would have to be directly linked to the rehabilitation and modernization of Greater Amman's networks and the improvement of customer services.
- Most subscribers support private sector participation, if it leads to improved services without tariff increases, which will affect their cost of living.
- Communication between WAJ and its customers needs attention and improvement. Subscribers do not understand WAJ's plans, procedures, and constraints. They also believe that WAJ lacks the resolve to communicate in a way that will reduce the misunderstandings with its customers.
- Most subscribers do not understand the details of the current tariff system.
- On average, residential subscribers' willingness and ability to pay for a higher tariff does not exceed JD 3 per billing cycle. Non-residential willingness and ability does not exceed JD 5. For residential subscribers, although JD 3 or even 5 appears to be an insignificant amount, for many users it would mean a doubling of their present bill.
- Residential and non-residential subscribers are not willing to pay more for water if network supplies and services improve. This suggests that supplies and services already meet adequate standards so that their improvement does not warrant an increased tariff or that people are not willing to pay more for the improvements.
- The current quarterly billing system is approved of by the majority of subscribers. Most pay collectors directly, but many would like to pay through banks.
- Subscribers rate WAJ low on its responsiveness to complaints about leakage, billing and meter discrepancies, and supply disruptions. Unless corrected, WAJ will continue to face strong opposition from subscribers. It should be noted that slightly less than half of the total sample surveyed responded to these questions.

- Almost all subscribers own storage tanks which provide reserves for three to four days. The ownership of tanks has contributed significantly to subscribers' ability to cope with water shortages and supply disruptions.
- Tanker and bottled water are used by a small number of customers, but most of them are not loyal and would shift entirely to network water if it could meet their needs and standards.
- Televised panel discussions, which involve WAJ officials and experts, are the most effective communication medium for subscribers.

Residential Conclusions

- Upper middle and high income subscribers, who are the largest consumers and reside in West and Northwest Amman, are most dissatisfied with WAJ's water supply procedures, quality standards, and customer services and the most opposed to the current tariffs.
- Residents of Central Amman, who are middle and low income subscribers, are the most satisfied with their water supply and WAJ's customer services. They are less satisfied with water quality and pressure.
- Most subscribers are generally dissatisfied with WAJ's maintenance services, complaining about pipe leakage, billing/meter reading discrepancies, and supply disruptions.
- Most subscribers do not "bother" to complain about billing discrepancies.
- Among the subscribers who are able to pay more for water, a significant number opposed to the notion. Upper middle and high-income earners are among the most unwilling and unable. Inability is not a reflection of real worth, but a ceiling on how far people will consider paying for services.

Non-Residential Conclusions

- Schools, hotels, and factories are the least satisfied clients of WAJ concerning frequency and duration of water deliveries.
- Most entities are unhappy with the frequency and duration of water supply.
- Unhappiness with bill discrepancies is highest among entities which are situated in the southeast, east and northwest, particularly educational, industrial, and health institutions.
- Non-residential subscribers rate WAJ low for responsiveness to their complaints about supply disruptions. Those most negative were health, banking, industrial, and service entities in the east, southeast and northwest of Amman.

- In some cases, willingness to pay depends on the ability of the entity to pass the additional costs on to customers without losing their business.
- The few entities that are willing to pay more are mostly situated in the center of Amman, followed by the southwest and east. Of the few that have indicated an ability to pay, more are located in the east, southwest and north.

Recommendations on Customer Relations and Public Awareness

This willingness and ability to pay study reveals an interesting dilemma for the Water Authority of Jordan: both residential and non-residential subscribers say they are frustrated and unhappy with WAJ's operations, but the vast majority are not willing to pay more for better services. Subscribers appear to be more willing to accept existing conditions, despite their unhappiness with supplies and services than pay more for what it would cost to improve them. An explanation may be that subscribers' budgets are already stretched to the limit, and they have no more disposal income. While this is true for many lower income earners, it is more likely that they do not believe that tariff increases will actually result in improved services, fearing they will pay more and get the same or less.

The widespread indifference of subscribers to WAJ's constraints and their absence of sympathy for its challenges suggest that WAJ needs to communicate quickly and forthrightly with them. The study provided clear indications of customer attitudes. It is less revealing about the actions that WAJ must take to gain some measure of customer confidence. Therefore, the most supportable recommendations are those which use the study's results as the basis for further exploration and design of customer relations and public awareness programs. WAJ is already attempting to make the headquarters building more user-friendly to subscribers with new waiting rooms and colorful and visible signs.

In this changing atmosphere, it is suggested that WAJ consider the following:

- Identify strategies to develop and institutionalize customer service training programs in the Authority which instill in employees attitudes and behaviors to deal promptly and respectfully with customers.
- Determine the target participant audience for the training courses.
- Develop an approach for a public relations campaign which promotes and communicates targeted, informative messages on such topics as the tariff structure, the cost of treating and distributing water, billing procedures, how to communicate with WAJ etc. Some options include:
 - "Town meetings" which are televised from a variety of locations (urban, suburban, rural) throughout the country;
 - Documentaries which allow consumers access to WAJ's operations and plans and which demonstrate the various facets of the water supply and quality control operations;

- Televised case studies which focus on different types of problems caused by consumers' negligence or lack of knowledge, and others;
- A newsletter or other materials included with the bill, which provides relevant information to customers;
- Educational curricula for schools about water resources, uses and practices, quality control, and costs; and
- Educational seminars, courses and group discussions.

**Summary of the Major Findings of the Residential Subscribers Survey
(Based on 1000 interviews)**

Finding	Response	Page Cited in Report
Water Supply		
Receive water as scheduled (twice a week)	56% in summer, 48% in winter	40
Receive water for 20 hours or more uninterruptedly	36% in summer, 52% in winter	40
Satisfied with water pressure	52%	40
Purchased pumps to increase pressure	34%	41
Water sufficient to meet household needs	46% in summer, 90% in winter	41
Satisfied with frequency and duration of supply	55%	42
Satisfied with quality (color, purity, taste, potability)	73%	44
Connected to wastewater system	90%	47
Satisfied with wastewater services	77%	47
Billing		
Prefer current quarterly billing system	74%	48
Complained about billing	45%	48
Dissatisfied with WAJ's response to complaints over billing	16%	48
Believe billing is accurate and reflects actual water used	68%	49
Using and Supplementing WAJ Supplies		
Boil WAJ-supplied water	16%	60
Filter WAJ-supplied water	25%	60
Purchase tanker water	28%	55
Purchased tanker water during summer 1998 crisis	59%	76
Purchase bottled water	14%	55
Purchased bottled water during summer 1998 crisis	46%	76
Have storage tanks in their homes	99%	61
Willingness and Ability to Pay		
Knowledgeable about current tariff system	28%	61
Opposed to current tariff system	27%	64
Willing to pay more for water	27% willing, 73% unwilling	67
Able to pay more for water	35% able, 65% unable	67
High income earners willing and able to pay more	47% willing, 54% able	67
Low income earners willing and able to pay more	20% willing, 11% able	68
"Hypothetically" able to pay additional JD 3 per billing cycle for better services	46%	71
"Hypothetically" able to pay additional JD 3-5 per billing cycle for better services	9%	71
"Hypothetically" unable to pay anything for better services	41%	71
Private Sector Involvement		
Familiar with government plans to involve private sector in managing Greater Amman system	67%	74
Support for private sector participation	55% supported, 20% opposed	75
Summer 1998 Water Crisis		
Continued to use WAJ water during crisis	87%	76
Did nothing to treat water during crisis	43%	76
Believe the crisis will recur in future	47%	76
Believe another crisis will be avoided with a private operator	39%	76

**Summary of the Major Findings of the Non-Residential Subscribers Survey
(Based on 401 interviews)**

Finding	Response	Page Cited in Report
Water Supply		
Receive water as scheduled (twice a week)	59%	81
Receive water for 20 hours or more uninterruptedly	40%	81
Satisfied with water pressure	82%	81
Water sufficient to meet business needs	77%	81
Satisfied with frequency and duration of supply	60%	82
Satisfied with quality (color, purity, taste, potability)	86%	84
Connected to wastewater system	84%	88
Satisfied with wastewater services	97%	88
Meter Reading and Billing		
Prefer billing every three months	72%	88
Prefer bills delivered by collectors	76%	88
Prefer to make payments at banks	53%	88
Satisfied with precision of meter reading by WAJ	80%	90
Ever lodged complaint about billing	48%	89
Satisfied with WAJ's response to complaints over billing	60%	89
Believe billing is accurate and reflects actual water used	52%	89
Using and Supplementing WAJ Supplies		
Boil WAJ-supplied water	10%	99
Filter WAJ-supplied water	13%	99
Purchase tanker water	27%	97
Purchased tanker water during summer 1998 crisis	48%	114
Purchase bottled water	11%	98
Purchased bottled water during summer 1998 crisis	23%	114
Have storage tanks in their homes	97%	99
Willingness and Ability to Pay		
Knowledgeable about details of current tariff system	42%	99
Opposed to current tariff system	67%	104
Willing to pay more for water	26% willing, 74% unwilling	106
Able to pay more for water	31% able, 69% unable	106
High level consumers able to pay more	42%	107
Low level consumers able to pay more	35%	107
"Hypothetically" able to pay more for better services	30%	111
Private Sector Involvement		
Familiar with government plans to involve private sector in managing Greater Amman system	57%	112
Support for private sector participation	58% supported, 21% opposed	112
Summer 1998 Water Crisis		
Continued to use WAJ water during crisis	98%	114
Did nothing to treat water during crisis	73%	114
Believe the crisis will recur in future	38%	114
Believe another crisis will be avoided with a private operator	44%	114

CHAPTER 1 BACKGROUND, OBJECTIVES, AND METHODOLOGY

1. Background

In April 1997, FORWARD joined with the Ministry of Water and Irrigation (MWI) and the Water Authority of Jordan (WAJ) to develop a workplan for the Analytical and Policy Tools for Costing and Tariffs Program. Water and wastewater cost/tariff models are the main analytical tools for the program. During the development of the workplan, the secretary-general of MWI and WAJ requested that a willingness and ability to pay study be incorporated into the program in order to understand the perspectives and constraints of WAJ subscribers in Greater Amman. These views were to be used for identifying and analyzing different tariff scenarios.

The study was conducted at a time when the Water Authority of Jordan, particularly the Amman Governorate Water Authority (AGWA), was in transition. AGWA and other WAJ utilities are pursuing private sector participation in the management of utility services. Reducing costs and improving collections and revenues should improve the utilities' financial and physical conditions. WAJ is transferring responsibility for water delivery, system maintenance, billing and collection, and the rehabilitation of deteriorated networks to a private operator.

Customer dissatisfaction with services has been a continuing issue for WAJ and MWI. Water quality, level of services, rationing, and water pressure are among their most serious complaints. An already difficult situation worsened in the summer of 1998 when Greater Amman suffered a water supply and water quality crisis. Supplies from the Zai Water Treatment Plant were discontinued for long periods, and major parts of Amman were badly affected. People stopped drinking and using network supplies and turned to tanker and bottled water to fill basic requirements. Since then, MWI and WAJ have launched a major rehabilitation program in Amman to improve the distribution network and the services provided.

This study seeks to contribute to a reframing of the relationship between WAJ and its customers and better inform any efforts to restructure water and wastewater tariffs in the future.

2. Objectives

The objectives of the willingness and ability to pay study of Greater Amman subscribers are to:

- Provide information from residential, commercial, and service customers to design tariff scenarios which are sensitive to socioeconomic status, consumption levels, and other characteristics;

- Help decision-makers anticipate and prepare for the likely reaction of users to any tariff adjustments;
- Provide insights on customer service issues to AGWA management who are considering procedural and operational changes;
- Clarify the extent of people's support for private sector participation in the management of water utilities and suggest how issues might be best addressed; and
- Assist the design of public awareness programs that will support government actions on tariff adjustments.

3. Approach and Methodology

At the inception of the program, MWI and WAJ created a technical working group (TWG) of WAJ staff to work with FORWARD. Its members guided the preparation of the scope of work, helped design the focus groups discussion guide, contributed to the questionnaire design, and approved the sampling frame outline. Secretaries-general of MWI and WAJ and the working group attended interim presentations on the focus group discussions.

The study was carried out in two phases using focus groups and a statistical survey.

3.1 Focus Group Phase

This phase involved conducting 17 focus groups, representing a cross-section of AGWA consumers, to better understand what they, and potential survey respondents, think of current water services and water tariffs. The most important objective of holding the focus groups was to use the results to design the survey research and produce a questionnaire that reflected the interests of both WAJ and its subscribers.

The first set of 14 focus groups was held in April and May 1998, including eight residential and six from commercial, industrial, and service-oriented institutions in Greater Amman. At the request of WAJ and USAID, an additional three focus groups, two residential and one from commercial and service institutions, were held the following October, after the summer water crisis. These follow-up groups were used to confirm whether earlier responses had changed significantly and if new issues had emerged as a result of the crisis, requiring modifications to the questionnaire.

Each focus group had eight to ten participants. Participants were recruited from various geographic districts in Amman and from the immediate outlying areas. Consumption level, type of residence/industry/service, gender, and social grouping were among recruitment criteria.

3.2 Statistical Survey Phase

The second phase used the results of the focus group discussions to design two survey questionnaires, one for residential and the second for non-residential subscribers. Each questionnaire elicited information concerning the following:

- Water issues awareness
- Water supply
- Quality and services
- Additional supply sources and storage
- Habits and practices
- Willingness and ability to pay
- Billing practices
- Private sector participation
- 1998 water crisis
- Characteristics of the interviewee

A sampling frame was based on roughly 248,000 residential subscribers in Amman. A sample of 1,000 residential users was chosen to obtain reasonable accuracy. A separate sampling frame was developed for the survey of commercial and service institutions. Among a total population of 26,693 non-residential subscribers in Amman, 400 were sampled for the survey. In both cases, three additional sampling frames were generated to identify alternative subscribers if the first was not available or addresses were not correct.

A pilot survey was conducted in January 1999 in some selected areas in Amman. Based on the pilot, the questionnaire underwent some minor adjustments.

Numerators were trained to hone their interviewing techniques. A training manual explained the new tariff system, subjects covered in the survey, the sampling frame and methodology, and guidelines for coding the Likert scale questions. The survey was conducted in February, March, and April 1999. Data entry and analysis took place in May and June.

The study was conducted with the assistance of two marketing and research firms, Management Planning and Research Consultants (MPRC) of Beirut, Lebanon and Marketing Research Organization (MRO) of Amman, Jordan. MPRC was primarily responsible for data analysis and preparation of the final report. MRO took the lead in conducting the focus groups, carrying out the survey research, and overseeing data entry. The firms shared responsibility for preparation of the focus group discussion guides and development of the survey instruments.

4. Overview of the Report

This main report has four chapters which follow this background section:

- Chapter 2 provides the major results of the 14 pre-water crisis and 3 post-water crisis focus groups for residential and nonresidential users;
- Chapter 3 contains the major findings of 1,000 residential subscribers throughout Greater Amman;
- Chapter 4 has the major findings of 401 operators of commercial and service entities;

- Chapter 5 offers conclusions and recommendations for decision-makers in WAJ and MWI.

Annexes in this volume include:

- A detailed presentation of the focus group and survey methodologies;
- Discussion guides for the residential and non-residential focus groups; and
- Whole counts for each query in both residential and non-residential questionnaires.

CHAPTER 2 SUBSCRIBER FOCUS GROUP RESULTS

This chapter presents the results of the qualitative phase of the study. It covers the views of both residential and non-residential subscribers who participated in fourteen focus groups prior to the summer 1998 water crisis. It also presents the views of participants in three additional focus groups which were conducted after the crisis in October 1998 to assess its impact on subscribers.

1. Residential Focus Groups

Perhaps one of the most significant outcomes of the residential focus group discussions was the noticeable similarity of the attitudes of participants in the eight groups. The views of the groups did not differ appreciably based on their water consumption, income levels, gender, or place of residence. The questions explored in these focus groups significantly contributed to the design and conduct of the field survey.

1.1 Patterns of Consumption and Use

Information from focus group discussions shows that most Jordanians are aware of the need to conserve water all the time. Participants exhibited a high degree of acceptance of the need to constantly ration water. It was their civic duty to conserve this scarce and vital resource and to safeguard water reserves for future generations:

"We care because, in the end, we are the ones to suffer."

Indeed, most believed that WAJ should become more involved and forward thinking in promoting the concept of water conservation among all citizens in and outside Amman:

"...the Authority should do more to encourage people to save water."

Because of its scarcity, many of the participants are concerned that sufficient supplies of water may not be available for future generations. There are wide speculations about when water supplies will dry up:

***"Maybe twenty years" "...till the year 2000."
"It will last another three to ten years."***

Many participants even suspected that, in order to insure future supply, WAJ may have already instigated water rationing as a means of prolonging the availability of water supplies in Jordan:

***"There is enough water for only a few more years,
that is why it is rationed to make it last longer."***

Several participants pointed out that water shortages are not limited to Jordan. Water is a regional concern that requires serious consideration and attention:

"The crisis is not only a Jordanian one, but includes the whole region, the whole Middle East."

Some participants went on to suggest that the next major Middle East conflict could be triggered by regional water shortages:

"...[There will be a] ...water war, in the year 2000 because of a universal shortage of water."

Clearly, participants believed that water conservation behaviors were a necessary condition for preserving the future well-being of the country.

1.2 Water Availability and Supply

1.2.1 Availability

Participants' knowledge of Greater Amman's water sources was, at best, vague. Speculations ranged from ***"rain"*** to ***"Israel"***, ***"the dams"*** ***"Ras Al-Ain"*** to ***"Tabouk, Zeai, Azrak, rivers, dams, and wells."*** Most likely, participants' obvious lack of information concerning the source of their water was derived from their belief that this has always been, and will remain, a government concern. Because of this perception, all focus group participants maintained that water availability and supply problems were interrelated and should not be treated as separate issues.

Some residents reported that they have always been provided with some water:

" There is never a water problem in the area we live in, we don't feel the water problem in Jordan."

In contrast, many others argued that the amount supplied was neither consistent nor sufficient. These participants reported that:

***"...tanks are never full."
"We never have enough water."***

Some participants received water for many uninterrupted hours during the day:

***"In winter, we are continuously supplied."
"The pumping lasts for 24 hours."***

However, others claimed that they:

"...don't see water."

"The western part of Amman is favored over other areas and residents of that area receive water supplies about four or five days a week."

In areas such as Al Safi, some participants claimed that:

"... four inch pipes are open day and night."

Many believed that the agricultural and industrial sectors consumed most of the water supply:

"The Pepsi factory is sucking up all the water."

1.2.2 Supply

The general consensus of what constitutes a ***"continuous supply"*** of water is a two or three-day-a-week supply schedule depending on water pressure. Most participants from the wealthier areas of Amman acknowledged that, even though they have not suffered significant supply shortages, water shortage problems do exist. A few participants expressed serious misgivings about the water supply system in Jordan. Shortages were mainly attributed to ***"poor water pressure", "infrequent supply", "unreliable water supply schedules", "unfairness of distribution to some areas", and "favoritism by WAJ to specific economic sectors."*** These participants reflected that:

"The flow of water is weak...and the pressure is low."

and that water:

"...only comes for seven or eight hours and is supplied once a week, sometimes twice and sometimes not at all..."

In addition to inadequate rainfall, many participants blamed recent shortages on the increase of demand for water due to population growth and the large numbers of repatriated Palestinian/Jordanian citizens who left the Gulf in the early 1990s. Greater Amman has become overcrowded, and consumption has exceeded WAJ's available resources. This problem is normally compounded during the hot, dry summer months, due to garden maintenance, activities, personal hygiene, and increased personal consumption.

1.3 Causes of Dissatisfaction

Water scarcity due to Jordan's desert-like climate did not appear to be a source of discontent for the focus group participants. They recognized that their country was not naturally endowed with abundant sources of water. However, for several participants, mismanagement of this precious resource was a cause of great dissatisfaction and frustration. These participants criticized WAJ's management and operational methods. Those who positively viewed WAJ's overall performance regarded its operational management practices as effective and its decisions reliable:

***"No, never, we never faced any (pipe) leakage."
"We receive water four times a week." "Good pumping."***

Participants who voiced dissatisfaction with the Authority's overall performance believe that WAJ's neglect of the network system contributed to its dismal performance. Most

maintained that, were it not for constant pipe leakage incidents and poor maintenance practices, their water supply would have been significantly enhanced. An example, which was repeated by participants in almost all groups, was that:

"...the main pipe was broken for a month or more."

and that:

"...water networks are destroyed and damaged, and need maintenance and that wasted water exceeds the amount of water used by the citizens."

Furthermore, these participants observed that:

"...so many times, we see major pipes damaged, water flowing in streets for days and still no maintenance, we can say that 80% of water is used for no purpose."

Participants believe that the government would have been in a better position to provide more and better quality water if it paid more attention to the rehabilitation and/or replacement of the dysfunctional water networks in Greater Amman.

Dissatisfaction with WAJ was intense among participants who perceived water networks to be completely neglected. They alleged that WAJ's employees lack proper training especially in the fields of planning and maintenance. These participants considered WAJ to be both responsible and accountable for water waste and subscribers' discomfort; they demanded a more effective and responsive customer service function at WAJ. A few respondents emphasized that civil servants should be trained to become more responsive and efficient:

"Take the maintenance crew, for example, it is considered slow in attending to leaking pipes. We call them 30 times to answer our demands. All they do is pull a piece of wood and that is it."

"After three months, the damage is repeated."

To all participants, maintaining the networks is "**supposed**" to be an on-going process:

"There should be a group of technicians responsible for maintenance day and night."

What irritated most participants was that, on more than one occasion, water has flown in the streets at a time when they would be suffering from water supply shortages.

1.3.1 Breakdowns and Nature of WAJ's Response

Few participants reported leakage problems to the Authority. Those who did, remarked on the difficulty of reporting complaints to the Authority; WAJ's subsequent reaction in performing the necessary repairs was equally frustrating:

"I got in touch with the Authority so many times,

I went personally, useless, no answer."

Because of the long wait for repairs, some subscribers felt obliged to handle matters on their own:

***"...instead of repairing it they (the Authority) stopped the supply of water.
We complained many times, but it was a hopeless case.
What we did was we bought a pipe and opened the line ourselves."***

Many confirmed that:

"We waited so long that eventually we repaired the pipes ourselves."

Many also claimed that deficient pipes contained air and dirt. In some groups, subscribers complained that as water flows, it discharges dirt, rust and residues into their tanks. Still, other participants asserted that both the water and sewerage networks were overloaded and so closely inter-linked that their contents "***often***" got mixed, a claim they could not substantiate.

1.4 Alternative Water Supply Sources

Many participants have sought alternative and/or additional sources of water supply. They turned to private water supply companies. Many households bought water from private tankers which regularly visited and delivered water to neighborhoods. Neighbors generally shared a tanker load (around four to six cubic meters). Required delivery time was twelve to forty-eight hours "***but in summer we have to fight for it.***" Tanker water was a lot more expensive than WAJ's water and, in high demand seasons such as during the summer, prices sometimes soared to JD 4 per cubic meter. Higher prices were a consequence of increased demand triggered by long periods of water shortages:

"For four cubic meters we pay 12 dinars. It is expensive but what can we do?"

When compared to WAJ's water, tanker water was generally perceived by many participants as neither clean nor potable. Some participants avoided using tanker water for drinking purposes, preferring bottled or filtered water:

***"Tanker water is not pure water." "It is only suitable
for gardening or animals, it has a bad smell."
"Sometimes it contains red worms."***

As another respondent pointed out:

***"The water is ok, but I have a comment to make on tankers' water.
They get it from places where it is not allowed for them to use it
as drinking water."***

Only a few participants felt that tanker water was:

***"... better than the Authority's water and does not contain
chlorine or any particles. It tastes well once boiled."***

Generally, several participants insisted that alternative private water sources couldn't be considered viable substitutes for WAJ's generally 'healthy' drinking water. The availability of alternative potable water sources, therefore, remains a serious concern to the majority of the population. Substantial shortages in drinking water are often handled by purchasing bottled water, a point made mostly by participants of the middle, middle-upper and upper income earners and by participants who boil tanker water.

Most participants agreed that WAJ should take serious steps in securing one or more additional sources of water supply. Participants suggested included collecting rain water, desalinating salt water, and purchasing water from neighboring countries.

1.4.1 Alternative Water Conservation/Supply Tools

When asked about alternative water conservation techniques, all participants considered water reservoirs to be very valuable tools:

"Since I have a tank, I don't face such a problem."

Tank and pump owners were not as negative about water supply issues, and exhibited less irritation when complaining about water quality and cost issues. Most participants resorted to pumping water from reservoirs when water was in short supply and/or when tanks were empty:

"If our tank ran low, we could pump water from the reservoir."

Other means of addressing water shortage issues included increasing the household's number of water tanks. Participants with roofs and/or basement space normally own two or more additional tanks for emergency purposes:

"I added three 2 cubic meters tanks, and I generally don't have a problem anymore."

In addition to tanks, a few participants indicated saving water in bathtubs; others occasionally shared the same tank space and pump with neighbors to get water to their apartments.

1.4.2 Implications and Observations

Resorting to alternative water sources has several economic implications. Private water supply operators represent an active and productive segment of the business sector. Several families lived off revenues received from supplying alternative water to needy households. However, using these alternatives posed a heavy financial burden for low and middle income families. Some participants were angry when the issue of purchasing additional water was discussed. They felt that the additional cost they incur in the purchase of supplemental water imposes an enormous burden on them, a burden they may not be able to bear for long.

Although grateful for the availability of alternative water sources, some participants blamed the increase in tanker water cost on WAJ's reluctance and inability to provide adequate water supply. When asked if they were willing to pay higher tariffs for water they did not always receive and had to supplement with purchases from private sources, the answer was a clear **"No."**

1.5 Water Quality Concerns

The issue of willingness to pay higher tariffs generated excitement when participants were asked about the quality of WAJ's supplied water. A few participants harbored doubts about the cleanliness of the water, despite constant reassurances from WAJ; some participants expressed dissatisfaction and agreed that the water supplied was neither clean nor healthy:

"... the water is chemically polluted; we don't have confidence in its purity."

These participants reported that it was obvious that the water was not clean, a factor which could be tested through sight, taste and smell:

"If they (WAJ) tell us that the water is pure and not polluted we don't trust them, because we see the impurity with the naked eye. So what would be the result of studies under a microscope?" "My daughter works in a lab. She knows the quality of water we are supplied with and she refuses it completely."

According to these participants, water clarity was routinely assessed to determine if water was potable; if discoloration or particular residues were detected, then the water was deemed unsafe for drinking. None of the participants could differentiate between water purity and potability. To them water purity was necessary, but it was not the only condition for water potability.

"I read once that Jordan's water is not even good for dish washing. How could it be good for drinking?"

These participants also reported that they routinely smelled and tasted the water to determine chlorine levels:

"Chlorine is harmless but changes the taste of coffee and tea, we can feel and taste it."

Many said that they look for a white film which usually forms on teacup rims in order to gauge the level of **"calcium"** in the water:

"When we boil water to make tea, the color comes out white - as if we added milk to it."

1.5.1 Water-Related Health Issues

Most participants explained that they could not afford to install a reliable filtration system, and instead relied, at times, on boiling the water, a practice which was both expensive and time-consuming. During discussions on water quality, several participants referred to

stories they had either read or heard concerning illnesses and health hazards associated with WAJ's water. Physicians were said to have warned that water has become a cause of diarrhea and constipation:

***"The water might be contaminated." "Sometimes the doctor himself tells me that a certain disease might be from water usage."
"The water is not healthy, it causes hair damage."***

"I heard that water in the north affects people!" "Yes, we heard it." "I've heard it from several people. Our relatives live in the north." "My daughter had very healthy hair. Now when I brush her hair I can see how much she's losing. The dermatologist said that it is due to water." "So many newspapers mentioned that diseases such as diarrhea and influenza were caused by drinking water."

Claims that Jordan's water is a health hazard were not substantiated by any of the participants. It was suggested that the media (newspapers in particular) have neither adequately clarified nor addressed the issue of water quality or concerns in Jordan. It is believed that this failure has added to the confusion on the subject of water as a health hazard.

1.6 Practices, Uses, and Habits

1.6.1 Quality as a Function of Filtration and Boiling

Participants alleged that poor water quality was mainly caused by WAJ employees' neglect of the filtration system. They believed that it was the responsibility of WAJ's employees to maintain water cleanliness through efficient monitoring and control of the filtration system. They also stated that a determining factor of water quality was the proximity of the customer's home to the pumping station. These same participants claimed that the closer the area was to the pumping station, the better the quality of water. The condition of the pipes grows steadily worse as the water travels further from the pumping station.

Subscribers' views of water quality issues have serious implications to how tariff increases might be perceived by subscribers. The overwhelming sentiment of subscribers was that WAJ's water was not safe to drink and that this concern was detrimental to future governmental tariff policies, which may entail tariff increases.

Female participants who believed that WAJ's water was not safe for drinking took precautionary measures:

***"The most important thing for us is to boil it, we have no other alternative"
"I have a filter at home. I filter the water and boil it too.
I'm so afraid of water." "I let water settle for 24 hours..."
"We buy bottled water all the time."***

A few participants took no precautionary measures at all, stating strongly that they felt the Authority's water was potable:

"Otherwise Jordan would have been 'plagued' with 'epidemics'."

***"...[if the water was bad] there will be epidemics,
the whole community will be affected."***

Others expressed concern but appeared to have "given-up" on water purification. Their reply to "Do you boil water?" was an exasperated:

***"Not always - we are fed up." "What can I do - what is the alternative?
no alternative - we have to accept it."***

A few asserted that, while the Authority's water was not potable, they believed that people have developed immunity to bacteria and other water related diseases:

***"We got used to this type of water. We have immunity against it.
Maybe if we are supplied with pure water, we might get sick."***

Female participants, in particular, expressed concern for the effect of water quality on their children's health. They believed that precautionary measures had to be taken only when children were involved:

***"We don't boil, but when my kids were young I used to always
bring bottled water- but when they grew up I stopped." "My daughters refuse
to give their children Authority water- only bottled or boiled water."***

1.7 Billing

WAJ subscribers are normally billed four times per year, once every three months. Most have received their bills quarterly. However, a few participants did not receive their bills according to this schedule. For those living on the outskirts of Amman or in rural areas, bills often arrived several months behind schedule. In some areas, participants reported receiving bills only once a year. Consequently, subscribers complained that billing inconsistencies caused unmanageable financial burdens:

***"We don't receive the bill every cycle. Sometimes once every year, sometimes
at the end or the beginning of the year." "Not every three months."***

When asked what billing cycle would be preferable, some of the middle, middle lower and lower participants favored a monthly statement. Monthly bills would be lower, and this would help ease the financial burden on their cash flow and allow them to make regular payments:

***"Yes, we want it monthly. This is convenient for us." "Yes, every month
of course, because I plan accordingly." "Yes, on a monthly basis, one would
organize his home affairs, and the water consumption would be normal.
That is better." "At least we know the average of water spent –
we might consume less."***

1.7.1 Method of Payment

Preferred payment methods varied according to personal requirements and specific locations. Some felt comfortable with the current practice of the door-to-door collector; others with going to the bank; some thought that paying by mail would be the best option:

***"The WAJ collector is better, he is one of the family." "That is the best way."
"I prefer the bank." "I'm afraid of collectors,
because even among them there is embezzlement."***

Advocates of paying via the bank included older subscribers who lived alone and were wary of strangers at their door claiming to be the "collector". However, for those residing outside Amman or with no easy access to banks, payments through the banks were thought to be very inconvenient.

***"Let us say you don't have a bank here, you'd have to pay
transportation to go to the bank in order to pay a three dinar bill."***

1.7.2 Bill Computation

Some participants were very concerned with how water bills were computed and itemized. They expressed extreme mistrust of the calculation process of bills, mainly because they stated that meters were unreliable and dysfunctional. According to them, water meters overstated the quantity of water consumed because they accounted for air pressure. Some participants explained that faulty meter readings were caused by WAJ's use of gas meters instead of water meters:

***"These meter machines available in the country are not good because
they are all gas meter machines. They are not water meter machines."
"It is how you read the meter and how you pump the water. I can't
economize on water if the base isn't right. What is read on the
meter is not the real consumption of water."***

'Fairness' and 'reliability' in the billing process greatly influenced subscribers' opinions and willingness to cooperate with WAJ. Most participants believed that the billed amounts were unjust because the meters incorrectly registered actual consumption. Some participants also believed that collectors did not always accurately read the customer's meter. Many participants believed that WAJ was not properly safeguarding their interests, and its practices were therefore deemed unreliable. Questions frequently asked by participants included the following:

***"Why does WAJ maintain defective meters and overcharge users?"
"Is WAJ attempting to cover its cost by overcharging?"
"Is the user paying the price of WAJ's mismanagement?"***

A few subscribers provided details on what seemed to be a common predicament namely, paying a bill that is in dispute. They spoke of receiving bills for "ten times" the expected amount. Many people reported bills that exceeded JD 100 for meters that were out of order. Furthermore, subscribers alleged that collectors routinely made rough estimates. The

participants explained that complaining to a customer service official was useless, since the subscriber was often requested to settle the bill first, and then complain:

"I doubt their (WAJ) truthfulness" "When you receive a bill for 130 dinars, and you go to the authority offices to complain, the first thing they say is pay first and then complain." "They don't ever try to help. The citizen is always guilty."

At the core of some participants' unhappiness with WAJ was the latter's apparent lack of adequate customer service. Several participants demonstrated feelings of frustration at WAJ's absence of compassion and the indifference with which their claims for bill miscalculation were treated. Consequently, subscribers stated that they often felt justified in physically readjusting their meter count and hence, their bill:

"I complained when I received a bill for 150 dinars, where in the past it was 7 or 8 dinars. I paid half the amount and refused to pay the second half. The clerk, upon checking the meter, told me that my meter runs extremely fast. They didn't come up with a solution so I lowered the tab which comes before the meter to slow it down like other meters."

Once again, it should be noted that the above views were not shared by all participants. As one participant put it:

***"Q: Your problem was solved because you pinpointed it?
A: Yes, because I went there immediately. The old problem is no problem now."***

Although a few participants voiced notions that ***"water should be free of charge like in other countries"***, most participants were more supportive of the old tariff system and did not complain about the difficulties of ***"copies"*** with water bills under the old tariff structure:

"Water tariffs have been fair up until now."

Compared to electricity and telephone bills, subscribers found water bills to be much cheaper:

"Water costs less than electricity." "When I pay 30 dinars per cycle and I have 4 tanks, I don't find it too much. I make use of these 4 tanks and more."

1.8 Current and Future Tariff Systems

Most participants read and understood their bills. However, many participants complained about having to pay taxes for services they did not receive:

"Some people don't have a TV set but have to pay 9 dinars every month. Why? This is unfair."

Questions on whether participants were aware of the newly introduced tariff system were also covered in the focus group discussions. Although most participants were aware of the new tariff system, they did not fully understand the details of this system.

"The new tariff is difficult to understand."

1.9 Willingness and Ability to Pay

1.9.1 Conditional Willingness

At the core of this qualitative study was the question of whether subscribers were willing and/or able to pay higher tariffs now and in the future. Participants did not exhibit a willingness to pay more for the same amount of water supply and services:

"Unless I'm 100% sure that I'm getting good and efficient services, I would not be ready to pay one dinar." "I think that people are ready to pay more if they are sure they will receive better water quality - not to boil nor filter it - and no bottled water."

A few participants indicated a willingness to pay higher tariffs under certain conditions: (a) if WAJ's preventive and corrective maintenance services improved significantly and waste was controlled; (b) if water supply was adequate and reliable; and (c) if water quality reached an acceptable standard. Finally, these participants would pay more if the higher tariffs were reasonable and bills reflected real consumption.

It is worth noting, however, that female focus groups showed a significantly higher degree of willingness to pay for improved water quality than did their male counterparts:

"Men do not worry about water as women do. We are the ones who wash, prepare food, boil water.... So, we are ready to pay one more dinar every month."

The majority of women in the focus groups were housewives who seemed very willing to pay for improved water quality. Female participants from the wealthier areas, such as Abdoun, expressed a willingness/ability to pay up to 100% more if WAJ significantly improved the water supply service:

"When they increase the price, you can control the amount of water you use. It depends on what you can afford, but it's important to have a complete service. We don't need any more headaches. We want to pay more but be relaxed."

Some rationalized their conditional acceptance:

***"This way, we save money instead of buying tankers water."
"Yes I will pay more, better than being sick and paying doctor fees."***

For those participants willing to pay more, the Authority had to demonstrate that it is credible and reliable. ***"They have to prove it."*** Moreover, some participants threatened to react negatively, if the tariff increase was too high or not accompanied by a significant improvement in the service. Generally, conditional support for paying higher tariffs, if combined with greatly improved services, was not high. Several participants, mostly male, refused to pay more regardless of the benefits they stood to receive.

"Q: How much are you ready to pay for better services?"

A: "Nothing, absolutely nothing."

To them, adequate supply of potable water was the right of every citizen. As stated above, some thought that WAJ should provide water free of charge ***"Rain is from God."*** When discussing serious water problems and/or when WAJ advocated tariff increases, the sentiments of participants were expressed in strong words. During the focus group discussions, expressions of these sentiments were received with sympathy and understanding by many participants who were originally more inclined to accept tariff increases.

1.9.2 Ability to Pay

Importantly, for most participants, willingness to pay was dependent on ability or income levels. The higher the income level, the more participants were willing, and therefore, able to pay for the water service. For instance, many participants expressed their (reluctant) willingness to pay more in terms of:

"One to two dinars." "Two to three dinars more." "Up to ten dinars."

"Maybe 10%." "Half a dinar or one dinar would be acceptable."

"Increases in fils I can afford, but when it becomes in dinars I will start stealing water against my will- because you encourage me to steal, whether public or private."

"Q: How would you steal it?"

"A: I'll break the pipe outside." "There are a hundred ways to cheat in water."

Those indicating willingness to pay more if given better services, better water quality and more adequate supplies, preferred quoting increases in dinars rather than in percentage terms; most likely because the nominal value was easier to relate to when assessing their ability to pay.

"I am ready to pay ten dinars per round (billing cycle)."

"Yes, four to five dinars per round."

1.9.3 The Advantages of Paying More

Generally, there was an atmosphere of exasperation regarding water issues. Most views on the willingness to pay centered on the notion that improvement in water supply will reduce stress levels, and significantly decrease tanker water consumption, physician visits, medicine, filtration, gas for boiling water and other expenses. Rather than incur these expenses, many subscribers will be willing to pay WAJ for improved services.

A significant negative relation existed between the actual amount of water received and participants' willingness to pay more. Where water was abundantly received, there was less willingness to pay more:

"If you ask the people of Hashemi, who are not supplied with water even once a week, they will be ready to pay one or two dinars more because they are in dire need."

But as inhabitants of this area, we are not facing problems, we are satisfied so why should we pay more?"

1.9.4 Side Effects of Higher Tariffs

Participants unanimously expressed serious concerns about the negative impact that tariffs would have on the economy. Participants worried that they would face increased costs on a variety of products and services as a result of the new tariff. Some participants' acceptance to support increased water tariffs was not an expression of a willingness to pay, but more an admission to the futility of resisting the inevitable. It was explained that, after all, tariff increases represent government policies which people can not reject:

"Whatever happens, nothing will change, we are obliged to pay."

Many participants, however, appealed to WAJ to accept settlement of the increased amount in twelve-month installments:

"The extra amount added should be divided over 12 months so that the consumer will be able to pay."

1.9.5 Information about the Current Tariff

It was apparent from focus group discussions that WAJ had conveyed little information to subscribers regarding the new tariff.

***"Maybe they are in need of money"
"Maybe they want to repair or modernize the pipes."
"Maybe we have to pay for Tabariya expenses."***

Notably, this perceived inaccurate and inadequate WAJ briefing on the reasons behind tariff increases intensified participants' mistrust in and suspicion of the Authority.

1.10 Views on Private Sector Participation

When asked about their knowledge of any plans regarding the transfer of management to a private operator for water services, participants' responses were neither definitive nor clear. Most were 'somehow' aware that a foreign company was in the process of assuming WAJ's responsibilities. Some even speculated that the government plans to invite a German company to operate and manage the water service in Jordan:

***"I heard that a German company has been given the contract for the next 25 years."
"We read in the papers that the water authority has been sold to a German company."***

Participants did not express surprise at the prospect of WAJ seeking private sector participation. This was due to the fact that the government has already begun to privatize some government controlled service sectors such as electricity and telecommunications. Participants' experience with the newly privatized electricity and telephone sectors was positive despite the fact that they reportedly paid more for such services. Strong opposition to private sector participation was lead by younger males who based their opposition

primarily on ideas of nationalism. Though WAJ's services had been somewhat unreliable, these participants didn't approve of the idea that a private foreign, rather than a local/Arab, company should be given the opportunity to reap the benefits of increased tariffs:

"I think the only one responsible for the water should be the government. The government is responsible for its people." "The private (foreign) management wouldn't care about me." "Something in involving the private companies touches the person in his daily life. I'm against it for water." "Foreign investment means non-Arab. It is okay for me the Arab, but I can't accept non-Arabs."

For most of the participants, private sector participation meant tariff increases; for some, it meant job losses. During discussions, participants continually expressed doubts about the level of concern a foreign company would have for them and their families. It was stated that an Arab company would be preferred because it might be more understanding of the lifestyles and struggles of the Jordanian people.

"I don't mind paying 20% more to my country (government or national company) ...but I'm not willing to pay more for a foreign company that will exploit me."

Importantly, female groups expressed strong and unreserved support for the idea of private sector participation. Receiving quality water far outweighed any feelings of nationalism. Supporters of private sector participation efforts by WAJ alluded to their positive experience with the recently privatized electricity and telecommunications services sectors. These participants stated that they expected water tariffs to increase and for services to become more customer friendly:

"We felt the difference when a private company took over the communication sector; we are currently receiving better services than before. So we are optimistic about receiving better services when a private company will be in charge of the water sector."

To most participants, private sector participation meant better water quality, more frequent supplies, friendlier services, better networks and less leakage:

"I mean new water networks, plastic pipes, better water quality." "The private company will have more funding, more studies, etc... Also seminars, ads, commercials..." "We believe that the foreign company to take over will appoint the right man in the right place."

All groups believed that the private operator should be monitored and supervised by WAJ:

"The investors' main aim is to make more profit. They don't care about us. There should be control."

1.11 Communication and Public Awareness

When asked about which medium was best for communicating information about WAJ, most participants favored television. Many participants spoke favorably of a recent TV water rationing campaign. These campaigns were appreciated and encouraged:

“Yes on TV: washing cars, gardens, watering, children playing with water and leaving the tap open.” “Through newspapers, TV, conference, circulars, but mainly during news: TV is the easiest means, not everybody reads newspapers.”

“The one available most is the visual media (TV) not written media (papers), because not everybody can read.”

“Public halls” and ***“schools”*** were also cited. Furthermore, many participants requested open dialogue between the Authority and the public regarding water rationing and water quality issues, disputes and tariffs. Participants expressed concern for the future and a desire to be included in the decision-making process, which ultimately affects them and their families:

“Open dialogue between the government and TV announcer, as well as a phone line live on TV to connect people with them.”

“[We want] direct dialogue with the public audience by professionals to discuss supply problems and quality of water.”

1.12 Conclusions

Clear indications emerge from the group discussions pointing to serious gaps in the relationship between subscribers and WAJ. The overall mood of most subscribers reveals mistrust in and unhappiness with WAJ as a service deliverer.

Nearly all participants agree that Jordan faces a serious water shortage which will not go away. Most, however, suspect that WAJ's management practices are responsible for causing supply disruptions, water quality problems, maintenance inefficiencies, meter reading and billing discrepancies and other related customer service problems.

WAJ's failure to repair or upgrade networks has been the immediate cause for pipe leakages and low pressure pumping. Further, the unfairness of WAJ in distributing water is considered the main reason for the deprivation of some regions in the greater Amman area. The participants from these regions accused WAJ of treating the wealthy with great favoritism. Water is always supplied to wealthy regions and repair work is efficient all the time.

Most subscribers feel that complaining to WAJ about pipe leakages, meter and billing discrepancies gets them nowhere. Consumers believe they are overcharged in many cases because of faulty meters. Similarly, many participants thought that WAJ is not concerned with the quality of water and, therefore, not with the health conditions of its subscribers. Water in many cases is not potable and poses a health hazard to younger people, especially children. Filtration and boiling of water are measures undertaken by several subscribers in an environment where water conservation practices govern the behavior of most users.

Several participants indicated a preference for monthly billing; the main reason being that monthly billing carries a smaller charge than the quarterly one and allows consumers to budget their monthly expenses more efficiently. As for payment methods, there was no particular preference to any single mode of payment. Some agreed that they prefer to pay the collectors, others the banks, and a few the post office or through mail.

The current tariff system was not understood by most participants. Their views about the system, however, were negative because many participants experienced significant hikes in their bills. Supporting a system they don't understand and then having to pay more for it, was just too much for these participants. Discussions were characterized by a high degree of excitement and anger.

When the question was asked of participants' willingness and ability to pay more for future tariff hikes, the upper middle and high income participants showed conditional willingness and ability levels. To most, unless WAJ was able to demonstrate that its services will significantly improve and water supplies will not be disrupted, there was no intention to support a future hike. As for ability, a 10% hike per billing cycle was tolerated. For some high income participants, they indicated an ability to pay 20% or 30% more on their bills if the 'misfortune' of having to *"wait all night for water"* is discontinued. The rationale offered for their willingness to pay more was mainly related to the fact that continuous water supply would reduce the expenses they incur in buying water from alternative water sources. The other, rather subdued reason, was that subscribers were resigned to the fact they will have to (anyway) pay what WAJ requires or else stand to lose whatever supply they receive.

Any tariff increases in the future would mean a higher cost of living for the public. Accepting to pay more did not mean that subscribers approved the concept. In fact, some made it clear that they will *"fight off"* an increase because water is an "intrinsic" right of every citizen. Others threatened to *"mess up"* the meters if WAJ went ahead with the increase. All in all, the 'mood' of the discussion on a higher tariff was not positive or promising.

Private sector participation for WAJ was not common knowledge to most subscribers. Despite the opposition of younger men to the involvement of a foreign operator, most participants supported the concept. Women were especially supportive because a private company meant that their children will always have a good supply of healthy, clean water. The experiences of some participants with other privatized government services were encouraging and motivating.

Subscribers described televised panel discussions with officials and experts as the most effective means of communication. Seeing these officials/experts and being able to call them on the telephone was a satisfying notion to most participants.

2. Non-residential Focus Groups

Users of water in the non-residential sector have varying needs and requirements of WAJ. Commercial institutions such as banks, retail shops, offices and most governmental non-governmental agencies have little need for water. Service organizations such as schools, hospitals, hotels, car wash stations and beauty saloons offer water as a service to

customers. Farms, nursery gardens, agricultural and industrial plants require water to do business. Consumption levels are lowest among commercial establishments which can, when needed, support their water supply needs through alternative resources.

The Perceptions and attitudes of non-residential water users are driven by different motives from those expressed by residential users. The issues, however, remain the same. There was little disagreement among the various participants about WAJ's services.

2.1 Introduction

All participants in the non-residential focus groups regarded water as an essential element in running their businesses:

***"Nobody can live without water."
"As a factory owner, water is the basic element."***

2.1.1 Water Resources Availability

Unlike residential participants, many non-residential participants believed that Jordan had enough water sources to meet current and future needs:

"...water is enough." "We have dams to last us 100 years." "But the water will never run out." "As for well water, it is all over the south. If they made good use of it, that water will last Jordan forever."

A minority, however, believed that Jordan's water sources were scarce. Some claimed that water availability has already reached dangerously low levels and they did not expect their future needs to be met:

***"No doubt, the problem already existed." "It is a serious problem."
"In the year 2010, there won't be any water in Jordan.
I read this report in a magazine."***

One participant warned that water disputes might be the cause of a future conflict in the Middle East region:

"If there are any wars to break out, water is the reason."

2.1.2 Water Sources and Supply

Participants' knowledge of water supply sources ranged from ***"rain water"*** to ***"recycled water in the town of Mahatta (station)"***, ***"I don't know"***, ***"Dams"***, ***"King Talal Dam"***, ***"Streams, wells, rivers like Yarmouk or the Jordan River."*** This lack of uniform information was also accompanied by an apparent lack of interest in the notion itself. Participants, however, were aware of the need to economize on the use of water. Rationing was accepted as a partial solution, which was a necessary but not sufficient answer to the problem:

"...but the Authority must also encourage conservation."

***“Whenever that water commercial appears on TV for water rationing,
I start laughing, my wife and kids ask me why,
I tell them because there is no water to economize on.”***

Perceptions of WAJ's delivery varied according to the participants' type of business. For representatives of businesses such as car wash, stations, yogurt factories or hair styling salons, where water constitutes a vital component of the production process, supply was said to be insufficient and in need of regular additions:

***“Everybody suffers from the same problem.”
“The Authority water meets less than half our needs.”***

For businesses, where the use of water is marginal, such as offices or retail stores, supply was considered adequate:

***“It is a commercial market. We use water to clean the toilettes,
things like that, employees use. But there is always water.”
“We, shop owners, do not have a problem, we only use little water.”***

Inadequate supply was attributed by many to weak water pressure that hindered water from reaching the tanks.

***“The Authority water does not come often, when it comes,
the pressure is too weak.” “The Authority water in the industrial city
used to let the water in once a week, and only for two or three hours per week.”***

Many complained about the lack of WAJ's adherence, in terms of duration and frequency of supply, published in a supply schedule. This proved irritating, especially for participants who depended on water for production. It was explained that the lack of water was not crucial for office cleaning, which may be easily postponed, but vital for the successful and profitable operation of a marble factory:

***“The schedule says we will give you 12 hours of pumping twice a week.
Usually we only get two to three hours and then the pressure is too weak.”
“The schedule says that we will get water on Wednesday and we
arrange things accordingly, the schedule is little respected.”***

Daily supply, according to the vast majority of participants, was not necessary. To most, high-pressure to allow water to reach tanks and a two or three-day-per-week supply schedule was adequate; especially if such a supply is regular and uninterrupted. Most agreed that:

“Three times a week is fine.”

2.2 Water Quality Concerns

In addition to the supply issue, discussions on water quality also evoked a variety of responses. For establishments that used water for washing or cleaning purposes only,

quality was not essential. Drinking water was routinely boiled and/or filtered or bottled water was bought.

Many participants tested water quality by using a pill called TBA which, when dropped in water, changes color by reacting to the chlorine level. The higher the chlorine level, the better the water quality. Participants claimed that many tankers add chlorine to their water, and that the Authority often checks tankers to make sure chlorine is added:

***"The water proved to be not suitable for drinking."
"There is a pill called 'TBA', put it in the water, shake it for a while and it turns violet. This shows that the water is clean. It has chlorine in it and it is pure. If the water doesn't change the color or if the color turns blue, then the water is not good."***

As in the residential study, relying on the senses is the most common method used for determining the quality of water. Most participants smell and taste the water to check the chlorine level, and look at it to assess its clarity. They also determine water quality by observing the frequency with which water filters are changed. Opinions concerning the quality of WAJ's water were mostly negative. Several believed that WAJ's water was dirty, unhealthy and sometimes polluted with sewerage.

"From the taste of water." "From the calcium that we see, from whatever we see in the tanks, it is very obvious. I put an American filter at home, the engineer told me that within a year and a half I should change it. In three months it stopped dripping water." "The residue is unbelievable." "The filter clogs."

Furthermore, it was alleged that the chlorine content varied with the on the recipient's proximity to the main pumping station. Many complained about the unacceptable level of residues found in water. It was explained that water residues damaged machines, like dishwashers and laundry equipment, and that dirty water caused them to wear out faster and to require frequent maintenance and costly spare parts:

"Sometimes when we boil the water in a kettle, the calcium is too much. In 2 days you have to clean." "Get a glass and fill it with water from the authority, keep it a few days, and see the residue. You will find something white." "Water is very dirty." "He removes the meter regularly, and don't ask about the stones and dirt found there. I wait for water to settle then I drink."

Only a few participants commented on the quality of drinking water. For most industrial, commercial and institutional users, whether WAJ's water was potable had little to do with the production process. This was also the case with the food industry, such as bakeries and restaurants, where some claimed that water was sterilized in the cooking process:

"We don't test the water, we put the hose and keep filling because in the end we will put them in the oven. That is a way of sterilization."

Importantly, many participants did not separate business concerns from those pertaining to their households. In some cases, their concern for how water affected their families took precedence over concerns for the quality of water in their businesses:

“Water here is dirty and not clean. The water was cut off, not at work but at home. I have to mention it. When the water came, we took samples, we found sewerage water in the sample.” “Every day on the radio there are complaints about the water.” “The death rate of liver patients in Amman is very high.”

As in the residential study, it was generally believed by many that the Authority’s water had negative repercussions on health:

***“My wife’s gallbladder was full of stones and sand. Why? From the water.”
“90% of diarrhea and vomiting is caused by the water.”
“Yes, a friend of mine, his daughter caught a virus from the water.”
“My two daughters went sick in a month. I sent them to the doctor three times.
I asked the doctor what the reason is.
He said that it is from the water. Boil the water before you drink it.”***

During discussions, participants generally exhibited mistrust in the Authority and its claim that water is potable and had no negative health effects:

“No, we do not expect anything from them. If you wait for them, it is a hopeless case.” “If the Ministry of Health goes to the Authority, it will close it down.” “Yes, it is not safe. I don’t want to exaggerate but I swear it is not safe.” “Ever since my daughter got a virus, I use bottled water for her.”

2.3 Causes of Dissatisfaction

Participants agreed that the Authority ignored their protests and complaints regarding water quality:

“They have engineers but they are always asleep. If they inspect the water and find it dirty, they just go away.” “They don’t do any treatment.”

They held the Authority responsible for water waste caused by aging water networks. All participants considered the system to be in dire need of substantial improvement if not complete replacement. They claimed that water was wasted on a daily basis due to the poor conditions of aging pipes:

***“When the water comes, you’ll find the water running in the street.”
“They also say that water is going down through the earth.
The pipes are worn out.”
“In [first] world countries, the net is renewed every 15 years.”***

Almost all participants expressed anger and despair towards the attitude of Authority employees; a common complaint was their lack of responsiveness and dismissive behavior. Many complained that employees at WAJ simply did not perform their jobs:

“First, if they are having breakfast, they will answer you after an hour, or they will put you on hold – so you’d automatically get a busy line – or when the line opens, somebody will tell you something, 10 minutes later somebody else will tell you something else.”

“The pipe breaks. They fix it. It breaks again. They fix it 30,000 times. This means there is something wrong.”

“Every 3 or 4 times, they answer once. We are going, we are coming, we are on the way...” “They have to work 24 hours.”

2.4 Alternative Water Supply

Respondents explained that water supplements were proportionate to their particular organizations’ needs. Businesses that relied mainly on water for operation, such as car washes and yogurt factories, depended heavily on tanker water which, for some, was used more regularly than the Authority’s water:

“Once every week we buy water.” “I can’t depend totally on the authority’s water. The water must be available, when a customer comes to wash his car, if I depend on the authority’s water I won’t work.”

Conversely, businesses that have marginal water requirements, such as offices and retail shops, reported a much lower dependency on tanker water:

“We shop owners do not have a problem, we only use a little water.”

The majority of participants reported that tanker water costs are substantially more than the Authority’s water. For light users, this seemed to be more frustrating when full fees were charged regardless of the quantity required to fill participants’ tanks:

“He says my fee is 30 dinars whether he fills one meter or 30 meters, it is the same.”

Some non-residential respondents said that they routinely share the costs of acquiring tanker water:

“Sometimes you order a tank, and you pay 30 dinars for it, even if you don’t want all of it. I saw it at my neighbors, either the hairdresser or the doctor. They order a tank and share the cost.”

However, tanker water proved to be less expensive for participants who needed large quantities of water. In contrast with Authority charges of a flat JD 1.5 per cubic meter, tanker water suppliers use a regressive rate system: the cost of water decreases as the quantity increases. Consequently, some large quantity purchasers buy their tanker water for less than JD 1 per cubic meter.

A couple of participants who relied solely on tanker water reported maintaining the Authority's idle meter connection only because it is illegal to disconnect it. At least one participant reported disconnecting the meter and resorting fully to tankers:

"In our company we disconnected the meters because the supply was so weak. We buy all our water from tankers now, it is cheaper than the authority water."

Resorting to alternative water supplies could have negative effects on both the Authority and Jordanian subscribers. Importantly, the quality of tanker water is not always subject to Authority control and may, therefore, have negative health consequences. Moreover, the Authority could suffer financial losses if most entities ultimately turn to alternative sources. This loss of revenue could, in turn, push prices up even further for regular WAJ customers. It was alleged during discussions that tanker water could, at the end, become more affordable than Authority water. Importantly, most non-residential participants claimed that tanker water was cleaner than Authority's water:

***"Of course, because the tank owners get their water from known wells."
"The tank water is cleaner." "Some tanks are cleaner than the Authority."***

2.4.1 Water Storage

Discussions concerning water storage facilities prompted a variety of responses, which were largely based on business size and the quantity of water usage. General storage tank capacity varied from four to eight cubic meters, though a few participants had tanks and reservoirs with a capacity of more than 70 cubic meters. One commercial shop owner stated that he did not need more than one to two cubic meters:

"In our bakery, we have two tanks, each of two cubic meters. That is enough."

While a car wash owner said he required 70 cubic meters and was still suffering from shortages:

"In the factory we have a reservoir of 40 cubic meters, but we still need to buy water from tankers."

2.5 Billing

Because salaries are typically paid at the end of the month, the vast majority of participants preferred receiving the water bill on a monthly basis. It was explained that this would allow them to plan accordingly and to eliminate the need to save for deferred payments:

"Monthly, it's much better. I'd rather pay it month by month than pay it one whole sum every three months." "The burden will be less."

Most non-residential participants preferred settling water bills through banks:

"The bank is the best."

2.5.1 Bill Computations

Discussions about water bill computation evoked complaints and serious misgivings. It was widely believed that water meters incorrectly record the quantity of water consumed by accounting for air seepage. As in the residential study, some claimed that the meters were originally meant for gas rather than water pipes:

"I bought a new meter (zero start)." "My friend suffered from a problem. The Authority changed his meter and that of his neighbors. Now he pays his neighbor's bill and the neighbor pays his bill." "The consumption might be the same but the price differs from bill to bill." "It is installed the wrong way. Of course the clerk does not read it. It is estimated." "When there is no water, the meter keeps running, even when there is no water. So you start getting the bill double or more, and you actually don't consume that much water." "The problem remains with the meter machine because of the air counts." "Let us say I get the bill and it reads 57 cubic meters. Ten or fifteen of these cubic meters are of air. You pay for air as much as you pay for water."

All groups complained that they had at some point or another been overcharged and that their claims were met with a ***"pay first and complain later"*** attitude from WAJ employees. Participants elaborated on the many incidents where a water bill revealed striking variance from the previous one. The difference, it was explained, would be so large as to warrant a complaint. WAJ would insist that the bill is settled first regardless of how large it is. Bill discrepancies were widespread and all focus groups were consistent in their complaints about this issue:

"They told me pay first then complain. I said I'm neither going to pay nor complain." "They said pay and then complain. I did. So they told me they will start deducting from each bill. You don't get your money back. The bill came, without any notice that a deduction has been done – nothing. I appointed a lawyer but nothing happened." "Our consumption is 30 dinars per cycle. Last cycle it was 200 dinars."

In response to a question on how much of the total office expenses goes to water bills, office owners indicated that it was about one to two percent; for factory owners, it was anywhere from 20 to 95 percent of their overall expenses:

"Very high, 60% of the expenditures. What is our water consumption? around 50%." "40%." "In our nature of work, we use electricity more than water. So it is basically around 3%." "30%." "As factories, 40% of costs." "At the salon it is 30%." "To me it is 40%." "To me it is 95%." "To me it is 80%."

2.6 Current and Future Tariff Systems

Most participants were aware that a new tariff system existed. Most of the heavy users knew exactly what the change was and how it affected their current bills. Consequently, they were more concerned about the possibility of a new tariff system than about other issues:

"You are saying two meters per week, that is eight meters per month. So that is 24 meters per cycle times 1.5 dinars so your bill should be around 40 dinars." "The commercial is different from the residential. They charge 1.5 dinars per meter."

Many participants indicated receiving at least one bill under the new tariff system. Notably, most small and medium sized users reported that their bills had substantially increased. One respondent claimed an incredible 350 percent increase.

For these subscribers, the "new" tariff system was viewed less favorably for two main reasons. First, the new JD 1.5 flat tariff far exceeded the rate applied by the previous linear system, where consumption costs were calculated according to low and medium usage. Second, a minimum, per three-month cycle charge, was levied against each organization regardless of how little was consumed:

"The old was better, no doubt." "My latest bill was 35 dinars - the average before was 12 or 14 dinars." "We used to pay 4 dinars now it's 12 or 13."

A few large-volume users, however, reported that their bills remained unchanged or decreased under the current tariff system. They felt that they had benefited from the JD 1.5 flat tariff. Under the previous tariff system, the bulk of their consumption was priced at a much higher rate than the current flat tariff:

"It depends on the consumption. Those who consume a lot of water like me, benefit from 1.5 dinars per meter. If I consume 100 meters, that is 150 dinars." "The new tariff is better. I consume a lot of water."

A few participants claimed to have not noticed any changes with the new tariff. Based on their level of consumption, the new tariffs somewhat matched that of the previous tariff system:

"We did not feel the difference."

Participants who received higher bills under the current tariff system for the same consumption levels, expressed confusion and anger. Most indicated that their previous bills were affordable compared to other costs, but considered the new charges to be excessive:

"Maybe to help pay for repairs and better services, but I have not noticed any change." "They want to replace the old nets. That could be a reason. Also privatizing and the scarce water resource."

Some participants claimed that the Authority was receiving foreign grants; this didn't justify any increase in tariffs. They believed that the grants were enough to cover all necessary repairs, therefore eliminating the need to impose additional charges on subscribers:

"That is a wrong principle. I know that they received 57 million dollars support from Germany to improve the net."

"I wonder to whose pocket the 57 million dollars went."

"The purpose of this new tariff is not to serve the people more but to serve them less. The purpose is to economize."

However, many respondents felt that they had no other alternative but to pay the new tariffs:

"What choice do we have, if we don't pay they will disconnect the water."

As stated above, some high volume users have started to exploit alternative supply sources. It was reported that the frustration of dealing with the Authority and increasing prices prompted them to exit the system and rely on tanker supplies instead:

"If right now we can't pay, then how can you ask us to pay more later. If we don't pay, they will cut the water. I'd rather buy water."

"Cancel the meter machine and get tanks."

They realized that regular purchasing of bulk quantities of tanker water allowed obtaining water at much cheaper rates than Authority tariffs.

"Anybody who makes a deal with those tank owners gets a good price. The price of two or three dinars per meter is for somebody buying water for once a month. But I get it for 950 fils." "In our company we disconnected the meters because the supply was so weak. We buy all our water from tankers now it is cheaper than the authority water." "We will probably increase our usage of tanker water and use the Authority water only for washing."

When those participants elaborated on the attractiveness of dealing with alternative sources, this prompted other participants to inquire about the cost and procedures of buying tanker services:

"Yes, I ask for big amounts. That's why the price I get from them is much less than of the Authority water." "I want to examine the cost of using only tanker water."

2.7 Willingness and Ability to Pay

Initially, the notion of paying additional increases was totally rejected by most participants. Little was communicated to them by WAJ regarding the purpose of the recent increase; the idea was refused outright:

"We have already paid the increase for God's sake." "They have already taken the increase." "No I'm not because I've already paid."

"We are getting support. We are getting support. The government is paying nothing from its pocket." "I'm not willing to pay because it is very expensive. I use it for washing purposes only."

Most felt that the first increase was sufficient enough for the Authority to implement needed repairs and the improvement of services. Many were reluctant to express any willingness to pay more, and they seemed to resent the question by the moderator. They believed they were already paying more than enough, and improvements in services and quality should be implemented using the current tariff:

***"Another increase? What?" "I am not willing to pay a penny more."
"No, leave it like this, we'll drink diesel." "That is a citizen's right, to drink clean water and get all the services, in return for the amount he already pays." "Nobody can afford it." "One can hardly make it." "If right now we can't pay, then how can you ask us to pay more later. If we don't pay, they will cut the water. I'd rather buy water." "Anyway, like this we can't afford to pay. That is the maximum."***

However, when options were explored, and the initial angry reactions died down, participants were more open on the subject. Willingness to pay more was closely linked to and conditionally dependent on better services, cleaner water and more adequate supply. The amount of increase participants were willing to pay varied between one and twenty percent:

***"I'm willing to pay any increase that the government puts in return of lifting all the taxes on the bill, why would I pay the university tax, the sewerage tax..." "It needs control. The pumps should be controlled. I'm willing to pay not 1.5 dinars but two dinars if you supply me with water – continuously – for drinking, for washing, for the toilette, etc." "I'm ready to pay the difference in return to clean water."
"Let's say 10%, 5% or 1% or in the form of a tax." "In return of pure and clean water, that would save me a lot of money."***

The non-residential participants expressed tariff increases in terms of percentages, instead of dinar values:

***"10% is OK. If I normally pay 10 dinars and now I pay 11, that is OK."
"10 to 20%." "The same thing, 20%." "...1 to 5% suits me fine."***

Participants agreed that the 'what-affects-one-will-affect-all' mandate will be put into effect in order to meet future increases of tariffs. Given that the increase was generally implemented by all business owners, many simply indicated that they will pass the tariff increases onto their consumers:

"It is not a question of whether we are able to pay - if the costs increase I will charge my customers more." "We have already increased the cost of the car wash." "I don't know if I would be able to pay, we will need to reduce other expenses and our use"

of water.” “The consumer will take it all.” “We used to charge two dinars for each car wash, now we charge 2.25 dinars. What can I do?” “Commercial didn’t make that difference. If it increases, I’ll increase the charge on people.”

Participants who agreed to pay more based their decision on a cost-benefit basis: If the increase enhances water quality and services and they can recover the extra charges without losing business, then the advantages would outweigh the disadvantages. As previously stated, concern about business and household water usage could not be separated. Most participants agreed to pay more because this would save on health care expenses.

2.8 Views on Private Sector Participation

For most participants, the concept of private sector participation was fully understood:

***“You won’t pay for the renewal of the water infrastructure. It will come as a donation from the German government.”
“Yes, there is a German project, in millions.”***

For some reason, all participants kept referring to a **“German company”** as the one, which will manage and operate the water service in Jordan. Participants’ perception of privatizing the Water Authority was influenced by their impressions of the government’s experience in privatizing electricity and telecommunications. Those who now pay higher phone bills believe that private sector participation will unquestionably bring about an increase in water prices. Those who have now a better appreciation of the better and **“friendlier”** services of privatized government agencies expect to enjoy similar privileges with a private water company:

***“Like the Telecommunication Company. In the past, you would call them up if your line goes down and they wouldn’t listen. You’ll call for 20 times. Now it is an operator, fast service.”
“OK, this water authority- Remove this staff and replace it with a staff from the private sector. The water will come everyday and in good quality. The complaints will disappear.”***

The majority of participants regarded opening the Water Authority to the private sector as a positive step. They exhibited little apprehension about the procedure, secure in the knowledge that, if the operator was to generate any profit, it would have to provide its subscribers with better services and modernized water distribution networks. Non-residential subscribers voiced their opinions by asserting that a private operator will ultimately improve their situation:

“A private company should give you the right answer.” “Better, we will have more trust in everything.” “The employee is more true and honest.” “The service will be a lot better.” “The government employees cover for each other. In the private company, if an employee does not do his job right, they kick him out.” “In all honesty, the more we privatize, the more we improve the quality.” “I support 100% all the services to be turned into private sector.”

A minority, however, objected to the idea of involving the private sector, expressing concerns about potential increases in tariffs:

***"I think the management of water should remain with the government."
"As an owner of a commercial shop, I'm against privatizing.
I like it the way it is." "That is an increase. As a result, there
will be an improvement. But the citizen has no income to pay for increases.
That's a general issue." "He's right. Privatizing means an increase
when I have a limited income, where would I get this increase from?"***

2.9 Communication and Awareness

Television and newspapers were cited as the best medium to communicate WAJ plans on the current tariff system and other water related issues. It was felt that using these two tools, the Authority could transmit important information to a high proportion of subscribers.

2.10 Conclusions

Like their residential counterparts, non-residential participants blamed WAJ for its inefficiency and ineffectiveness in managing and operating the water supply services. Most participants agreed that water supply, quality and maintenance services suffered because of the ineptness of WAJ's employees. Supply was insufficient because of disruptions caused by the network, pipe leakages and low pressure at the pump station. Quality was poor because WAJ's engineers didn't perform their duties adequately and skillfully. Meter reading and billing discrepancies were common because WAJ's collectors and accounting department employees committed errors and miscalculations. To these participants, WAJ was the cause of water waste, malfunctioning of equipment in factories and production firms, and the loss of business for them.

Unlike residential participants, however, different non-residential participants were affected in different ways and to varying degrees. Commercial institutions, like offices, banks, and retail shops had no great need for water and, therefore, were minimally impacted. Conversely, factories, hospitals, nursery gardens, and car wash stations suffered profusely either because they didn't receive an adequate supply to conduct business and because they had to incur enormous costs due to the purchase of tanker water.

All participants were aware of the current tariff system and expressed different opinions regarding its financial impact on them. Clearly, the impact depended on how much is being consumed and how the previous and current tariffs were computed. In the previous system, tariff charges were based on low, medium and high consumption levels. Once the consumer goes beyond a particular consumption level, the tariff changes upwardly and applies only to the cubic meters consumed within that new range (level). In the current system, the subscriber pays JD 1.5 per cubic meter. So subscribers who continued to consume the same amount may now be paying less or more money, based on their consumption level. These subscribers are now either happy or unhappy with the current system. It is safe to assert that a significant proportion of consumers, are now paying significantly higher amounts and are very unhappy with the current system. Of all expenses paid by subscribers, the water bill represented on the low end, 1-2%, and on the high end

20-30%, depending on the type of entity. Most participants indicated a preference to the previous tariff system.

The willingness of participants to pay more was conditional and restricted. They wanted taxes to be canceled so that they pay more for water. When asked how much more, 10% was a frequent response.

Ability was not an issue and didn't play a role in determining how much more to pay. Many middle and high level users confirmed that all extra tariff increases will be passed on to their customers. They were unwilling to pay WAJ without charging their customers the equivalent amount. Of course, commercial institutions had no issue with the current tariff because it did not affect their budgets in any noticeable way.

Private sector participation was overwhelmingly supported because participants' experience with some of the government's privatized services was positive. The most appealing quality of a privatized service was its "customer friendly" culture. All were looking forward to a friendlier experience with the water service delivery operator.

As for the best communication medium which can be used by WAJ, television and newspapers ranked highest. As for the television, the non-residential participants provided similar reasons to those offered by the residential groups. They favored television because they could relate to officials on a personal basis. Newspapers, however, were equally important because most managers and executives read the paper daily to follow-up on the business news of the country.

3. Post-crisis Residential and Non-residential Focus Groups

3.1 Residential Subscribers' Mood during the Crisis

During the summer of 1998, Jordan experienced a severe water pollution crisis. This crisis resulted in WAJ's decision to postpone the study's field survey for several months.

In an attempt to assess the mood of residential and non-residential subscribers during the crisis, three post-crisis focus groups were conducted immediately after the crisis subsided. Participants in these groups represented a wide variety (two residential and one non-residential groups) of subscribers who consumed different levels of water and resided in the target population area. The following is a brief review of the discussions in all three groups.

Understandably, most participants spoke with frustration and mistrust in WAJ as an operator of water services in Jordan. The mood of the discussions was negative and emotions high.

Most participants agreed that the most important cause of the crisis was WAJ's negligence and poor performance. Other less important causes, such as the poor water quality at the source and/or a defunct filtration technology system, were also mentioned as possible contributors to the crisis. Regardless of the cause, however, participants put the blame on WAJ for not advising them early enough in the crisis to boil and/or filter the polluted water they were receiving at their homes or businesses.

When describing problems relating to the water source, participants agreed that Israel was intent on providing Jordan with dirty water from Lake Tiberias, a breach of its water supply agreement with the government. Where WAJ has failed was in detecting and determining the quality of water when it arrived at the pump station and **“doing nothing about it.”** Participants insisted that water:

“Had a stinking smell, its color was yellowish and floating objects were seen...”

Participant's focused on how WAJ couldn't "see or smell" the water before it got into their homes or businesses.

3.2 Authority's Intervention

After about two weeks from the start of the crisis, WAJ began to play an active role in managing related problems. WAJ's intervention was on three fronts: controlling tankers' water distribution as far as quantities and costs were concerned; providing support to the health sector in order to protect the latter's hygienic requirements; and providing advise on how to deal with water quality control by subscribers. Though unnecessarily delayed, WAJ's intervention was seen as **“effective and helpful to us...”**. Participants blamed the two weeks intervention delay in causing them several hardships. They did, however, recognize WAJ for its effective handling of the crisis at its later stages.

3.3 Impact on Subscribers

3.3.1 Residential

The main impact on residential subscribers was cost. Subscribers had to incur additional costs to secure substitute water sources. Participants claimed that **“cost of tanker and bottled water increased horrifically”** during the crisis. For many, they were forced to buy **“tanker water at 20 dinars for every 6 cubic meter”** instead of the normal JD 10-12.

Bottled water became scarce, and as result, a lot more expensive than the usual. All of these additional costs amounted to **“100 to 300 dinars of extra expenses during the crisis”** for many of the participants.

The soft drink business also flourished. Many bought more soft drinks to augment their drinking needs in the hot summer months. Prices of soft drinks, however, were not affected by the crisis.

3.3.2 Non-Residential

Similar to their residential counterparts, non-residential subscribers developed dependence on tanker and bottled water during the crisis. The financial impact on these participants varied based on the type and size of the entity they represented. In most health organizations, WAJ's water supply was significantly reduced to **“say one or two times a week or none”**. A few industries had to close down because water supply was not suitable to their needs and they couldn't afford alternative supply sources. A few entities such as

car wash stations had to buy their own tankers to provide themselves and others with water. Banks and other small commercial entities bought bottled water for drinking purposes and increased their acquisition of tanker water for **"floor washing and toilets"**. Surprisingly, some small restaurants who couldn't afford alternative water supplies continued to **"serve Authority water to customers"**.

The increase of cost in tanker and bottled water to most non-residential entities stood at **"30-60 dinars (for offices), 10-30 dinars (for banks), and 1000-1500 dinars (for hospitals)"** during the crisis.

Obviously, both the residential and non-residential subscribers suffered, in addition to cost, extreme inconvenience. Several were taken by surprise and were not prepared to manage the crisis adequately.

3.4 Impact of Bill Cancellation

WAJ cancelled the water bill for the months during which the crisis occurred. Most participants agreed that WAJ's bill cancellation strategy was a step in the right direction. This action absorbed some of the anger because it allowed subscribers to compensate, though partly, for some of the added expenses. While most businesses claimed that they didn't abuse the use of **"free water"**, many residential participants declared they did. Non-stop **"watering of garden"** was a habit picked up by these participants. A few subscribers, both residential and non-residential, insisted, however, that they **"conserved water with all our hearts."**

In the health arena, participants representing hospitals declared that they witnessed an upsurge in emergency cases, which were related to the unhygienic nature of water. Though unsubstantiated, few participants reported that these emergency cases were heaviest during **"the first four weeks of the crisis"**. When asked if the crisis was over, most agreed that it was **"under control but not over."**

3.5 Attitudes towards the Current Tariff

Attitudes towards the current tariff were similar to those expressed by participants in the pre-crisis focus groups. Among the non-residential participants, industries and some service organizations suffered the most from the tariff increase. Chrome and paint factories as well as hairdressers/car wash stations felt the tariff increase. In the case of some of these participants, the tariff increase was passed over to their customers. Other entities, which used water for cleaning or drinking, were neutral because the current tariff did not impact their budgets significantly.

Entities in the non-residential sector, according to participants, have, in the most part, experienced an average of 15-30% increase in their bills; a few claimed that it was a lot more.

Residential subscribers who consumed larger quantities of water felt negatively about the current tariff. All others indicated indifference, especially those who did not realize that **"these prices were a new tariff."**

3.6 Attitudes towards a Higher Tariff

Most participants considered any higher tariff as a form of *“taxation on water”*. They all agreed that *“water shouldn’t be taxed”* and the current tariff should *“be the absolute limit”*. If new *“higher tariffs are introduced we will object very seriously”*. Willingness to pay more in the non-residential sector was anything from *“no problem, we consume very little”* (banks); to *“we will charge all extras to the customers”* (car wash stations); to *“we will shut soon”* (industry); to *“we will not pay more because we can’t charge patients”* (hospitals); to *“we refuse to pay more”* (hairdressers); and to *“we will pay 60 dinars instead of 50 dinars”* (schools).

In essence, the willingness to pay more depended on whether the entity can recover the additional cost *“without losing business”*. Those who were able to recover the new cost were more willing to respond favorably to WAJ’s higher tariff request than those who were not.

3.7 Private Sector Management

When asked if they felt WAJ should be privatized, some support was offered to the concept. Many felt that improved quality and service are necessary but not sufficient conditions for private sector participation or increased cost. There was objection to a *“French company”* and an insistence that if *“we can’t avoid privatizing... then more than one company should be chosen”* to encourage competition. Locals should be *“hired in these organizations”* after being trained properly. A few expressed a strong wish for WAJ to *“institutionalize accountability”* within its management structure and to *“continue to manage water services”*. In any case, almost all participants voiced the need for WAJ to *“exercise controls over the private company,”* regardless of its foreign or local identity.

3.8 Conclusions

Generally, the views of participants in the three groups were similar to those views presented in the previous two sections (pre-crisis residential and non-residential focus groups). Important as it may be, the emotional outburst against WAJ during the crisis does not seem to have left lasting scars in the minds of participants. Their trust in a government-run water service, however, remains strong. If WAJ became accountable for its actions, then services would improve and a healthier attitude by subscribers will emerge. To its credit, WAJ was able to absorb the shock of the crisis once it intervened substantially.

CHAPTER 3

RESIDENTIAL SUBSCRIBERS SURVEY RESULTS

1. Introduction

This chapter presents an analysis of the findings of the willingness and ability to pay survey conducted in February, March, and April 1999. For the most part, these findings focus on residential subscribers' opinions and justifications for supporting, or not supporting, current and future increases in water tariff rates. Additionally, the findings shed light on the public's awareness of the general water situation in Jordan, highlight their perceptions and attitudes towards WAJ's water supply, water quality and customer services issues and focus attention on subscribers' views on private sector participation in water management and operations.

The findings and analysis section includes information about respondents' satisfaction levels with WAJ's water supply, water quality and customer services. It will also outline subscribers' water-related habits and practices, views on WAJ's billing system, attitudes towards the current tariff system and disposition towards a rise in future tariff rates.

The chapter is presented in two parts. The first analyzes the degree of subscribers' satisfaction levels with water supply, quality and customer services; as well as habits and practices. The second investigates the degree of subscribers' willingness and ability to pay current and future tariff rates.

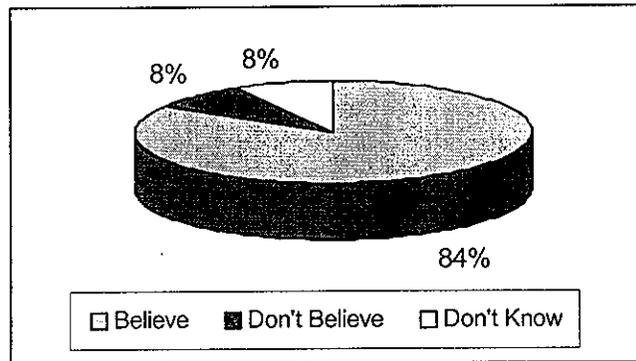
It is important to note that information provided in this chapter attempts to measure and analyze subscribers' views and perceptions. Unlike the previous chapter on the focus groups, data here presents the reader with a succinct understanding of "who thinks what and how". The core of this analysis is an understanding of the views of consumers, at various income levels and in different geographical locations, regarding water services and possible support of WAJ's future actions. Understanding the views and attitudes of its customers is essential for WAJ as it drafts new policies and procedures.

2. Residential Subscriber Attitudes towards Water and WAJ

2.1 Jordan's Water Shortage

Respondents showed a high level of awareness about the water situation in Jordan (Figure 3.1). Of the 84% who believe that there is a water problem in Jordan, the majority (64%) is convinced that the situation is critical but manageable. To most (80%) 'little rainfall' was the main reason given for the existing water shortage problem, followed (in this order of importance) by 'waste by users', 'a fast growing population' and the 'Authority's mismanagement'. Moreover, a large number of respondents (44%) speculated that Jordan's water shortage problems may become far more severe in the coming 20 years.

Figure 3.1
Subscriber's Belief in a Water Shortage in Jordan



2.1.1 Observations and Implications

The widespread belief that Jordan's water shortage is critical, caused by natural factors, should encourage WAJ to launch a comprehensive campaign addressing the issue of water shortage. WAJ should seek the active support of the public in solving the impact of long-term water shortages. Although few subscribers believe that WAJ should be blamed for its mismanagement of the water service, most recognize that Jordan faces a larger problem which is not going to disappear. Managing this problem requires a determined effort to ensure an adequate water supply for future generations.

2.2 Measure of Satisfaction with WAJ Services

The data in the study indicates consistent patterns related to water supply, quality, and customer services. Differences in subscribers' satisfaction appear to be a function of, varying consumption levels, income, and residence. Generally, the higher the consumption levels, and more affluent and geographical location of subscribers, the lower is subscribers' satisfaction levels with supply, quality and services. The opposite is also true.

2.2.1 Water Supply

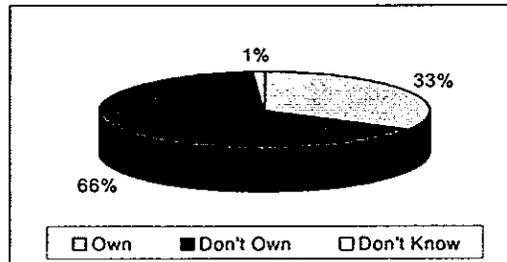
In this study, water supply means frequency, duration and availability. The majority of respondents believe that a continuous or optimal water supply scheme would entail a three-day-per-week delivery schedule. Importantly, during the summer, 54% are scheduled to receive WAJ's water twice per week; while 56% actually receive water as designated (twice a week). Only 11% receive water three times a week. During the winter, 48% of subscribers are scheduled to receive WAJ's water twice per week; a similar number actually receive water as scheduled. Only 22% receive water three times a week. During the summer, the frequency of water supply is 20 or more uninterrupted hours for 36%, 10-12 hours for 21%, and 16-20 hours for 12%. During winter, supply of water is 20 or more uninterrupted hours for 52%, 10-12 hours for 13%, and 16-20 hours for 11%.

For the majority of subscribers, adequate water pressure is required for ensuring a satisfactory level of supply. Only 52% of consumers are satisfied with WAJ's pressure; the

south, east and north show the highest satisfaction levels (75%, 64% and 61% of subscribers respectively). The lowest number of satisfied subscribers are in the west (37%), northwest (41%), southwest (47%), the center and outside Amman (50% each), and the southeast (59%).

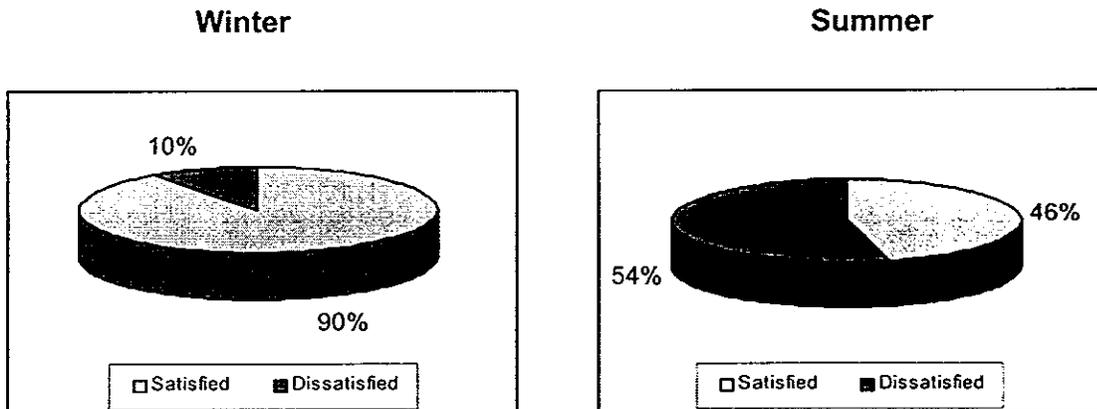
Because of low water pressure, 34% of subscribers have purchased their own pumps to increase pressure and allow water to reach their tanks (Figure 3.2).

**Figure 3.2
Ownership of Pumps**



The degree to which customers get enough water from WAJ differs between the winter and summer months. Provided there are no disruptions, 90% of subscribers assert that the quantity they receive during (a rainy) winter season is sufficient for their needs. The percentage drops significantly to 46% of subscribers during the summer season (Figure 3.3). This clearly means that if WAJ adheres to its schedule of distribution and ensures no network related disruptions, subscribers will be satisfied during the winter months.

**Figure 3.3
Satisfaction with Water Sufficiency according to Season**



2.2.2 Satisfaction with Frequency and Duration

In examining subscribers' satisfaction with the frequency and duration of supply, the study focused on addressing satisfaction and dissatisfaction levels according to subscribers' consumption levels, income, and residence.

According to Subscribers' Consumption Levels

Satisfaction levels with WAJ's frequency and duration of water supply are moderate to low (Table 3.1). Theoretically, frequency and duration mean specified days and hours per week based on WAJ's water schedule for the summer and winter seasons. Subscribers' satisfaction or dissatisfaction levels are related to whether water is being supplied according to WAJ's distribution schedule.

About 55% of subscribers are satisfied with the frequency and duration of water supply. Noticeably, subscribers who are most dissatisfied with frequency and duration consume 61-70m³, 71-80m³, and $\geq 130\text{m}^3$. The most satisfied category of consumers are those who consume $\leq 10\text{m}^3$; 62% are satisfied with frequency and 64% with duration.

According to Subscribers' Income

Satisfaction and dissatisfaction tendencies are related to income. Upper, middle-upper and middle income subscribers are most dissatisfied with frequency and duration (Table 3.2). About 53% of high-income subscribers are satisfied with frequency and duration in comparison to 63% in the low-income group.

Table 3.1
Subscribers' Satisfaction with Supply Frequency and Duration
According to Water Consumption

N=1000		Supply Frequency		Supply Duration	
Consumption Categories (cubic meters)	% of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied
≤ 10	15%	62%	35%	64%	33%
11 - 20	14%	55%	39%	56%	36%
21 - 30	19%	59%	35%	63%	30%
31 - 40	16.5%	49%	41%	48%	42%
41 - 50	11%	54%	38%	59%	34%
51 - 60	9%	50%	43%	49%	46%
61 - 70	5%	43%	50%	41%	54%
71 - 80	3%	33%	60%	33%	60%
81 - 90	2.5%	50%	42%	40%	42%
91 - 130	3%	54%	42%	51%	45%
≥ 130	1.5%	42%	50%	42%	50%

The data in Table 3.2 confirm that low level consumers ($\leq 40\text{m}^3$), who generally belong to the low income group, are the most satisfied with frequency and duration. These may be because water requirements of low income families are far less than those of the upper and middle income categories.

Table 3.2
Subscribers' Satisfaction with Supply Frequency and Duration
According to Income

N=1000		Supply Frequency		Supply Duration	
Income Level	% of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied
High	7%	53%	39%	53%	36%
Upper Middle	22%	46%	47%	48%	45%
Middle	50%	54%	40%	56%	38%
Low	21%	63%	33%	62%	34%

According to Subscribers' Residence

Geographically, subscribers in the affluent northwest and west are the least satisfied with water frequency and duration (Table 3.3). About 39% of subscribers in the west are satisfied with the frequency and 41% with the duration. In the northwest, 43% are satisfied with frequency and 44% with duration. Most other regions show moderate to moderate-low degrees of satisfaction levels. However, geographical affluence cannot be strictly defined on the basis of specific geographical boundaries. With the exception of two or three areas, income levels within and among the various regions in the study's target area vary greatly. Subscribers in the west, where most of the high and upper middle income users live, have complained more about frequency and duration. To most of them, their high water bills justify adequate services by WAJ. These consumers feel that they contribute significantly to WAJ's revenues and should, therefore, be treated preferentially.

Observations and Implications

Improved water pressure will undoubtedly increase the water amount received and raise the satisfaction levels of consumers. About 70% of subscribers receive water 2-3 days a week. For all consumers, it is of paramount importance that water, which is supplied to their homes, actually reaches their taps and water tanks. The arrival of water at homes plays a defining role in securing subscribers' support to WAJ. A higher frequency of supply, for example three days, and an enhanced duration of 20 or more uninterrupted hours for all subscribers will greatly improve satisfaction levels. Today, the situation is significantly more favorable for middle-upper and upper-income subscribers because they are able to install heavy-duty pumps. These pumps allow water to reach their tanks.

The variance in subscribers' dissatisfaction levels among the middle, middle-upper and upper income groups are insignificant. Subscribers in the south and center (mainly low and middle-income earners) are significantly more satisfied than subscribers in the higher income groups. Here, consumption needs are low and interest in frequency and duration is less of a priority.

Those who seem to suffer most are middle income consumers (61-70 cubic meters). These consumers' needs are relatively high but their financial means are relatively low. Not all of them can afford the purchase of pumps.

Table 3.3
Subscribers' Satisfaction with Frequency and Duration
According to Geographical Location

N=1000		Supply Frequency		Supply Duration	
Geographical Area	% Of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied
Northwest	23%	43%	49%	44%	48%
North	16%	61%	35%	64%	33%
East	5%	62%	36%	64%	36%
Southeast	13%	60%	36%	62%	36%
South	11%	70%	28%	71%	25%
Southwest	8%	57%	38%	59%	37%
West	15%	39%	45%	41%	42%
Center	2%	68%	32%	68%	32%
Outside Amman	7%	55%	45%	56%	41%

Affluency, whether income or geographical, is mostly associated with higher consumption levels and a greater need for water availability. Larger houses (or villas), with plentiful gardens, require a higher and more consistent water supply frequency. Any disruption in WAJ's distribution program is usually viewed negatively by subscribers of affluent areas because it impacts their standard of living and introduces additional costs to cover supplemental water supplies.

2.2.3 Satisfaction with Quality

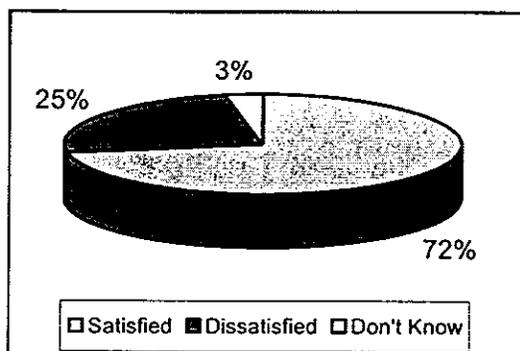
For the purpose of this study, water quality is based on color, purity, taste and potability. The majority of subscribers (73%) have indicated they are satisfied with color, purity, taste and potability of WAJ's water (Figure 3.4). It is important to note that this field survey was conducted after the occurrence of the water crisis in 1998. Respondents were asked to consider their satisfaction with water color, purity, taste and potability before the crisis occurred. This might explain the relatively high satisfaction rate with quality as well as the difference in satisfaction rates expressed by subscribers.

The following is a presentation of subscribers' satisfaction levels with quality according to consumption levels, income, and geographical locations:

According to Subscribers' Consumption Levels

Table 3.4 shows that consumers of 130 cubic meters or more are the least satisfied with quality. Their approval ratings of quality is moderately low especially when compared to other consumer categories (about 52% approve of quality).

Figure 3.4
Satisfaction with Color, Purity, Taste and Potability



Moderately low approval ratings are also given by consumers of 61-70 cubic meters. For these consumer groups (consuming between 61-70 cubic meters and ≥ 130 cubic meters), the quality factors which contribute most to their low satisfaction levels are water purity (only 54% and 50% of subscribers are satisfied respectively), taste (58% and 50%, respectively), and potability (54% and 50% respectively). Consumers of 61-70 cubic meters can least afford filtration systems (middle income families). Those consumers of 130 cubic meters or more are least satisfied because their consumption levels are high and because they pay relatively high fees for water.

Table 3.4
Subscribers' Satisfaction with Quality According to Consumption Levels

N=1000	% of Total	Color		Purity		Taste		Potability	
		Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied
<= 10	15%	76%	23%	70%	28%	72%	26%	75%	24%
11 – 20	14%	74%	23%	71%	26%	74%	23%	76%	23%
21 – 30	19.5%	75%	25%	73%	26%	74%	25%	74%	19%
31 – 40	16.5%	74%	24%	65%	30%	73%	23%	72%	23%
41 – 50	11%	80%	19%	73%	25%	79%	20%	81%	18%
51 – 60	9%	81%	18%	70%	27%	76%	21%	80%	18%
61 – 70	5%	70%	30%	54%	32%	58%	37%	54%	32%
71 – 80	3%	69%	27%	67%	27%	69%	27%	66%	27%
81 – 90	2.5%	75%	21%	67%	25%	71%	26%	71%	21%
91 – 130	3%	72%	27%	72%	27%	72%	24%	72%	18%
≥ 130	1.5%	57%	43%	50%	50%	50%	50%	50%	35%

On average, however, more than one-third of the population is unhappy with water quality. Unhappiness of subscribers is highest with water color, purity and taste. Water potability receives slightly higher ratings. The status of pipes (rust and residues) may be the cause of these quality issues.

According to Subscribers' Income

Table 3.5 shows that consumers who belong to the high and upper middle income groups are the least satisfied with quality, while middle and low income subscribers are more accepting of network water.

Table 3.5
Subscribers' Satisfaction with Quality According to Income

N=1000		Color		Purity		Taste		Potability	
Income Level	% of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied
High	7%	67%	31%	59%	37%	63%	34%	60%	34%
Upper-Middle	22%	66%	33%	58%	37%	61%	35%	61%	32%
Middle	50%	80%	19%	75%	22%	79%	19%	79%	18%
Low	21%	87%	21%	71%	27%	75%	22%	80%	16%

According to Subscribers' Residence

Table 3.6 shows that residents of the affluent northwest and west, along with subscribers in the center of Amman, are generally less satisfied with quality than are subscribers in other regions.

Noticeably, residents in the northwest, west and center are least satisfied with purity (67%, 60% and 44% of subscribers are satisfied respectively) and taste (58%, 68% and 56% respectively). For subscribers in the northwest and west, potability does not receive high approval ratings (66% and 58% are satisfied respectively).

2.2.4 Observations and Implications

The fact that large consumers from high and upper middle income groups and regions are the least satisfied with the quality of WAJ's water supports the need for WAJ to promptly address these groups. In the end, these are the groups which will be affected most by, and can afford, a rise in water tariff rates. Often, water purity and color are affected by the quality of the pipes rather than the water source. Rust particles and other minute residues could cause discoloration and taste. WAJ's maintenance programs should aim at improving the degree of water purity and taste through a maintenance program which aims at cleaning pipes and/or replacing defunct and old pipe segments. Improving these three essential factors (purity, taste and potability) may also enhance subscribers' satisfaction levels and help WAJ unleash a campaign aimed at securing their support. Fortunately, quality is not seen by subscribers as a major issue by nearly two thirds of the population. WAJ needs to put in place a few quality control corrective measures to help it reduce or perhaps eliminate any important causes of dissatisfaction.

Table 3.6
Subscribers' Satisfaction with Quality According to Residence

N=1000		Color		Purity		Taste		Potability	
Geographical Area	% of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied
Northwest	23%	71%	27%	67%	30%	68%	28%	66%	28%
North	16%	79%	20%	71%	25%	79%	20%	77%	18%
East	5%	79%	19%	70%	26%	77%	20%	77%	18%
Southeast	13%	86%	13%	82%	27%	83%	16%	90%	7%
South	11%	82%	18%	78%	20%	82%	14%	84%	14%
Southwest	8%	72%	28%	58%	36%	72%	28%	68%	27%
West	15%	62%	35%	60%	37%	58%	37%	58%	38%
Center	2%	56%	44%	44%	51%	56%	44%	88%	12%
Outside Amman	7%	82%	17%	75%	25%	80%	20%	85%	13%

2.3 Wastewater System

2.3.1 Connection to the Wastewater System

About 90% of the residences surveyed are connected to the wastewater system. The remaining 10% use septic tanks to discharge wastewater. About 27% of septic tank owners usually discharge their tanks once every 6 months; 17% discharge their tanks more than once every month; and 15% never discharge their tanks. Tank sizes range from less than 4m³ to more than 24m³; 50% of septic tank owners, however, do not know the size of their tanks. None of the septic tank owners have or use a treatment/recycling system.

2.3.2 Satisfaction with the Wastewater System

Out of the 895 residences connected to the wastewater system, only 8% claim that they have faced problems with their wastewater network. Problems included blockage (60%), flooding (39%), odor (24%), not enough capacity (22%), and poor system maintenance (20%). The majority of the subscribers, (90%), however, are satisfied with their connection to the wastewater system. Only 40% of the connected residences responded to questions on the blockage repairs issue. Here again, the majority (77%) was satisfied with this service. Of the 286 who did complain about flooding problems, 77% are satisfied with the level of WAJ's responsiveness to their complaints. Satisfaction with the wastewater maintenance system was high for 68% of the 371 subscribers who complained about it. WAJ should pay particular attention to the flooding of wastewater. Complaints were made about the mixing of wastewater with pipe water when leakage in the latter occurs. Generally, however, problems with wastewater connections are under control and require little more attention.

2.4 WAJ's Customer Services

The function of "customer services" plays a critical role in directly influencing subscribers' attitudes and perceptions because it reflects on WAJ's management style and its commitment towards customers. Subscribers firmly believe that effective customer

services should be provided fully. The results of this survey indicate that subscribers' satisfaction levels with WAJ's customer services are moderate to low. Subscribers have expressed anger, frustration and helplessness when responding to questions about customer services. Most of the subscribers indicated that getting good services is a "non-negotiable" right of the consumer. WAJ cannot attach any conditions to the provision of services. In this study, customer services include those activities which address WAJ's responsiveness to billing discrepancies and meter reading practices, maintenance of water pipe leakage and supply disruption occurrences.

2.4.1 Billing and Meter Reading Services

The Billing System

An overwhelming majority of respondents (96%) has reported that they are billed by WAJ once every three months. In response to a question on how frequent they would like to receive their bills, 74% of the respondents indicated a preference to the current billing system; 26% preferred monthly invoicing.

The majority of subscribers (85%) prefer to have the bill delivered to their homes by collectors. About 44% of subscribers prefer to pay their bills directly to collectors, while 40% prefer to pay them through banks.

How is WAJ Perceived Regarding Billing Discrepancies?

Of the total population sample of 1000 residential users about 45% have, at one point or another, complained to WAJ about different issues of billing discrepancies. Overall, about 23% of subscribers are satisfied with how WAJ responded to billing discrepancies and a combined 78% either had no complaints or were satisfied with how WAJ responded (Figure 3.5).

Figure 3.5
Satisfaction with WAJ's Responsiveness to Billing Discrepancies

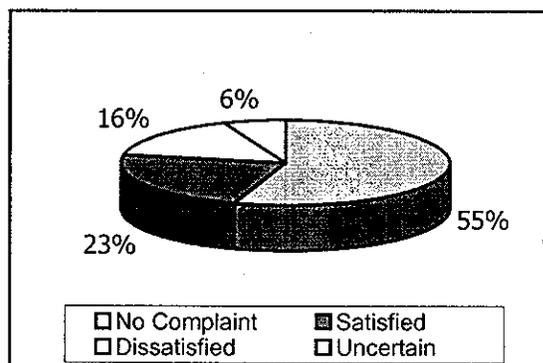


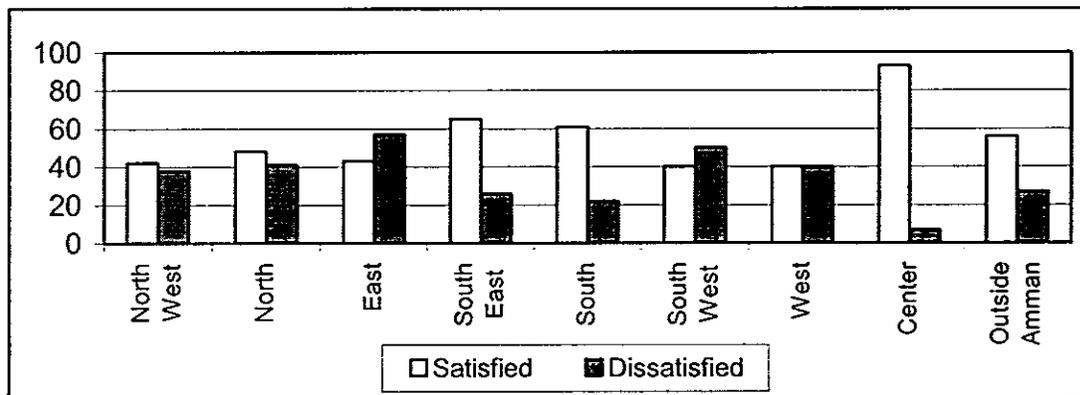
Figure 3.6 shows that satisfaction with WAJ on this issue is least with subscribers who reside in the west and southwest (40% each of subscribers are satisfied). This is followed by residents in the northwest (42%), the east (43%), the north (48%), outside Amman

regions (56%), the south (61%), the southeast (65%), and the center (93%). Naturally, regions which have higher consumption levels receive higher bills and, therefore, experience more incidents of discrepancies. This may explain why affluent regions, such as those in western Amman, have been more exposed to discrepancies and, as a result, experienced lower satisfaction levels with WAJ's billing services. Noticeably, where low-income level consumers resided, satisfaction levels were highest (center and south).

For 68% of subscribers, the bills they receive are accurate and reflect the actual amount of water they consume. These represent middle and lower income level subscribers. However, a significant 28% of middle upper and upper income levels reported that WAJ overcharges them for the water amount they actually consume. Despite the perceived 'discrepancies' in the billing system, 76% of the entire population sample have never complained to WAJ regarding their bills.

Clearly, billing discrepancies are higher for higher consumers and vice versa. WAJ's corrective measures in this area should aim at middle-upper and high-income subscribers who reside in west Amman.

Figure 3.6
Satisfaction with WAJ's Responsiveness to Billing Discrepancies
According to Residence
(n=453)

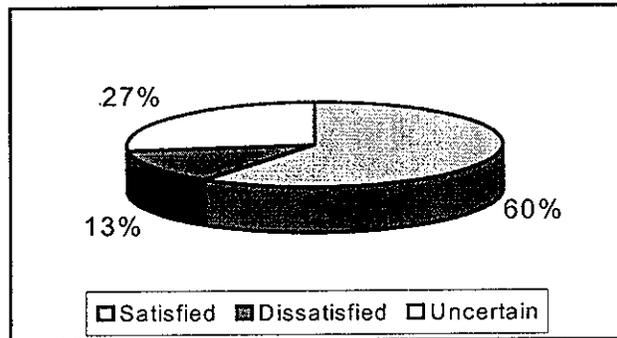


2.4.2 Meter Reading Practices

A similar pattern emerges for subscribers' views on the meter reading issue. Of the total sample, 60% of subscribers have indicated satisfaction with WAJ's meter reading precision. Of the remaining 40% of subscribers, 13% are not happy with WAJ's meter reading practices and 27% are uncertain (Figure 3.7).

The least satisfied subscribers reside in the west and northwest. Only 42% of subscribers in each of these regions are satisfied and express a sense of trust in WAJ's meter reading practices. Subscribers in other regions are less suspicious of WAJ's meter reading practices. About 60% of subscribers in the southwest have indicated satisfaction, 69% in the north, 70% in each the south and east, 75% outside Amman, and 79% in the southeast

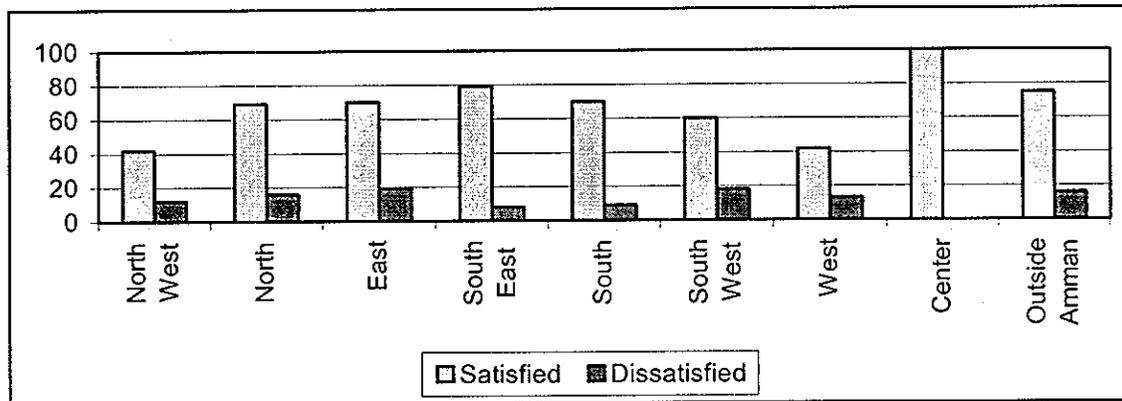
Figure 3.7
Satisfaction with WAJ's Meter Reading Practices



(Figure 3.8). All of the subscribers in the center of Amman trust WAJ's meter reading practices.

Here again, middle and low income families, residing in less affluent areas, are less suspicious of WAJ's meter reading practices. Those residing in the affluent areas and experience large charges have less trust in collectors' meter reading practices.

Figure 3.8
Satisfaction with Meter Reading According to Residence



2.4.3 Observations and Implications

It is recommended that WAJ maintain the current quarterly billing system. Serious attempts, however, should be made by WAJ officials to ensure accurate meter reading and billing. All measures should be taken to guarantee that meters are working properly and that they are accurately read by collectors. This is a very significant trust building measure which should be initiated immediately. Moreover, any concerns that customers have with their bills should be promptly and effectively handled by WAJ. In fact, all subscribers should be encouraged to report any discrepancies in their bills. Reading meters accurately and addressing subscribers' complaints on bills are measures which would reflect transparency and care for customers. In the long run, these practices could improve WAJ's bill collection results and

significantly enhance subscribers' satisfaction levels. It is significant that two-thirds of the population have had problems with their bills but never complained to WAJ about them.

Care has to be given to west Amman and its subscribers who receive large bills; the well-to-do segment of the population seems to require the most attention. A clear satisfaction pattern emerges differentiating those who belong to the middle-upper and upper income subscribers and all others. Well-to-do subscribers residing in affluent regions are very unhappy about WAJ's billing and meter reading practices; all others are generally satisfied. Here, the higher the consumption level of consumers, the lower is their satisfaction with billing and meter reading issues, and the opposite is true.

WAJ may want to consider institutionalizing alternative payment modes. Payments through collectors, banks and the post office, to name a few, present viable modes of payments. Subscribers should feel little or no burden when they make their quarterly payments of water bills. They should be able to pay in ways that are most convenient to them.

2.5 Maintenance of Water Pipes and Leakage

2.5.1 Pipe Conditions

The majority of respondents indicated satisfaction with the quality and condition of pipes in the target area. Nearly 59% of subscribers are generally satisfied with pipe conditions, whereas 16% of subscribers are dissatisfied with the quality of water pipes. The remaining 25% are partly satisfied (Figure 3.9).

Figure 3.9
Satisfaction with Quality of Pipes

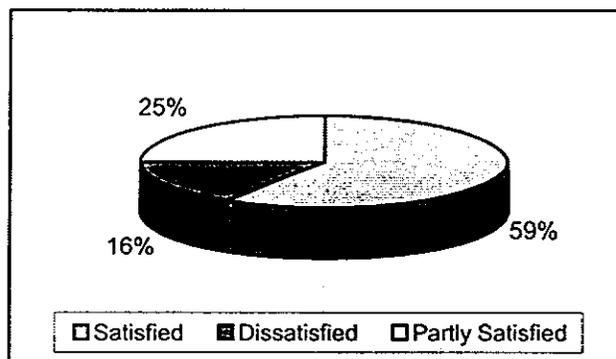
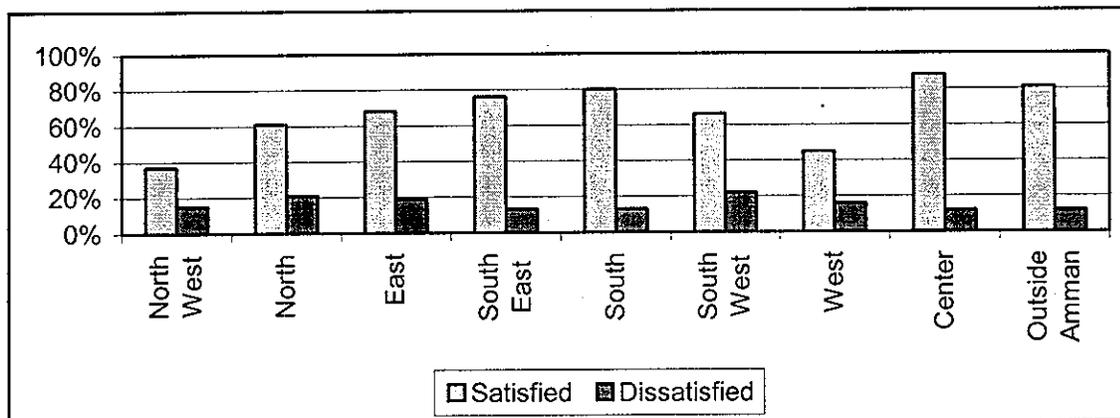


Figure 3.10 shows that the lowest number of satisfied customers with the conditions of the pipes reside in northwest, west and north Amman (subscribers who are satisfied with pipes account for 37%, 45% and 61% of their respective populations). Here again, subscribers in the center of Amman have shown the highest level of satisfaction (88%). An interesting finding appears in the south, where 80% of subscribers are satisfied with WAJ's pipe conditions.

The quality of pipes represents a much more pressing concern to affluent income level than to middle or low-income subscribers. These results support previous analyses that water quality, partly caused by antiquated pipes, is seen as a major problem by the middle-upper and upper income subscribers residing in the western regions of Amman.

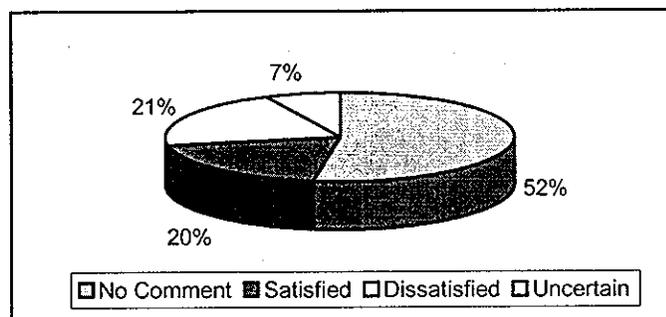
Figure 3.10
Satisfaction Levels with WAJ's Water Pipes According to Residence



2.5.2 How does WAJ Respond to Maintenance Calls Regarding Pipe Leakage?

Of the total population sample only 47% responded to the pipe leakage maintenance issue. Figure 3.11 shows that about 44% of subscribers' who responded are satisfied with WAJ's responsiveness to maintenance calls for the repair of pipe leakage.

Figure 3.11
Satisfaction Levels with WAJ's Maintenance of Pipe Leakage



Of the 47% who responded, the lowest number of satisfied subscribers is in the east (25% of subscribers satisfied), followed by the northwest (28%), the southwest (34%), the north (43%), and the west (47%). Higher levels of satisfaction are shown in the south and southeast (53% each), followed by outside Amman (59%) and the center of Amman (73%) (Figure 3.12).

In the minds of the majority of subscribers, WAJ's efforts to monitor pipe leakage leave a lot to be desired; a matter which they believe should be addressed promptly. Subscribers have

accused WAJ of neglecting their maintenance calls and responding with little or no enthusiasm to pipe and leakage problems. The east seems to be most neglected. The south and center showed far less interest in pipe related issues for reasons which may be caused by their lack of interest.

2.5.3 How is WAJ Seen as a Problem Solver of Supply Disruptions?

Only 467 of respondents (less than one-half of the target population) responded to this inquiry. Of these respondents, about 44% are satisfied with WAJ's responsiveness to their calls for help when water supply is disrupted (Figure 3.13). About 41% of the remainder are dissatisfied, claiming that they do not receive adequate responses from WAJ. According to them, water supply issues are usually not resolved in a reasonable period.

Figure 3.12
Satisfaction with WAJ's Responsiveness To Leakage According To Residence (n=467)

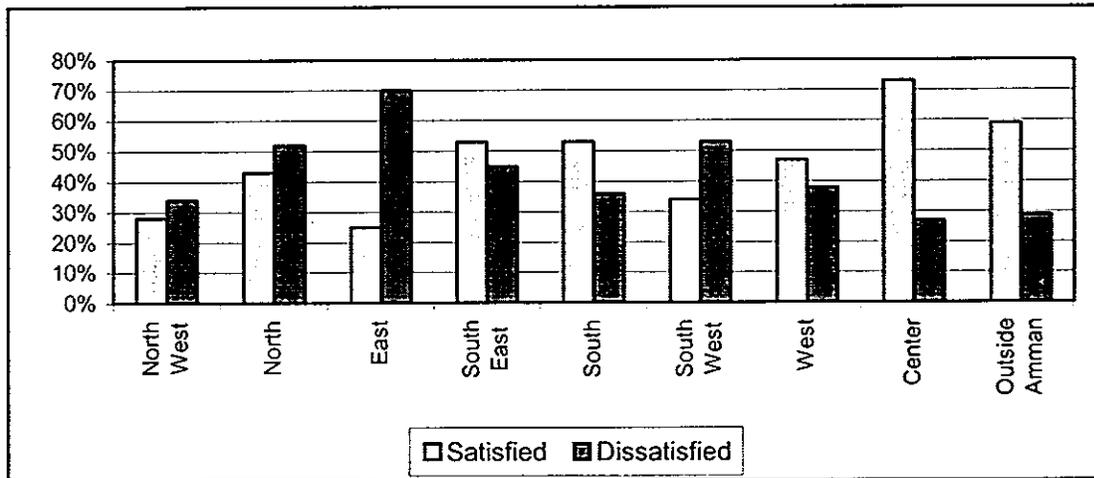
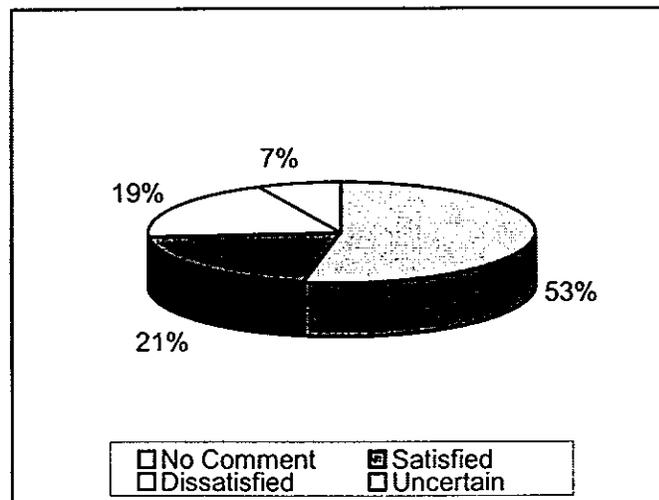
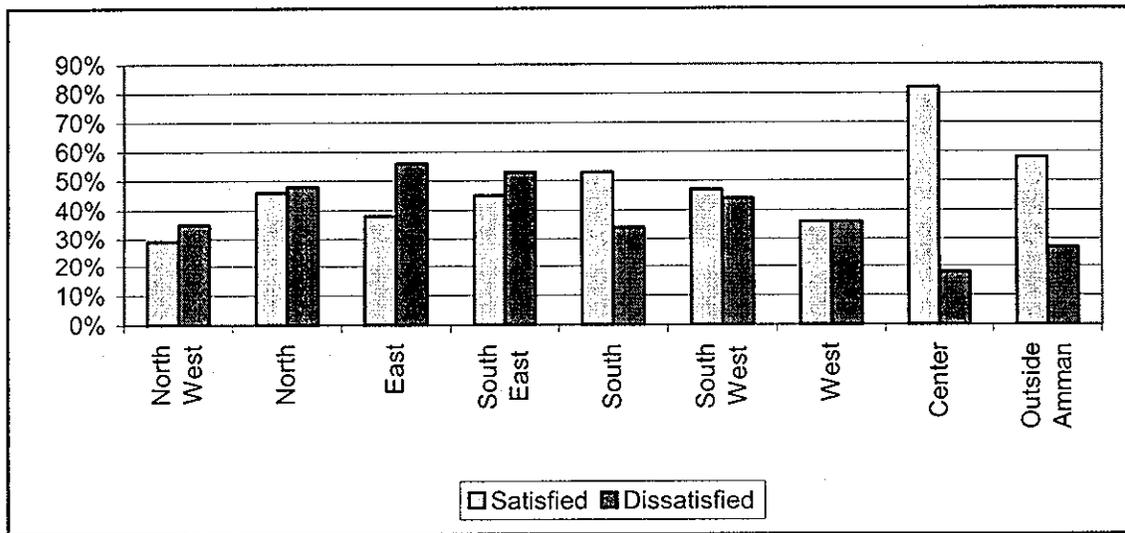


Figure 3.13
Satisfaction with WAJ's Responsiveness to Supply Disruptions



Of the respondents, only 29% of subscribers in the northwest indicated satisfaction with WAJ's responsiveness, followed by 36% in the west, 38% in the east, 45% in the southeast, 47% in the southwest, 53% in the south, 58% outside Amman, and a strong 82% in the center of Amman (Figure 3.14). These findings indicate a serious problem of water disruptions all across the target areas. WAJ, here, is seen as uncaring and ineffective in resolving disruption issues. Like billing and meter reading discrepancies, WAJ's unresponsiveness to disruptions has caused a negative attitude among a sizable segment of the population.

Figure 3.14
Satisfaction with WAJ's Responsiveness to Complaints
about Supply Disruptions
(n=467)



Subscribers in the center of Amman, which includes only 2% of the target population, are happiest with WAJ's services. The center has experienced fewer incidents of supply disruptions; perhaps due to the small number of residents in the area who generally belong to middle and low income levels.

2.5.4 Observations and Implications

The current relationship between WAJ and its customers can be improved. At least half of subscribers blame WAJ's management for poor customer services. This is a serious concern which, fortunately, through improved management practices, can be addressed effectively and successfully.

In subscribers' minds, water supply shortages which are due to uncontrollable natural causes is one thing; WAJ's inability to avoid unnecessary disruptions of water supply is another. Water supply, a critical "source of livelihood" and "a government responsibility," should be accorded WAJ's undivided attention and care. To most subscribers, excuses offered by WAJ for poor customer services are unacceptable, including those focusing on

WAJ's financial difficulties. There is little doubt that subscribers' attitudes and practices have been mainly influenced by what they perceive to be fair and unfair treatment by WAJ.

One can draw a direct link between subscribers' support for government policies in the water domain and the degree to which they are satisfied with WAJ's customer services. Subscribers' negative perceptions, justifiable or not, are at the crux of the current misunderstanding which exists between WAJ and its customers. Improving this "fragile" relationship between WAJ and its clientele will require WAJ to restructure its customer services and then let it be seen behaviorally that the "customer is always right." In the customer services area, WAJ requires to reflect a completely revitalized image, which shows that it cares.

Middle-upper and upper income consumers present the most significant challenge for WAJ. Though they represent a minority, subscribers are a significant source of revenue to WAJ. Their dissatisfaction with WAJ is enormous and can, consequently, be harmful to WAJ's image.

2.6 Alternative or Additional Water Supply Sources

2.6.1 Tanker Water

Tanker water supply is undesirable but necessary for most users of this source; it is costly but convenient. Only a minority of participants (28%) augments their water supply needs by buying tanker water from private operators. Tanker water is mainly purchased for household usage. Of the 279 participants who buy water from private companies, 71% buy water once or twice per month during the summer season. The purchased quantity does not usually exceed 3m³ to 6m³ per month. The majority of subscribers (86%) do not buy tanker water during the winter season.

Slightly more than half (52%) of subscribers who buy tanker water are satisfied with its quality in terms of color, purity, taste and potability. Dissatisfaction is greatest with the price of tanker water and the "waiting period" associated with delivery and supply. Significantly, 97% of the tanker customers have asserted that they would stop buying water if WAJ was able to provide adequate water supply and quality, especially during the summer months.

2.6.2 Bottled Water

The consumption of bottled water seems to be relatively low. Only 14% of subscribers buy bottled water. Consumption is usually less than five liters per week per subscriber during the winter season and 10-15 liters per week per subscriber during the summer months. Bottled water is mainly used for drinking, although some use it for cooking; a minority uses it for washing vegetables. Once again, the majority of respondents who use bottled water (96%) are willing to stop doing so if they were sure that WAJ can provide water of good quality.

2.6.3 Implications and Observations

Subscribers who buy tanker and/or bottled water generally prefer not to. They do it to supplement their household cleaning and drinking water needs. These subscribers mainly

belong to the middle-upper and upper income groups and reside in most of the regions under study. Most of the tanker and bottled water subscribers are not faithful to these alternative sources. On the whole, WAJ remains the preferred supplier of water.

With about 30% of the population buying tanker water, WAJ and the government should examine the economic implications to the potential demise of this market (i.e. tanker water). This is especially true in the event WAJ (or a private operator) gains the confidence of subscribers and is able to convert most of them into exclusive users of its water. The case is also true with bottled water where 15% of the population currently caters to this alternative source.

2.7 Water Storage

2.7.1 Subscribers' Dwellings

An important determining factor for the number of storage tanks available for a particular household is usually the size and type of the residential unit. Of the population sample, 45% live in single unit houses, while the remaining 55% reside in apartments. About 41% of the apartments are situated on the second floor; 14% are on the first floor; and 10% are on the ground level (Figure 3.15). Sizes of houses and apartments range from less than 80 to more than 700 square meters. The majority of residential units, about 41% are sized between 80–120 square meters, 34% are between 121-170 square meters, about 14% are between 171-250 square meters, and 3% range from 251 to more than 700 square meters.

Over 50% of the dwellings feature one bathroom; 44% feature two bathrooms. About 52% include two bedrooms; 28% include three bedrooms. About 98% include one kitchen. The size of gardens ranges from less than 10 to around 500 square meters. About 11% of respondents own gardens of less than 10 square meters in size; 9% own gardens sized between 10-50 square meters; and 4% own gardens sized between 51-500 square meters. About 76% of the respondents do not own a garden.

2.7.2 Availability of Tanks

Nearly all respondents (99%) have water storage tanks placed in their homes. Of these respondents, 46% have two water tanks; about 36% have one tank; 13% have three tanks; 3% have four tanks; and 1% have five or more tanks (Figure 3.16). Most tanks, especially those in single houses, are located on the roof: 44% of subscribers have two water tanks on the roof, while about 43% have one tank on the roof. About 12% of subscribers have one tank on the ground level, while 2% have two tanks on the ground level. About 3% of subscribers have one tank in the basement, while about 1% has two tanks in the basement. The maximum combined storage capacity for all tanks is between 2 and 3 cubic meters per household (for 57% of the subscribers), followed by a maximum of 4m³ per household (for 20% of the subscribers). Most of the respondents (77%) have no underground water wells. Of the remaining 23%, 97% own one well. The capacity of wells ranges from $\leq 3\text{m}^3$ to ≥ 15 cubic meters per household. The majority of respondents (92%) do not collect rainwater.

Figure 3.15
Type of Residence

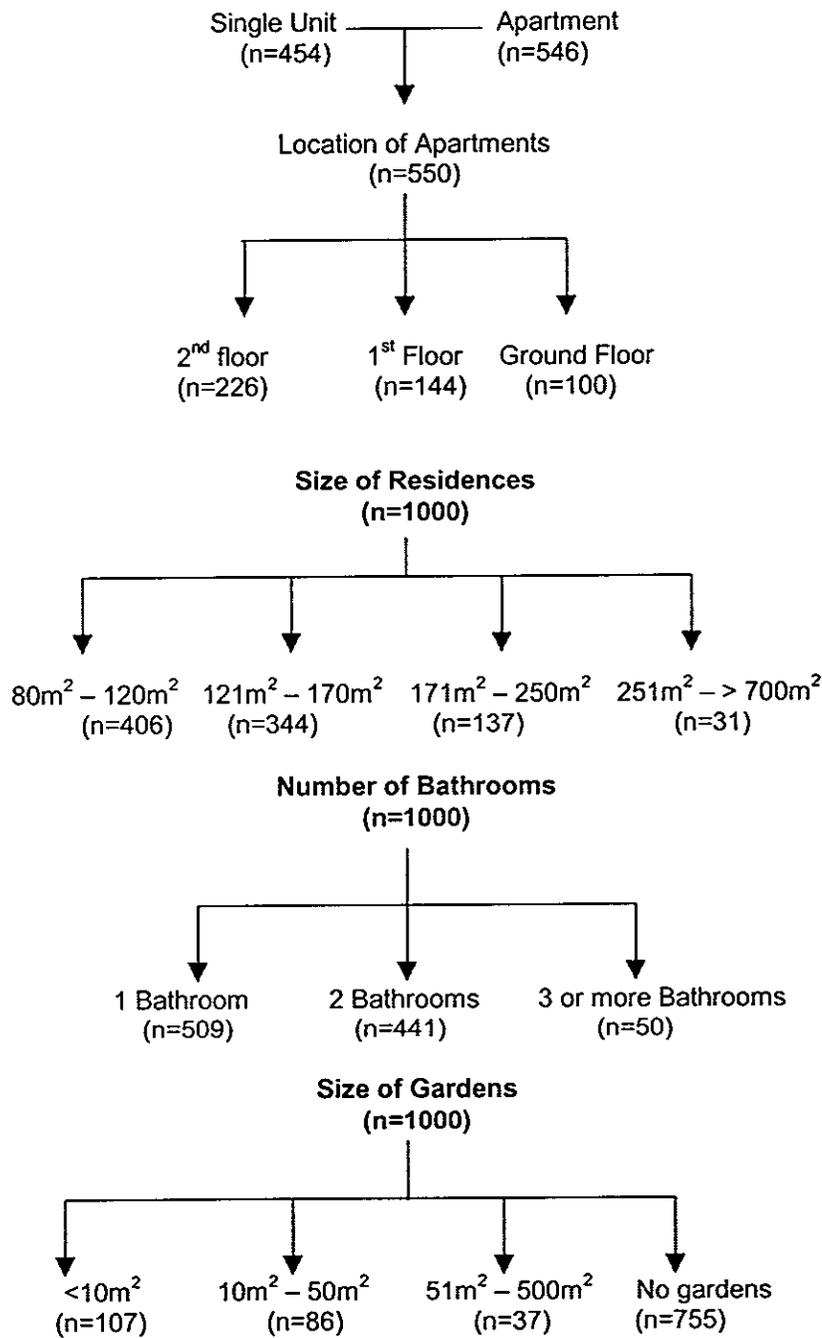
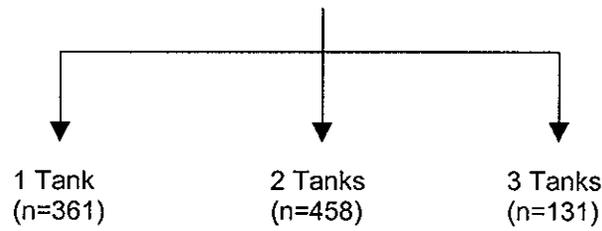
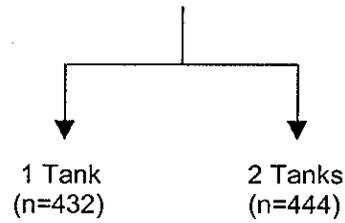


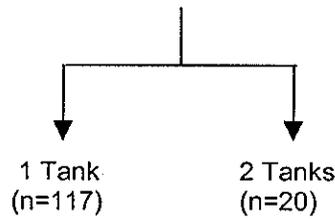
Figure 3.16
Number of Tanks Owned
(n=994)



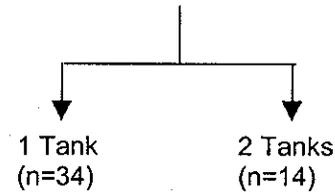
Tanks on Roof



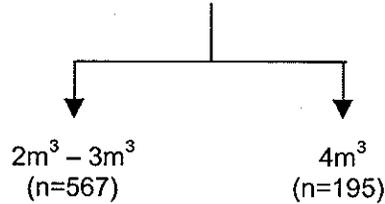
Tanks on Ground Floor



Tanks in the Basement



Maximum Combined Capacity of Tanks
(n=994)

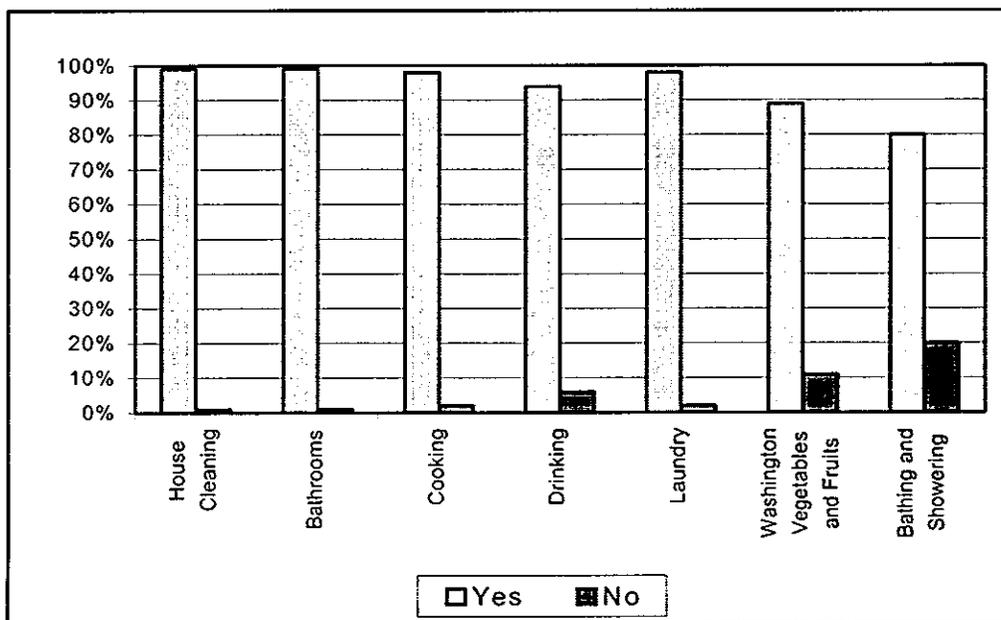


Nearly every home in the target area has invested in the purchase of one or more tanks; a water storage strategy that has paid off significantly. The type and size of the housing unit did play a role in the subscribers' minds regarding the number of tanks it required. The larger the housing unit was, the more the number of tanks it had. Respondents' water storage capabilities have contributed to their ability to cope with water supply shortages. Large houses owned three or more tanks, while small apartments had one tank. The fact, however, that most tanks are placed on roof tops, necessitated the presence of sufficient pressure to allow water to reach higher elevations.

2.8 Water Uses, Habits, and Practices

WAJ's water is used for a variety of purposes. House cleaning, cooking, drinking, washing fruits and vegetables, bathing and showering are uses cited by almost all respondents (Figure 3.17).

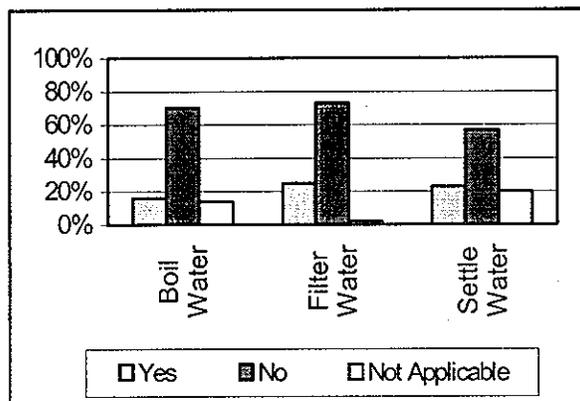
Figure 3.17
Subscribers' Uses of Water



As indicated in the section on water quality, a majority of subscribers considered water quality to be acceptable. Nearly 72% of those interviewed have insisted that they neither boil nor filter the water they receive from WAJ (Figure 3.18).

Those who do boil water report that they use boiled water mainly for drinking, some for cooking, and a few for washing fruits and vegetables. The most commonly used filtration systems are the sand and ceramic filter systems. Both systems allow subscribers to use water for drinking and cooking purposes. Respondents' habits and practices reflect a high degree of awareness of the need to conserve water and support WAJ's conservation policies. Moreover, most respondents maintain that they do not normally leave water flowing

Figure 3.18
Subscribers' Water Habits and Practices



continuously when taking a shower, brushing their teeth or washing the dishes (Figure 3.19).

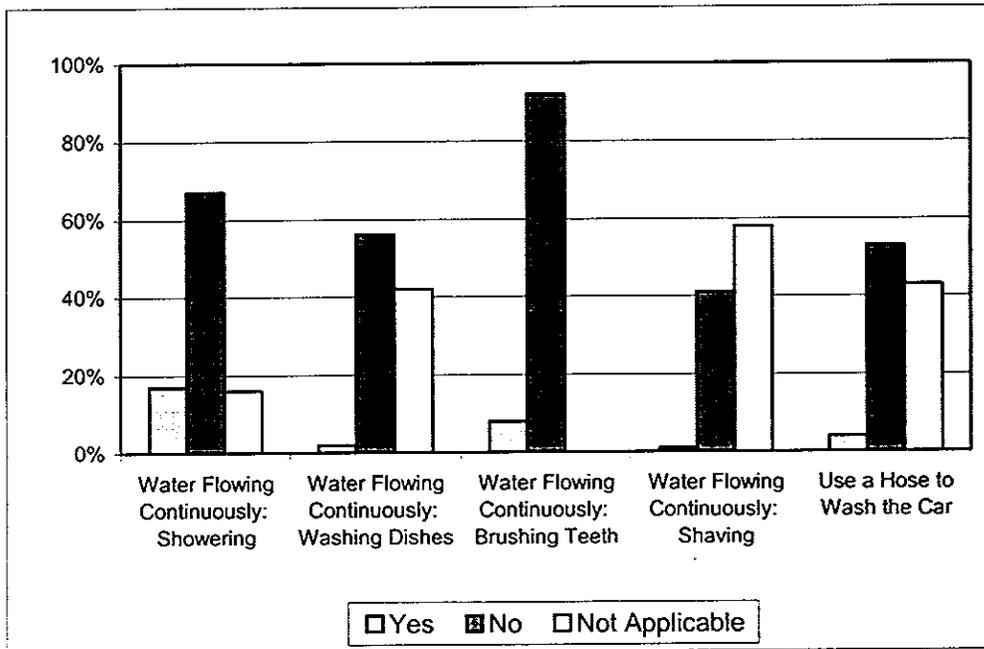
Subscribers' conservation practices seem to reflect their understanding of and firm belief in the fact that Jordan faces a critical water shortage situation. Water behavior and practices confirm earlier findings that consumers genuinely believe that water resource may be depleted in the future. Furthermore, findings here support the conclusions arrived at in the focus groups.

2.9 Water-Related Health Problems

Health problems allegedly caused by WAJ's water appear to be a concern to some subscribers. About 18% of the respondents claim that at least one member of their family has experienced water related health problems. Subscribers have also reported that a neighbor, other relatives or friends have, at one time or another, experienced water-related illnesses. The most common water related health complaint is diarrhea, followed by stomach aches and hair loss. When asked how they knew that WAJ's water caused these health problems, only 28% of the subscribers responded to this question. Of those, 73% stated that a doctor diagnosed their illness as water related; 20% indicated that they "heard from others" that their illnesses were water related. Only a small number of subscribers (1%) stated that laboratory results indicated that their illnesses were water related.

The majority of respondents reportedly take no precautionary measures when drinking WAJ's water. It is worth noting, however, that the percentage of subscribers reporting some type of illness due to water is relatively significant. WAJ must determine if, in fact, it will need to launch a national campaign which can instill in subscribers, especially those in the lower and middle income groups, new behaviors which may help alleviate or reduce the occurrence of water related health problems which are associated with water use.

Figure 3.19
Subscribers' Uses, Habits and Practices with Water



3. Willingness and Ability to Pay

3.1 Awareness of and Attitudes about Current Water Rates

Awareness and understanding of the current tariff system is markedly low for the general survey population. Only 28% are aware of the details of the current tariff system. Data obtained in the survey supports the fact that awareness of the current tariff system varies according to subscribers' level of consumption, income level, and residence.

3.1.1 According to Consumption Levels

Figure 3.20 shows that the highest level consumers ($\geq 130\text{m}^3$) are the most aware of the current tariff system. Conversely, low and medium level consumers show minimal degrees of awareness.

Opposition to the current tariff rate is strongest among high-level consumers due to their perception that the rate is unfair. Alternatively, lower level consumers are more supportive of the current tariff system because it has little or no negative impact on their budget (Figure 3.21). Here again, the higher one's bill is, the greater is his/her awareness of the tariff system. Accordingly, high level consumers who pay higher fees have developed a keener interest in understanding the current system than, for example, consumers of the low and medium levels.

Figure 3.20
Awareness of the Current Tariff System According to Water Consumption

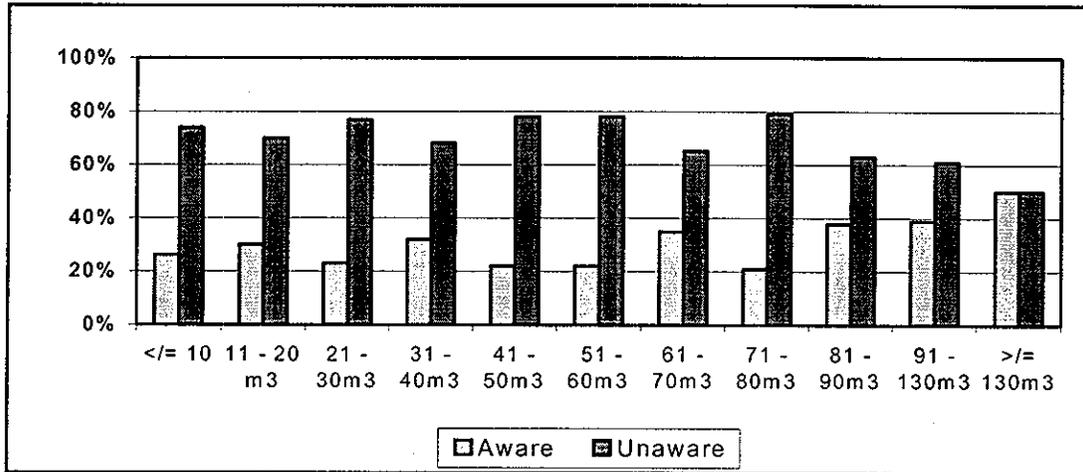
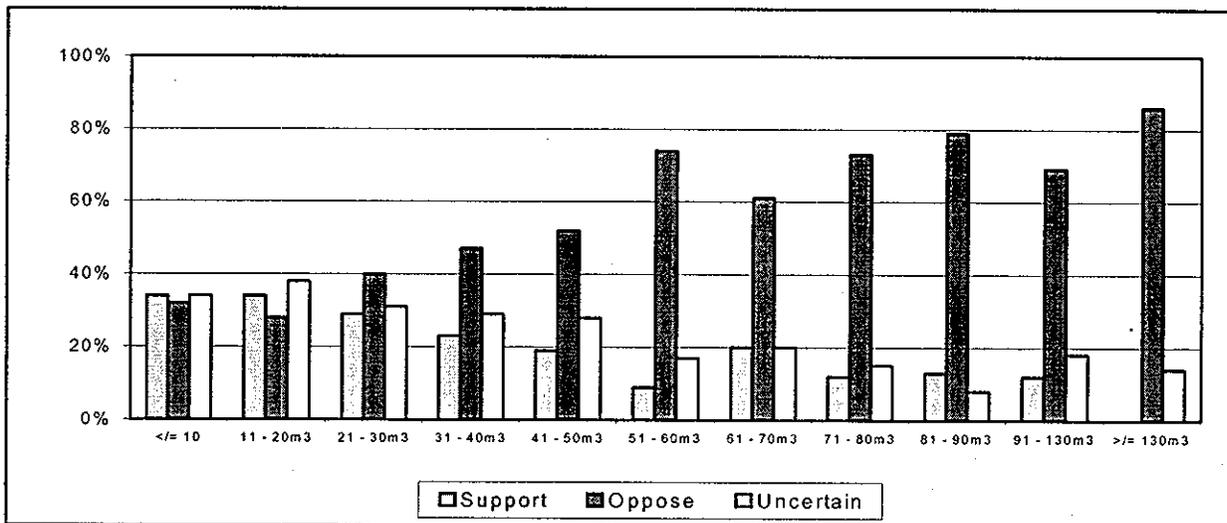


Figure 3.21
Subscribers' Attitudes towards Current Tariff According to Consumption Levels



3.1.2 According to Income

A pattern similar to that of consumption levels has emerged based on income levels. Figure 3.22 shows that respondents who belong to the high income group are the most aware of the current tariff system. In contrast, the low income group is the least aware.

Figure 3.22
Awareness of Current Tariff According to Income

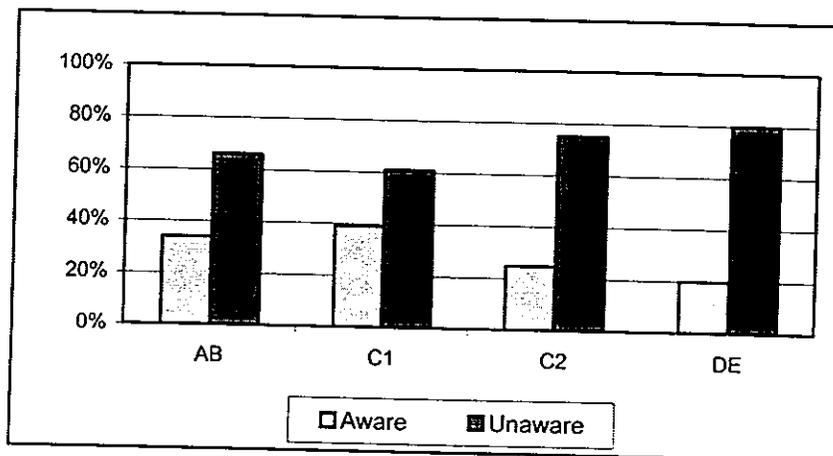
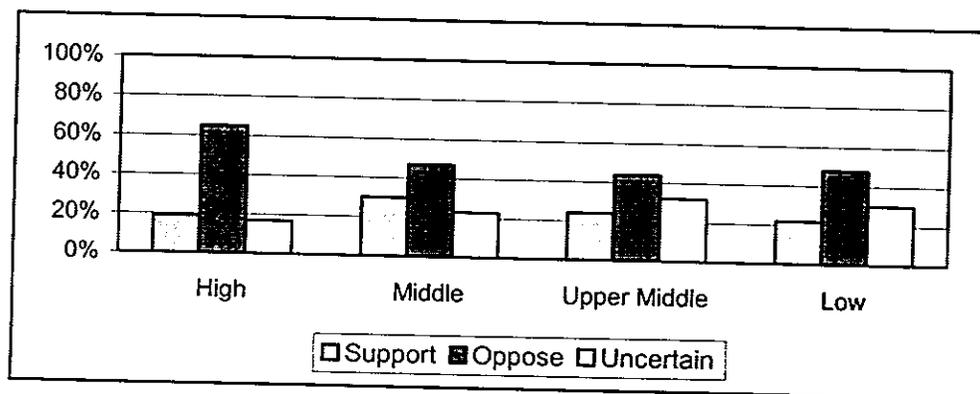


Figure 3.23 shows that high income subscribers strongly oppose the current tariff system and consider it to be high. This level of opposition declines for lower income subscribers.

Figure 3.23
Subscribers' Attitudes towards Current Tariff According to Income



3.1.3 According to Residence

Residents outside Amman are most unaware of the current tariff system, whereas those residing in the east are the most aware (Figure 3.24). The implication here is that subscribers residing in suburban and rural areas were out of the information loop and, therefore, knew less about the tariff system.

Residents outside Amman, however, strongly oppose the current tariff system and consider it to be too high. On the other hand, 30% of the west Amman respondents support the current tariff system (Figure 3.25); another indication of serious opposition by affluent areas.

Figure 3.24
Awareness of the Current Tariff Rate According to Residence

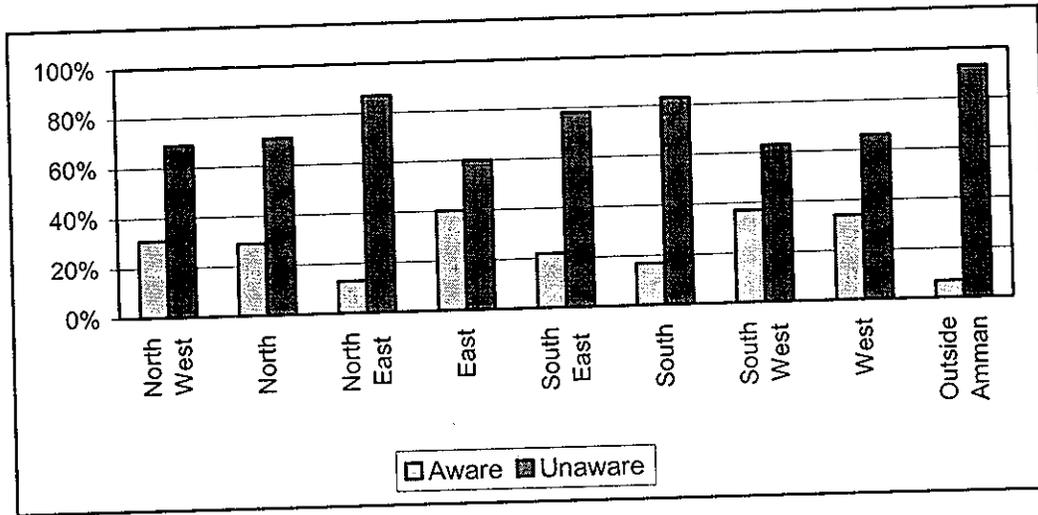
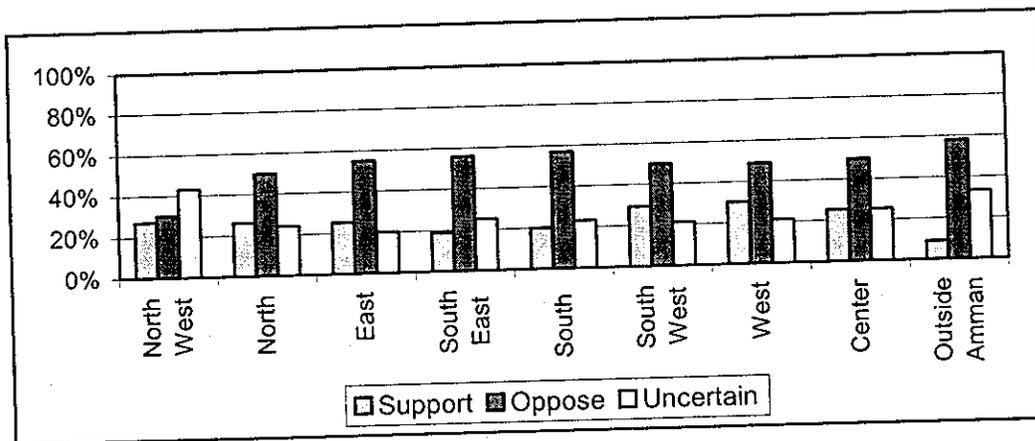


Figure 3.25
Subscribers' Attitudes Towards Current Tariff According to Residence

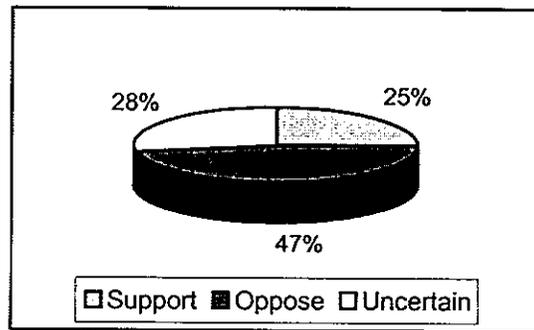


3.1.4 Current Tariff System Explained

When interviewers explained the current tariff system to subscribers, 24% showed support, 47% indicated opposition and 28% were uncertain of their feelings (Figure 3.26).

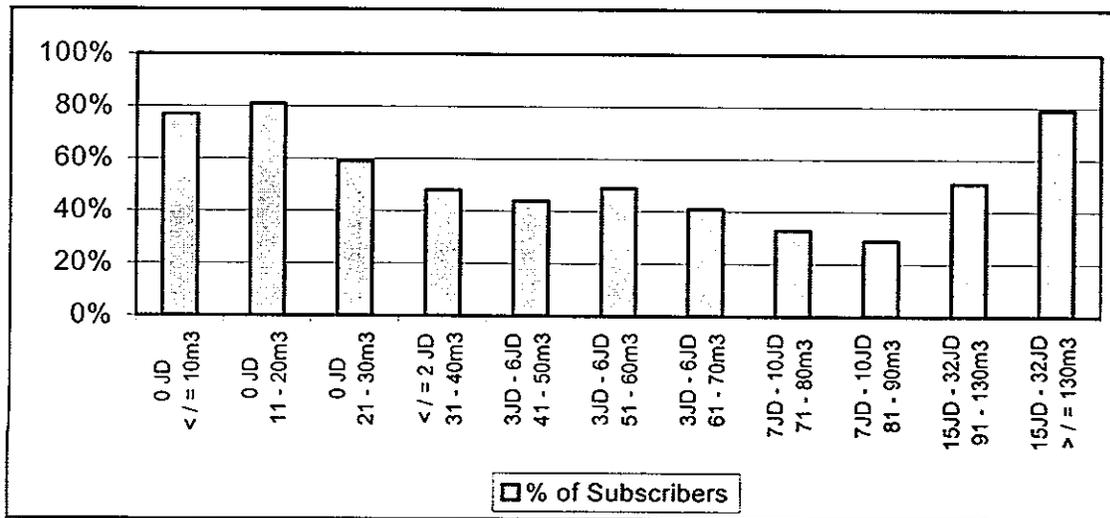
Moreover, 53% of subscribers considered WAJ's current rates to be "high" to "very high", 38% considered the rates to be fair, 1% considered the rates to be low, and 8% had no particular views on the issue.

Figure 3.26
Views on Current Tariff Rates



Respondents' lack of awareness of the current tariff system may be attributed to the fact that about 45% of them did not notice any real difference in their current bills, from previous bills. Participants who consume the least (30 cubic meters or less) have had no reason to experience any differences between the former and the current tariff system (Figure 3.27).

Figure 3.27
Differences in Tariff Rates According to Consumption Levels



For high level consumers (between 91-130m³ and > / = 130m³), Figure 3.27 shows that the monetary difference between the old tariff system and the current one has sometimes reached as high as JD 32 per billing cycle.

The implication here, of course, is that the current tariff system has a direct negative effect on moderate and high level consumer budgets, and very little or no effect on low consumers. About one-third of the population has been forced to pay significantly more by the current tariff rate (consumer categories of 41 cubic meters and higher). Here again, middle upper and upper income consumers have been the most affected by the new rate. The majority of respondents are unaware of how the current tariff rate is computed. Those

who are aware of the specific details, notably high-level consumers, report a high level of dissatisfaction with the current tariff system. Obviously WAJ should take measures to explain this system thoroughly and quickly.

3.1.5 Subscribers' Perceptions of WAJ's Utilization of Additional Revenues

It is worth noting that 59% of respondents think that WAJ's new revenues will be higher because of the current tariff system when compared to the previous one; 13% do not think so; and 28% don't really know. When asked what they think WAJ will be using the additional revenues for, subscribers frequently replied: "to repair networks", "to explore new resources", "to build new dams", "to buy new treatment plants" and "to cover its operational and maintenance costs", in this order of importance. It is interesting to note that 34% of respondents don't really have the slightest idea of what WAJ may do with its additional revenues.

Some respondents have expressed high expectations of the additional revenues generated from the current tariff system. They believe that WAJ will put these new financial resources to good use. As a result of new revenues, positive results would include improved water quality (51% of subscribers), more frequent water supply (30%) and better distribution of water (17%). Repair of pipes, exploitation of new resources, training of employees and adequate responsiveness to complaints follow, with 12%, 10%, 5% and 4% respectively. Conversely, 32% of subscribers have no expectations of any improvements and do not expect anything in return. Understandably, consumers' expectations are highest in the area of quality (rather than supply). Controlling and improving quality is doable and possible; enhancing supply when sources are scarce may not be plausible.

3.1.6 Implications and Observations

A considerable amount of interview time was spent explaining to respondents the details of the current tariff system. Among those who were aware of the current system, a few understood its details. Judging by the remarks of many respondents, a sense of frustration dominated their reactions. Questions, like how can they support "something they don't understand" were asked by many middle and low income respondents.

The sizeable increase in the bills of high level consumers, due to the current tariff system (between JD 7 and 32), will undoubtedly influence negatively their attitudes about any future tariff rate increases. The financial burden of the current system is such that any mention of future increases would be daunting. Unlike middle and lower income respondents, many of the middle-upper and upper income subscribers have not been successful in reducing their consumption levels in any serious way. As a result, most of those subscribers are adamantly opposed to the current tariff rate system and may, predictably, reject any future increases by WAJ.

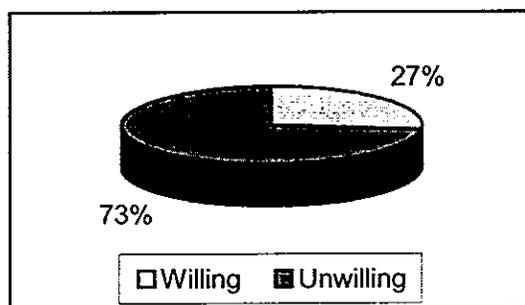
Can future higher rates be introduced? Will they be plausible or manageable? Will consumers who refuse to pay the higher rates substitute WAJ's water supply with alternative private water sources? Or are subscribers willing to tolerate the new higher rates if WAJ were to improve its service delivery? All these questions and others will be

addressed in the following section on the willingness and ability of subscribers to pay higher rates.

3.2 Willingness and Ability to Pay More for Water

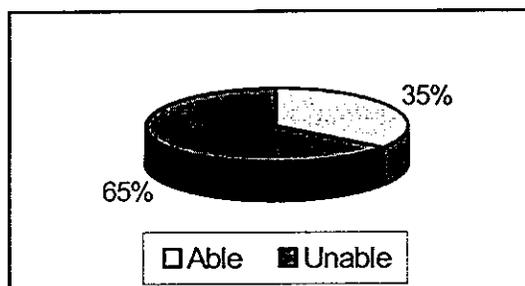
Data presented in previous sections have shown a high degree of subscribers' unhappiness with WAJ's customer services and current tariff rate. As one may predict, the attitude of subscribers was not different when they expressed their opinions on how willing and able they are to pay more if the tariff rate became higher. Only 27% of the total population sample are willing to pay more if the rate increased (Figure 3.28).

Figure 3.28
Willingness to Pay More



Even if willing, 65% of the subscribers in the survey are unable to pay more (Figure 3.29).

Figure 3.29
Ability to Pay More



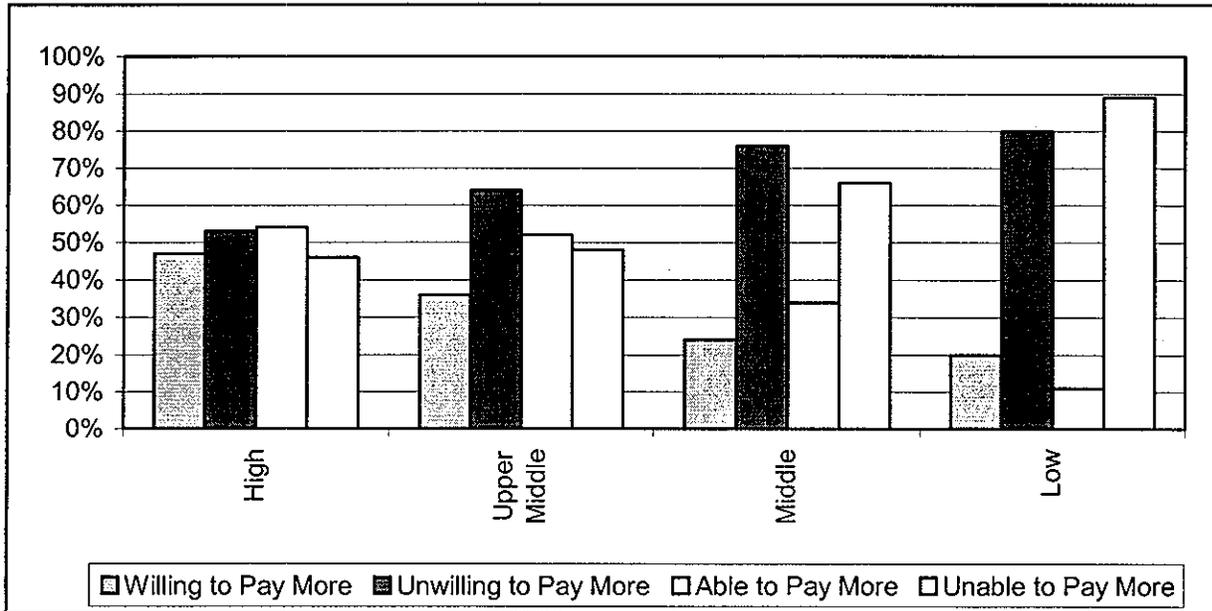
Here, specific patterns of willingness and ability emerge: The more affluent the consumer, the more willing and able he/she is to pay more; and the opposite is true.

3.2.1 Willingness and Ability to Pay More According to Income

Figure 3.30 shows that willingness and ability to pay more are linked to income of subscribers. The higher the income, the stronger the willingness and ability of consumers to pay more, and vice-versa. Among high-income earners, willingness and ability are interlinked. These subscribers are (relatively) the most willing and able to pay higher tariff rates: 47% are willing and 54% are able. In second place are upper middle subscribers

(36% and 52% respectively), followed by middle income subscribers (24% and 34% respectively), and low income subscribers (20% and 11% respectively).

Figure 3.30
Willingness And Ability To Pay More According to Income Level



3.2.2 Willingness and Ability to Pay More According to Consumption Level

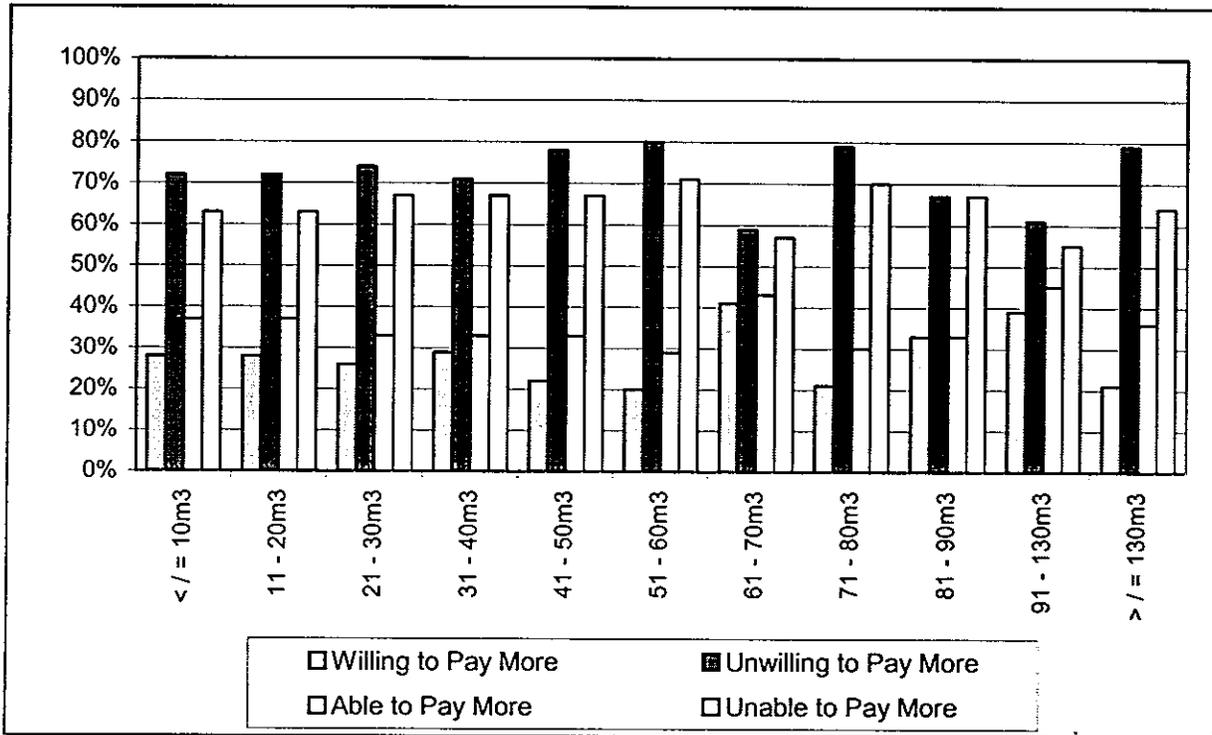
In general, participants who are most able to pay more in the future are high level consumers. The majority of subscribers who are unwilling and unable to pay more in the future consume between 51-60 m³ (Figure 3.31). This segment of the population usually lives on a tight budget and does not benefit from the 0-40 m³ tariff allowances which are provided to lower level income subscribers. Consumers in this segment are also unable to afford higher rates because they belong to the middle income group whose incomes are closer to the low income level than they are to the middle income levels. There is no specific consumption level which represents a demarcation line for higher WAJ's rates. Opposition to the payment of higher rates is uniform across all consumption levels and WAJ cannot formulate a new tariff strategy which capitalizes on a certain segment of the population.

3.2.3 Willingness and Ability to Pay More According to Residence

The issue of willingness to pay more is relative. All willingness levels are very low. Geographical distribution of participants finds those most willing to pay more (in the future) residing in west Amman, whereas northwest Amman features those who are most able

(but not necessarily willing) to pay more in the future. The majority of participants who are unwilling and unable to pay more in the future reside in south Amman (Figure 3.32).

Figure 3.31
Willingness and Ability to Pay More According to Consumption Levels



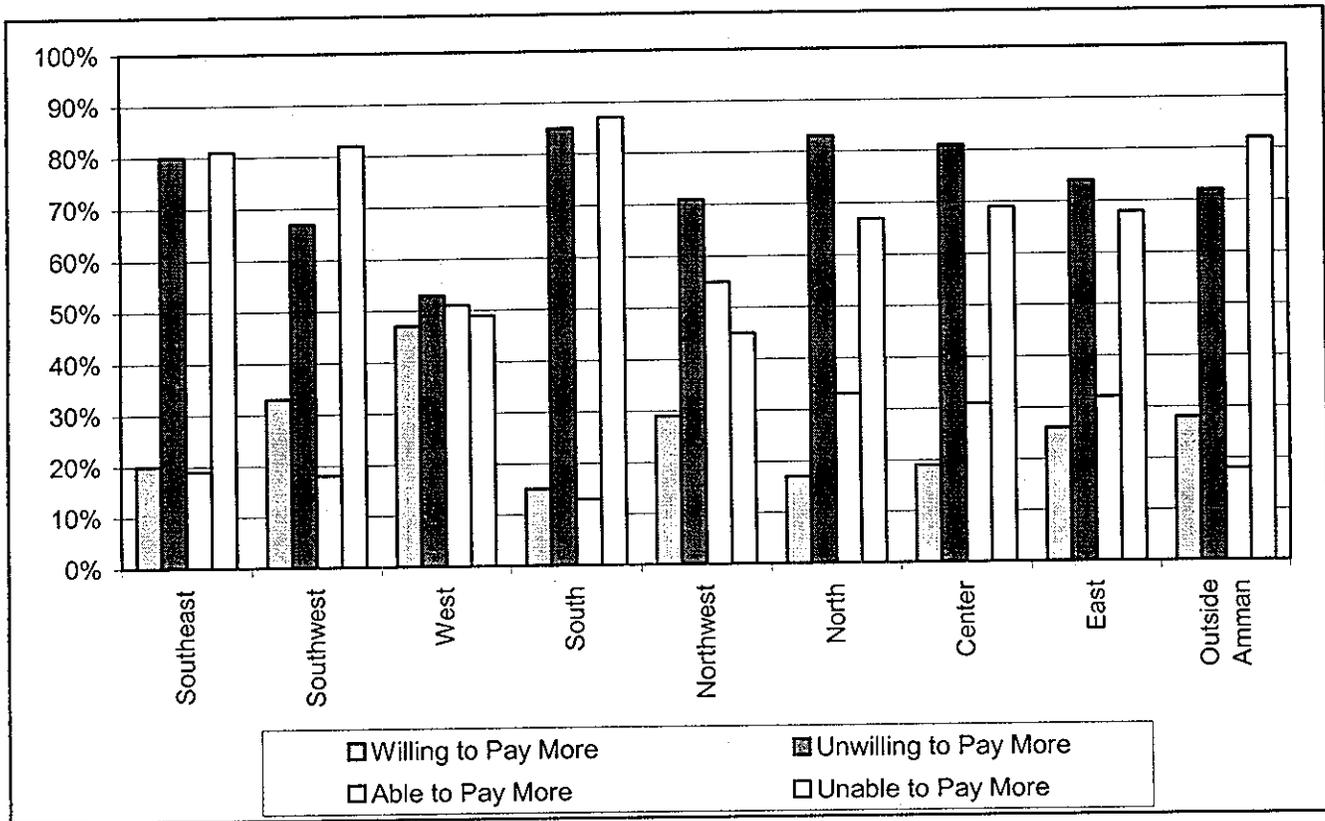
Obviously, most consumers of 51m³-60m³ live in the south. They are the ones who would feel the 'pinch' most from a possible tariff rate hike which covers their consumption levels. They are basically middle subscribers whose consumption is neither low to be financially unscathed by the current rate or high to be able to afford it.

If consumers had to pay more, then those who are financially able are the most willing; and vice versa. Middle and low-income level consumers are adamantly opposed to any future payments. These attitudes are reflected according to places of residence. The population segment that provides WAJ with the greatest challenge and promise consists of the middle-upper and upper income level subscribers who reside mainly in west Amman.

3.2.4 Will Subscribers Change Their Minds and Become Willing to Pay More if WAJ's Services Are Improved?

Most subscribers are unwilling to pay more in the future for any of WAJ's improved services. On average, only 20% indicate willingness to pay more for such services, 63% refuse to pay more, and 13% are not certain and need more time to think the matter through (Figure 3.33).

Figure 3.32
Willingness and Ability to Pay More According to Residence



Subscribers' rank ordered the reasons which prompt their unwillingness to pay more for improved services in the following way: 66% are financially incapable of supporting additional expenses, 63% consider water an inherent right which citizens should not be charged for, 20% consider their water supply to be adequate and have no need for more water, 16% mistrust the Authority, and 9% do not support any measures by WAJ.

Figure 3.33
Willingness to Pay More for Improved Services

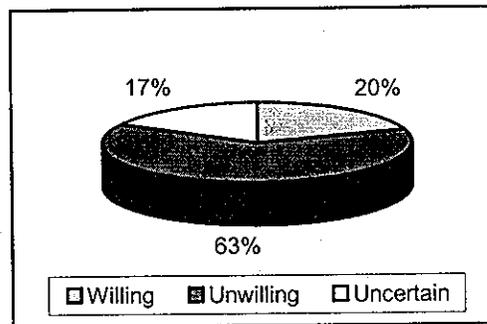
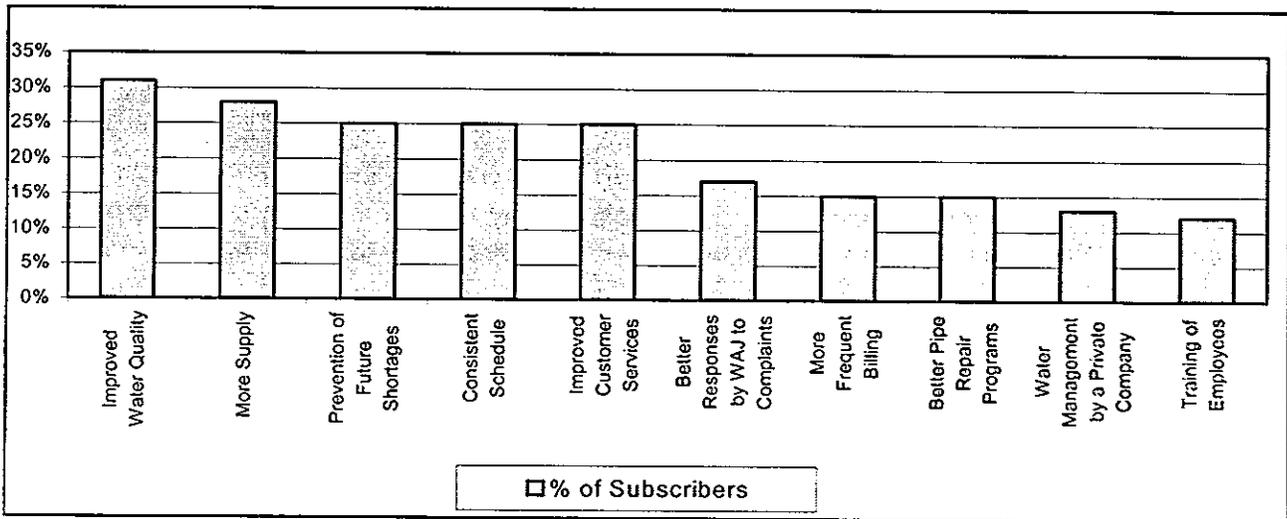


Figure 3.34 shows that, regardless of the specific type of service which WAJ might offer or improve, subscribers' responses have remained consistent with their basic position: they are unwilling to pay more for such improvements. Among the few who are willing, however, the highest degree of willingness is reported for improved water quality services (31% of subscribers supported a higher rate), followed by more supply (28%), prevention of future shortages, consistent water supply schedules and improved customer services (25% each), better responses by WAJ to complaints (17%), more frequent billing (15%), better pipe repair program (15%), water management by a private company (13%) and training of employees (12%). The most important reasons, of course, relate to quality, more supply, consistent schedules and customer services. In essence, those willing to pay more agreed that these reasons are most critical for their support.

Figure 3.34
Willingness to Pay More for Improved Services



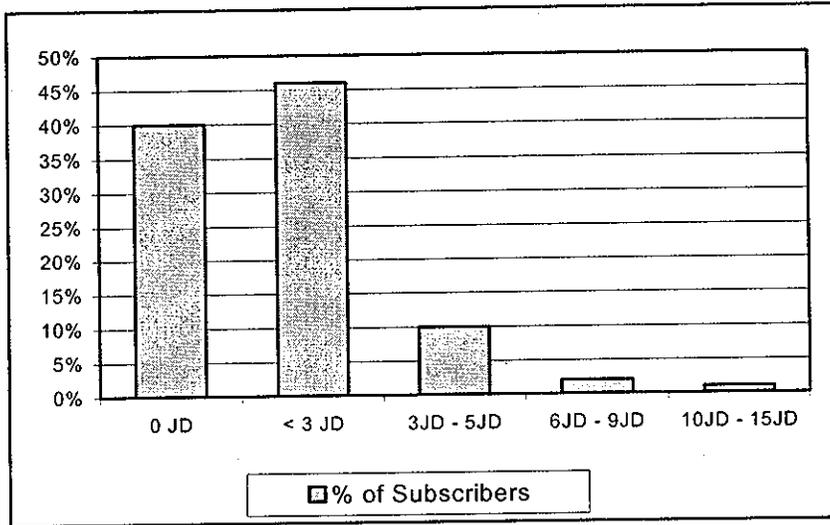
3.2.5 Hypothetically, How Much More Are Subscribers Able to Pay for Improved Services?

Subscribers' notional ability to pay higher rates is not encouraging. About 46% of all respondents are "hypothetically" able to pay an additional amount not exceeding JD 3 for each billing cycle (Figure 3.35). About 9% are able to pay JD 3-5 per billing cycle, and 41% are unable to pay anything.

Clearly, subscribers who belong to the low income are the least able to pay anything. Figure 3.36 shows that 57% and 45% respectively of subscribers in the middle and upper middle income groups are able to pay an additional amount of <JD 3 per billing. About 24% of the highest income earners are able to pay an additional JD 3-5 per cycle (or JD4).

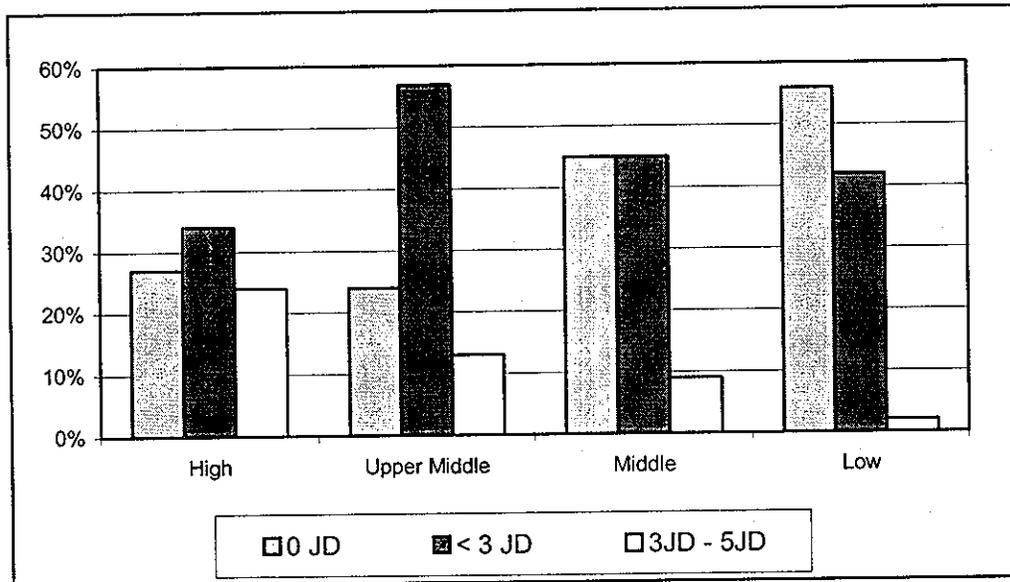
With the exception of the low and middle-income groups, ability here is more reflective of 'attitudes' than the availability of financial resources. There seems to be a determined intent by most subscribers not to provide an 'open invitation' to WAJ to lift the ceiling of any rate hikes beyond the JD 3-5 per billing cycle. This low rate hike puts a 'damper' on WAJ's

Figure 3.35
Amount Subscribers Are Able to Pay



plans and expectations to secure significant revenues from subscribers; especially from those in the upper middle and high-income groups. Ability to pay more, however, increased according to income levels. The JD 3-5 additional payment was supported most by upper income subscribers and least by the low income subscribers.

Figure 3.36
Amount Subscribers Are Able to Pay According to Income Level



3.2.6 What Will Subscribers Do if WAJ Increases Tariff Rates?

Generally, subscribers are in no mood to accommodate higher tariff rates. At this time, we believe that WAJ will find it very difficult to introduce the notion of higher tariff rates. Receptivity to such a notion may be dismal. Respondents claim that they would take the following measures if their bills were increased: 56% would complain to WAJ; 29% would reduce consumption; 13% would disconnect the meter; 9% would reduce their spending on other household items to accommodate the new rate; 9% would make deals with tankers; 5% would share water consumption with other households; 1% would tamper with the system (meter); and another 1% would illegally connect a hose to the pipes to avoid meter reading. In the event that WAJ fails to adequately address their complaints to cancel the increase, respondents would disconnect the meter (34%), reduce consumption (33%), make deals with tankers (18%), complain to a higher authority (11%), pay in installments (7%), share consumption with other households (6%), reduce spending on other household items to accommodate the new tariff (5%), tamper with the meter (3%), and illegally connect the hose to the pipes (2%).

3.2.7 Observations and Implications

Clearly, any tariff rate increase at this time will generate resistance by most subscribers, especially those who are affluent and consume higher water quantities. Attitudes of willingness and ability to pay more are, at best, non-supportive. WAJ, as a service institution, should modernize its functions and enhance its services before it can raise tariff rates. Modernization activities should include, but not be limited to, a re-design of the tasks, duties and responsibilities of all those who are involved in the 'delivery of service' function. In-service training is necessary for most employees, especially in the technical, bill collection and customer services department.

The views of subscribers in this study should serve as the basis for WAJ's new policies and procedures. Some of these policies and procedures should help WAJ put in place at least the following:

- A reliable and consistent three-day-per-week supply schedule during the winter and summer months; or perhaps a varied undisrupted schedule which accommodates water shortages in the summer
- A maintenance program which instigates preventive measures and executes planned shut-downs based on a carefully prepared schedule of activities.
- An improved inspection function which includes a consistent system of 'checks and balances' covering supply and quality improvements especially with regard to taste, purity and overall potability.
- A communication campaign which advocates the above while at the same time introduces WAJ as a transparent, committed and caring organization.

While all of the above steps are essential pre-requisites for the introduction of rate increases, they, undoubtedly, represent additional costs for WAJ. It is important to

remember, however, that a priority for WAJ today is to win over its customers' support and trust. WAJ may wish to increase subscribers' awareness of the fact that even in countries where water resources are plentiful and are an 'inherent right' of consumers, subscribers must pay not so much for the product but for the management of the product.

4. Communication Medium and Method

When asked about what would be the best communication medium that should be utilized by WAJ, almost all respondents, 91% concurred that television is the best medium for providing information about the current tariff system as well as other issues. One third of respondents, (33%), ranked the radio as their second choice, followed by newspaper publications. For a few, the back side of the bill itself, leaflets and collectors, are tools which can be used for communicating changes.

About 54% of subscribers consider televised discussion panels with officials as the most effective information technique/method to review the current tariff system; 48% believe commercial ads are the next best method; 26% suggested verbal and written public statements by officials as the third best; 21% suggested articles in newspapers and magazines as the fourth best.

The television represents the best medium because of the following: it is audio-visual and can be seen by most people at times which are convenient to most; discussions are in the 'Jordanian' Arabic dialect which is understood by all, including those who cannot read or write; and subscribers get to see and hear those who are behind the policies at WAJ.

5. Private Sector Involvement

5.1 Views on Private Sector Participation

The issue of private sector participation is not paramount in the minds of most subscribers. Many do not understand the concept of private sector participation and a few have fears that Jordan may compromise its national integrity if it were to relinquish its responsibilities to foreign companies in the water domain. More than two thirds of the respondents, 67% are not familiar with any government plans to involve the private sector in the operation and maintenance of water in Amman. After explaining the notion of private sector participation to respondents, 55% favored the involvement of the private sector, whereas 20% opposed it (Figure 3.37). About 13% did not have any opinions while 12% did not really care.

Views on who should participate in the private sector participation process varied: 45% of respondents prefer a Jordanian company for the job while 15% prefer a joint venture partnership between Jordanian and foreign companies. Moreover, 50% are in favor of the involvement of a foreign company in some form or another in order to operate and maintain more effectively the water system in Jordan. According to them, a foreign company has ample experience, technological know-how, and ability to provide enhanced water quality and improved services. For the 27% who are against foreign involvement, their fear is that a foreign company may control a very critical national resource and would, undoubtedly,

increase tariff rates. These subscribers also believe that skilled Jordanian workers should be given the opportunity to do the work because they are just as capable as their foreign counterparts in handling water related services (Figure 3.38).

Figure 3.37
Views on Private Sector Participation

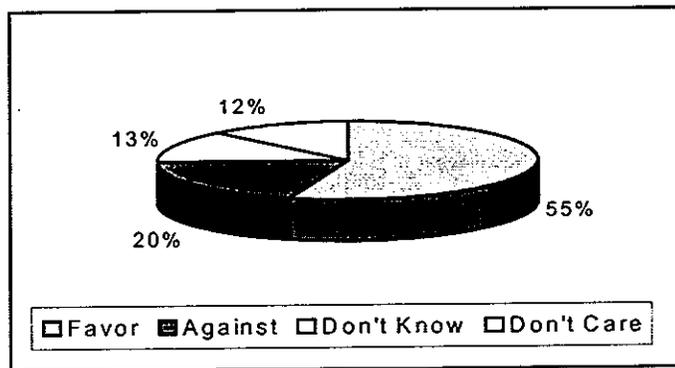
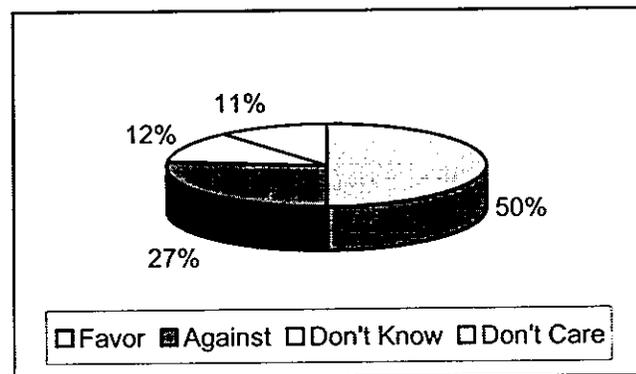


Figure 3.38
Management Contracting with a Foreign Company



5.2 Observations and Implications

Transferring management responsibilities of WAJ to the private sector receives a passive or mild reaction from most Jordanians. Subscribers have given little thought to the question of private sector participation. According to most beneficiaries of water services, what is important is not who provides the service but how the service is provided. Whoever is the provider, however, should take into account the views, opinions and attitudes of subscribers as they relate to water supply, quality, services and the tariff rate. Appointing a local or foreign company (or both) to operate and maintain the water service is not enough justification at this time to raise tariff rates.

Somehow, many Jordanians still feel that foreign know-how is more reliable than the local one. Foreign companies are seen as highly experienced, technologically very advanced and completely transparent entities. All of these characteristics are essential elements in the

profile of the service provider, whoever that is.

If WAJ went ahead with its private sector participation scheme, it must ensure that the selected private operator adheres to specific terms of reference which are reflective of the needs and requirements of its customers. No matter who manages the water service and how it is managed, the government (perhaps the Authority or Ministry) should always be seen as the overseeing body which monitors and evaluates the performance of the service provider; and safeguards the interest of its citizens.

6 . Summer 1998 Water Crisis

6.1 Attitudes Towards the Recent Crisis

Given that polluted water from the source was the ostensible cause of the recent crisis (62% of subscribers' views), some participants (35%) blamed WAJ for poor performance and negligence. Others, (22%), considered the agreement between Israel and Jordan as unsound; to them, this agreement was the immediate cause of the problem. Contrary to some expectations, however, most participants, 87% continued to use WAJ's water during the crisis along, of course, with other supplementary resources. Interestingly enough, 43% of the entire target population did nothing to treat WAJ's water. However, 37% of respondents boiled WAJ's water and 24% filtered it. Respondents complained that resorting to these measures forced them to incur extra expenses, a cause of deep frustration and anger.

During the crisis, respondents resorted to various measures to address short supply and poor quality of water. About 59% bought tanker water, while others, 46% bought bottled water. Of those who bought bottled water, 41% continued to do so even after the crisis was over.

Most, 48% of respondents, believe that the crisis is over. However, 28% disagree with this notion and insist that the crisis will continue on and off. In addition, 47% think that the crisis will recur at some point in the future, while 24% disagree and think that it will not happen again. For 39% of the respondents, the belief is strong that the crisis could have been avoided if a private operator was in charge. In contrast, 19% of the respondents disagree and believe that a private operator could not have prevented the problem from occurring. Consequently, this may explain why 38%, as opposed to 23% of respondents, say that the crisis justifies the take-over of the water management function by a private operator.

The occurrence of the recent crisis in 1998 is indeed a cause of great concern by the majority of WAJ's subscribers. However, their frustration with the crisis and their equally divided opinion on whether the crisis may recur are not strong enough reasons to privatize WAJ. The implication here is that many subscribers perceive the crisis to have been prompted by mainly uncontrollable causes.

6.2 Observations and Implications

On balance, despite the painful experience of subscribers during the crisis, today's

consumers have a better appreciation of WAJ's frequency of supply and quality of water services in the post-crisis era. If anything, this study has shown that today's subscribers are more supportive than not of WAJ as a source of water supply. Most of those who reverted to cistern and bottled water sources during the crisis dropped those sources once WAJ's water supply was back to normal.

The crisis, however, has shaken consumers' trust in WAJ's quality control and management decision-making mechanisms. Questions persist on why WAJ could not discontinue the supply when the problem was discovered; or did not detect the problem at the source; and other questions.

Though there is fear that the crisis may recur, subscribers are looking ahead for solutions and hope that WAJ will perform better in the future. There is a hopeful tone in subscribers' views that should be capitalized on by WAJ.

CHAPTER 4 NON-RESIDENTIAL SURVEY RESULTS

1. Introduction

This chapter presents the attitudes and views of non-residential subscribers in Greater Amman. They represent entities which belong to a variety of sectors such as education and religious institutions, service organizations, medical providers, government agencies, companies, banks, industry, retail shops and a few others which are not easily classifiable, including an entertainment center, departure terminal, billiard parlor, and used car lot.

This chapter is presented in two parts. The first analyzes the degree of subscribers' satisfaction levels with water supply, quality and customer services. The second investigates the degree of subscribers' willingness and ability to pay current and future tariff rates as well as their views on private sector participation.

Table 4.1 is a profile of 401 entities selected for the survey:

**Table 4.1
Types of Entities Selected for the Survey**

Type of Entity	Consumption Category (m ³)														
	<=10	11-20	21-30	31-40	41-60	61-80	81-110	111-140	141-200	201-300	301-400	401-600	601-800	801-1000	1001-1500
Retail Shop	54	19	10	7	1	2	0	0	0	0	0	0	0	0	0
Office/Company management	31	18	11	4	6	5	5	3	1	0	0	0	0	0	0
Skilled Labor	9	7	7	1	1	4	0	0	1	0	0	0	0	0	0
Farm/Country House	2	2	1	1	7	3	1	1	0	0	1	0	1	0	0
Nursery Garden	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0
Hotel	2	2	4	0	2	2	1	0	0	0	0	1	0	0	0
Coffee Shop/Restaurant	7	4	4	7	5	2	2	0	2	0	1	0	0	0	0
Factory	3	0	2	2	0	0	1	3	6	0	1	1	1	1	1
Beauty Salon	4	1	2	0	3	0	0	0	0	0	0	0	0	0	0
Clinic	5	3	0	1	1	0	0	1	0	0	0	0	0	0	0
Mosque	0	0	0	1	0	2	1	1	0	1	0	0	0	0	0
Fitness Center	2	1	0	0	1	0	0	0	1	0	0	0	0	0	0
Car Wash/Petrol Station	0	0	1	0	0	0	2	1	0	1	1	0	1	0	0
Bank	1	0	2	0	1	0	0	0	0	1	0	0	0	0	0
Warehouse	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0
Directorate	1	0	1	0	1	0	0	0	0	0	0	1	0	0	0
Brick Factory	2	0	0	0	2	0	0	0	0	0	1	0	0	0	0
Stone Cutting Factory	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

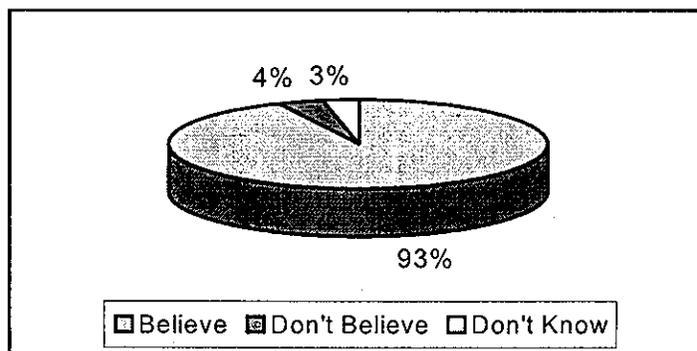
Type of Entity	Consumption Category (m ³)														
	<=10	11-20	21-30	31-40	41-60	61-80	81-110	111-140	141-200	201-300	301-400	401-600	601-800	801-1000	1001-1500
Community College/School	0	1	2	1	0	0	1	2	0	0	0	0	0	0	0
Educational Institute	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
Housing	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Community Center	1	1	0	1	0	0	0	0	0	0	0	0	1	0	0
Health Center	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0
Hospital	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Laboratory	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Public Park	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Bakery	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0
Nursery School	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Slaughterhouse	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Workshop	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Other	2	0	1	2	1	1	0	0	0	0	0	0	0	0	0

2. Non-residential Subscriber Attitudes towards Water and WAJ

2.1 Jordan's Water Shortage

Non-residential subscribers are aware of the severity of the water situation in Jordan. Of the 401 people interviewed, 93% believe there is a water shortage (Figure 4.1). Of those 373, 44% believe the situation is critical but manageable, while about 47% believe that the situation appears to be critical but is not really so. Like residential subscribers, the non-residential users consider "little rainfall" as the main reason for the existing shortage problem, followed (in this order) by "scarce water resources" and "waste by users." Some respondents (18%) blame WAJ for water shortages. Many (59%) believe that Jordan will face a water shortage problem in twenty years' time, but 54% do not believe that it will be critical.

Figure 4.1
Subscribers Believe that the Water Situation in Jordan is a Serious Problem



Observations and Implications

Though critical, non-residential subscribers do not think that water will immediately threaten their entities' operations. Most respondents do not appreciate what awaits Jordan in the medium and long-term period regarding water supply shortages. They are concerned but not "unduly" alarmed. This attitude water as a scarce resource presents a serious challenge to WAJ concerning water conservation. Subscribers' responses suggest that their contribution to water conservation is not enough and could be significantly improved. Production and service sectors which include high level consumers should be sensitized to water conservation strategies and included as partners in efforts to preserve water resources.

2.2 Satisfaction Levels

Non-residential subscribers' satisfaction with water supply, quality and customer services are directly related to their consumption levels, type of operation, and geographical location.

2.2.1 Water Supply

Subscribers' satisfaction with WAJ's water supply reaches 77%; the delivery is adequate for their business needs. A majority (59%) receives WAJ's water twice a week, about 15% receive water three times a week, and some 12% receive water once a week. About 40% receive water for more than twenty uninterrupted hours, for about 18%, water is delivered for 10 to 12 hours, and for 26%, supply duration is unknown. The majority of subscribers consider that WAJ's planned combination of supply days and hours is sufficient. WAJ's schedule represents an acceptable continuous supply program to most entities.

2.2.2 Water Pressure

For the majority of subscribers, adequate water pressure is a necessary requisite for ensuring a satisfactory level of supply. Only 15% of subscribers describe the water pressure as weak, a significant number (63%) think the pressure is middling, and for 19% the pressure is strong. The industrial, educational and service (i.e. hotel) sectors include the lowest number of subscribers who are satisfied with WAJ's pressure, 39%, 42% and 46%, respectively. The lowest number of satisfied subscribers are in the West (50%) and in the northwest and southeast (57% each). Because the majority of subscribers consider the water supply pressure as acceptable, they (79%) have not purchased or installed pumps to increase water pressure.

2.2.3 Observations and Implications

Generally, WAJ's designated water delivery seems acceptable to more than three quarters of the entities involved in the non-residential study. Equally impressive is the amount of water pressure made available to most of these water users. Only a minority experiences low water pressure and, as a result, suffer negative business-related consequences. The availability of acceptable water pressure has contributed to an improvement in satisfaction

levels of these subscribers. Subscribers' satisfaction is expressed on the basis of adequacy and reliability of the designated schedules. WAJ has been very careful in planning a water schedule that can be both reliable and responsive. The supply duration of 10-20 uninterrupted hours is considered acceptable by most of those interviewed.

2.3 Satisfaction with Frequency and Duration

2.3.1 According to Subscribers' Water Consumption

Table 4.2 reveals that the lowest level consumers are the most satisfied (70% of subscribers in ≤ 10 cubic meters category) and the highest level consumers are the least satisfied. None of the subscribers in the 801 to 1500 cubic meters are satisfied.

Table 4.2
Subscribers' Satisfaction with Supply Frequency and Duration
According to Consumption Levels

N=401		Supply Frequency		Supply Duration	
Consumption Categories (m ³)	% of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied
≤ 10	34%	70%	21%	72%	20%
Bet. 11 – 20	16%	59%	29%	58%	27%
Bet. 21 – 30	13%	64%	28%	62%	28%
Bet. 31 – 40	8%	53%	40%	36%	34%
Bet. 41 – 60	9%	59%	39%	52%	42%
Bet. 61 – 80	6%	51%	46%	55%	29%
Bet. 81 – 110	3%	57%	28%	57%	28%
Bet. 111- 140	3%	46%	46%	54%	31%
Bet. 141- 200	3%	15%	62%	15%	69%
Bet. 201- 400	2.5%	40%	40%	40%	40%
Bet. 401- 800	2%	57%	43%	43%	58%
Bet. 801- 1500	0.5%	0%	100%	0%	100%

On average, 60% of non-residential subscribers are satisfied with the frequency and duration of water supply. Higher levels of satisfaction exist among low level consumers, ≤ 10 to 30 cubic meters. In general, subscribers of this category include retail shops, workshops, companies and offices, hotels, clinics, farms/country houses, coffee shops and restaurants. Those least satisfied with frequency and duration consume between 141 and 200 cubic meters (only 15% of subscribers are satisfied; subscribers include factories, coffee shops and restaurants, and a stone cutting factory); 201 to 400 cubic meters (40% of subscribers are satisfied; subscribers include farm houses, coffee shops, factories, car wash/petrol stations, brick factories, banks and a slaughter house); and 801 to 1500 cubic meters (none are satisfied; subscribers are mainly factories).

Consumption is determined by the type and size of entity. Small to medium factories, which consume between 141 and 300 cubic meters are generally dissatisfied with frequency and duration. A similar attitude is shared by other service entities such as restaurants. A

cause for this negative attitude may be the reliance of these entities on water for processing their products and services. The unavailability of water could mean a disruption of the business activities and a loss of revenue. Nor can these organizations afford alternative water supplies, such as heavier users of water (201 to 400 cubic meters). The latter's profit margin depend on how able they are to recover their costs on alternative supplies from their customers (e.g. car wash stations).

2.3.2 According to Sector

Satisfaction with supply frequency and duration appears to be generally contingent on the type of sector (Table 4.3). In general, 'other' institutions (i.e. entertainment centers, departure terminals, billiard parlors and used car dealerships), industry, education and hotels are the least satisfied with frequency (25%, 25%, 42% and 49% of subscribers, respectively) and duration (25%, 29%, 42% and 45% of subscribers, respectively). Satisfaction levels are highest among retail businesses and government entities.

Table 4.3
Subscribers' Satisfaction with Supply Frequency and Duration
According to Sector

N=401		Supply Frequency		Supply Duration	
Type of Entity	% of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied
Education	3.00%	42%	50%	42%	41%
Religious	1.50%	67%	34%	84%	17%
Hotel	12.70%	49%	45%	45%	47%
Health	4.50%	61%	28%	61%	28%
Government	1.00%	75%	25%	75%	25%
Company	7.70%	50%	29%	58%	29%
Banking	1.20%	60%	40%	60%	40%
Industry	7.00%	25%	58%	29%	53%
Office	13.20%	64%	21%	64%	19%
Retail	27.50%	76%	17%	77%	14%
Services	13.70%	57%	37%	53%	37%
Production	6.00%	59%	41%	59%	37%
Other	1.00%	25%	50%	25%	50%

Table 4.3 shows that satisfaction for the remaining sectors is moderate. Sectors which use water to perform their functions are least satisfied, and the opposite is true.

2.3.3 According to Subscribers' Geographical Location

Table 4.4 indicates that satisfaction levels are highest for the center, south and southwest, respectively. About 71% of subscribers in the southwest are satisfied with the frequency and another 71% are satisfied with the duration. In the south, 71% are satisfied with frequency and 74% with duration. In the center of Amman, 74% are satisfied with frequency and 77% with duration. Most other regions show moderate to moderate-low degrees of satisfaction

levels. Subscribers of east Amman are the least satisfied with frequency (48%) and duration (48%).

2.3.4 Observations and Implications

A direct relationship exists between satisfaction with supply frequency and duration on the one hand and type of entity on the other. Entities which require larger quantities of water to function productively, such as hotels, industry and schools, are the least satisfied with water supply frequency and duration. Geographically, entities in the center, south and southwest are most fortunate due to their proximity to the distribution network and their type of businesses which is mainly non-reliant on water. Most of these entities are businesses that use water in a peripheral manner.

Table 4.4
Subscribers' Satisfaction With Frequency and Duration
According to Geographical Location

N=401		Supply Frequency		Supply Duration	
Geographical Area	% of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied
Northwest	29%	57%	32%	55%	33%
North	5.5%	64%	23%	68%	23%
East	8%	48%	33%	48%	27%
Southeast	10.5%	59%	34%	60%	29%
South	9%	71%	20%	74%	12%
Southwest	4%	71%	6%	71%	0%
West	16%	57%	38%	53%	43%
Center	9%	74%	23%	77%	20%
Outside Amman	9%	52%	45%	56%	42%

Given that the hotel and industry sectors are vital contributors to the country's economy, a priority of WAJ should be to make sure that their water needs are adequately and sufficiently met. WAJ's efforts should be directed at increasing these entities' water supply and duration to help them become more productive and profitable. At the same time, hotels and industry must adopt water conservation measures which reduce their requirements.

2.4 Satisfaction with Water Quality

For non-residential subscribers, the quality of water they receive from WAJ is evaluated on the basis of five different dimensions. In addition to color, purity, taste and potability, non-residential subscribers' satisfaction also depend on the degree to which the water they receive from WAJ is suitable for their operations.

Most respondents (86%) consider the water they receive from WAJ as suitable for their activities. The lowest level of satisfaction is among consumers of the 141 to 200 cubic meters category (46% are satisfied); the remaining categories indicate medium to high levels of satisfaction. Government entities are most satisfied with network water (100% are satisfied) as opposed to 60% of subscribers in the banking sector and 66% of subscribers in

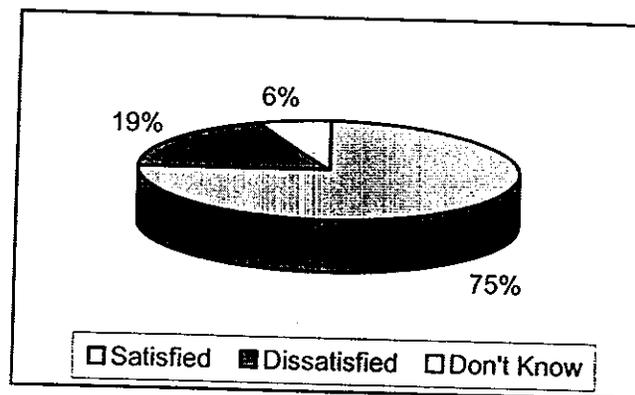
the health domain (Table 4.5). The low suitability level of water for entities which consume 141 to 200 cubic meters is perhaps due to the fact that they use water as a main ingredient in their production activities.

Table 4.5
Satisfaction with Suitability of Water

Consumption			Entity			Geographical Area		
Consumption Categories (m ³)	Satisfied	Dissatisfied	Type of Entity	Satisfied	Dissatisfied	Geographical Area	Satisfied	Dissatisfied
<= 0010	90%	6%	Education	67%	25%	Northwest	90%	6%
11 - 0020	86%	12%	Religious	84%	0%	North	76%	14%
21 - 0030	88%	6%	Hotel	86%	8%	East	85%	6%
31 - 0040	88%	6%	Health	66%	34%	Southeast	90%	2%
41 - 0060	83%	11%	Government	100%	0%	South	89%	6%
61 - 0080	87%	0%	Company	91%	6%	Southwest	88%	6%
81 - 0110	93%	0%	Banking	60%	20%	West	73%	20%
111-0140	77%	23%	Industry	75%	14%	Center	94%	3%
141-0200	46%	46%	Office	83%	17%	Outside Amman	86%	11%
201-0400	90%	0%	Retail	95%	3%			
401-0800	86%	0%	Services	83%	4%			
801-1500	100%	0%	Production	96%	0%			
			Other	75%	0%			

In general, the majority of subscribers (75%) are satisfied with the color, purity, taste and potability of WAJ's water (Figure 4.2)

Figure 4.2
Satisfaction with Color, Purity, Taste and Potability



The following is a discussion of subscribers' satisfaction with water quality according to consumption levels, type of entity and geographical location.

2.4.1 According to Subscribers' Consumption Levels

Customers are least satisfied with purity (71% of subscribers are satisfied), potability (72%) and taste (73%). Table 4.6 shows that moderately-low approval ratings are given by consumers of 141 to 200 cubic meters. For those consumers, the factors which contribute most to their low satisfaction are water purity (only 31% of subscribers are satisfied), taste and potability (both 46%), and color (54%).

Table 4.6
Subscribers' Satisfaction with Quality According to Water Consumption

N=401		Color		Purity		Taste		Potability	
Consumption (m ³)	% of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied
<= 10	34.00%	84%	14%	74%	20%	75%	17%	74%	14%
Bet. 11 – 20	16.00%	82%	18%	68%	30%	75%	24%	67%	25%
Bet. 21 – 30	13.00%	84%	12%	72%	20%	68%	20%	78%	14%
Bet. 31 – 40	8.00%	81%	19%	72%	22%	72%	28%	75%	25%
Bet. 41 – 60	9.00%	83%	17%	75%	25%	75%	22%	78%	17%
Bet. 61 – 80	6.00%	84%	4%	75%	12%	78%	12%	80%	12%
Bet. 81 – 110	3.00%	93%	7%	79%	21%	86%	14%	86%	14%
Bet. 111- 140	3.00%	70%	30%	62%	23%	54%	38%	39%	38%
Bet. 141- 200	3.00%	54%	39%	31%	46%	46%	31%	46%	46%
Bet. 201- 400	2.50%	70%	10%	70%	10%	60%	0%	60%	0%
Bet. 401- 800	2.00%	86%	14%	72%	28%	72%	28%	72%	28%
Bet. 801- 1500	0.50%	100%	0%	100%	0%	100%	0%	50%	0%

specific patterns. Table 4.7 shows that consumers who belong to the health sector are the least satisfied with quality. These subscribers' satisfaction is least with color, purity and taste (55% each of subscribers are satisfied); only 66% of subscribers are satisfied with potability.

For the health sector, issues of water hygiene are of paramount importance. Quality of water can't be compromised and anything less than perfect is usually not accepted.

2.4.2 Satisfaction According to Subscribers' Geographical Location

Table 4.8 shows that businesses in west Amman are the least satisfied with the quality of WAJ's water. Here again, we notice that subscribers' satisfaction is least with purity (45% of subscribers are satisfied), taste and potability (both 48%) and color (53%). Most of these institutions are those which consume 141 to 200 cubic meters and/or are five star hotels and restaurants.

Table 4.7
Subscribers' Satisfaction with Quality According to Type of Entity

N=401		Color		Purity		Taste		Potability	
Type of Entity	% of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied
Education	3.00%	75%	25%	59%	33%	67%	33%	59%	33%
Religious	1.50%	67%	34%	66%	34%	67%	34%	50%	34%
Hotel	12.70%	92%	8%	71%	24%	77%	20%	87%	14%
Health	4.50%	55%	39%	55%	39%	55%	34%	66%	28%
Government	1.00%	75%	25%	50%	50%	75%	25%	50%	25%
Company	7.70%	87%	9%	71%	29%	74%	22%	74%	22%
Banking	1.20%	80%	20%	60%	40%	60%	20%	80%	20%
Industry	7.00%	75%	18%	71%	18%	77%	14%	50%	22%
Office	13.20%	70%	29%	57%	42%	61%	36%	55%	40%
Retail	27.50%	85%	15%	82%	15%	77%	17%	77%	14%
Services	13.70%	86%	4%	73%	8%	74%	8%	75%	8%
Production	6.00%	91%	0%	79%	12%	92%	8%	96%	0%
Other	1.00%	75%	25%	75%	25%	75%	25%	75%	25%

Table 4.8
Subscribers' Satisfaction with Quality According to Geographical Location

N=401		Color		Purity		Taste		Potability	
Type of Entity	% of Total	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied
Northwest	29.00%	90%	9%	73%	22%	78%	18%	73%	20%
North	5.50%	82%	18%	78%	18%	63%	32%	59%	18%
East	8.00%	82%	9%	76%	6%	70%	6%	58%	6%
Southeast	10.50%	93%	5%	88%	9%	90%	2%	86%	5%
South	9.00%	91%	6%	77%	9%	83%	9%	92%	6%
Southwest	4.00%	70%	12%	70%	12%	59%	12%	76%	6%
West	16.00%	53%	45%	45%	52%	48%	49%	48%	49%
Center	9.00%	89%	9%	77%	20%	80%	17%	89%	9%
Outside Amman	9.00%	86%	14%	77%	22%	78%	20%	83%	12%

2.4.3 Observations and Implications

Water supply frequency, duration and quality receive high ratings by low level consumers whose entities do not depend heavily on water. Among those entities which suffer most from the frequency, duration and quality issues are medium to high level consumers whose main activity is manufacturing or the providing services which use water as a main ingredient.

Industrial entities that depend on water to manufacture their products require a frequent supply to attain production levels. Disruptions of supply could be harmful to their business interests. This is especially true in the food processing industry sector. Potability of water is

also important for entities which employ medium to large numbers of employees and cannot afford bottled water.

The educational and health sectors require water on a continuous basis. The use of water in health centers is significant and hygiene requirements are absolute. Hotels, especially five-star establishments, demand large volumes of water. These institutions are unhappy with WAJ and consider their supply inadequate and unreliable.

Understandably, these water users do not consider WAJ's water schedule sufficient for their needs. Any supply disruptions could cause dissatisfaction by their customers and a resultant drop in their business.

Low level users of water, such as offices, banks and government agencies, require water for either drinking or floor cleaning purposes. To most, WAJ's supply is sufficient. Complaints by these institutions about water quality are minimal and generally insignificant. Water purity is a concern to some of these subscribers, a concern shared by residential consumers.

2.5 The Wastewater System

2.5.1 Connection to the Wastewater System

Of the 84% of the entities that are connected to the wastewater system, only 3% of them faced problems with the wastewater network. They complain most about odor, followed by blockage and flooding.

2.5.2 Satisfaction with the Wastewater System

Of the 337 entities connected to the wastewater system, 97% are satisfied. Only 44% of the connected entities responded to the blockage repairs question. About 93% are satisfaction with this service. Of the 129 who complained about flooding problems, 91% are satisfied with the level of WAJ's responsiveness to their complaints. The believe that WAJ has maintained the systems well and addressed most complaints adequately.

3. WAJ's Customer Services

3.1 Billing and Meter Reading Services

3.1.1 The Billing System

Almost all respondents (98%) report that they are billed by WAJ once every three months. Most (72%) preferred the current billing system; 26% prefer monthly invoicing. A majority (76%) prefer to have their bills delivered by collectors; 24% of subscribers prefer to receive their bills through the mail. Most of the subscribers (53%), prefer to settle their bills at banks, but some (31%) prefer to pay them directly to collectors.

How is WAJ Perceived Regarding Billing Discrepancies?

About half of subscribers (52%) believe their bills are accurate and reflect the actual amount of water they consume. However, more than a third of the respondents (36%) believe that WAJ overcharges them for the water amount they consume. Of the total population sample, only 48% complained to WAJ about different issues of billing discrepancies. A high number of subscribers (60%) have indicated satisfaction with WAJ's responsiveness to their complaints (Figure 4.3).

Figure 4.3
Satisfaction with WAJ's Responsiveness to Billing Discrepancies

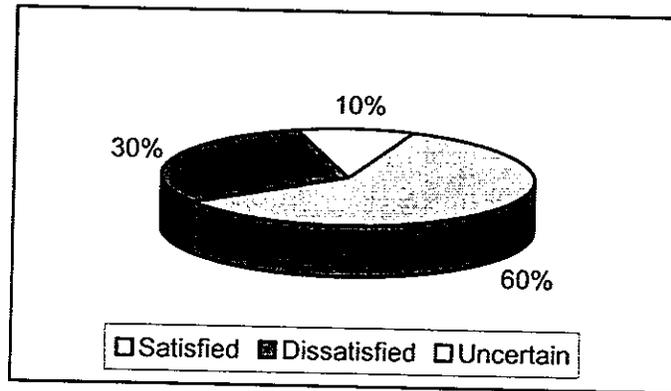


Figure 4.4 shows that satisfaction with WAJ on this issue is least among subscribers in the southeast, east and northwest (20%, 25% and 36% of subscribers are satisfied respectively).

Figure 4.4
Satisfaction with WAJ's Responsiveness to Billing Discrepancies According to Geographical Location

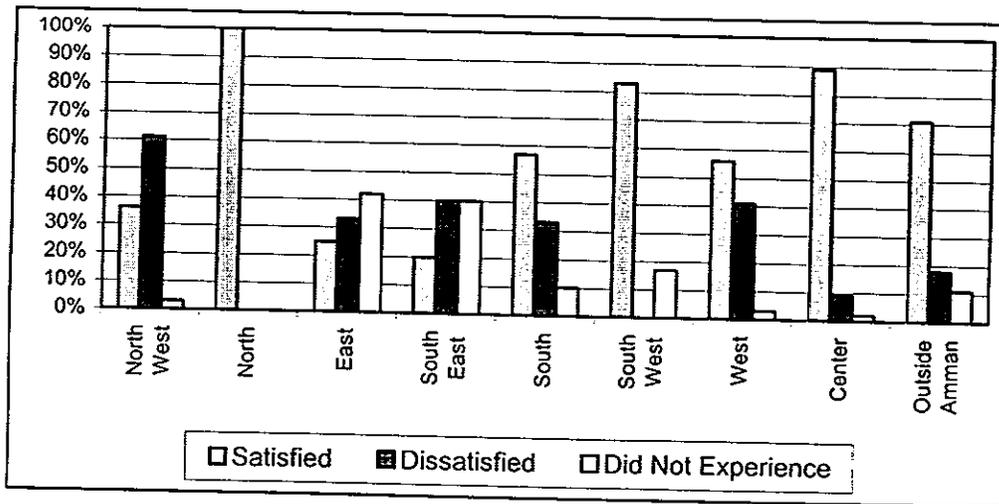
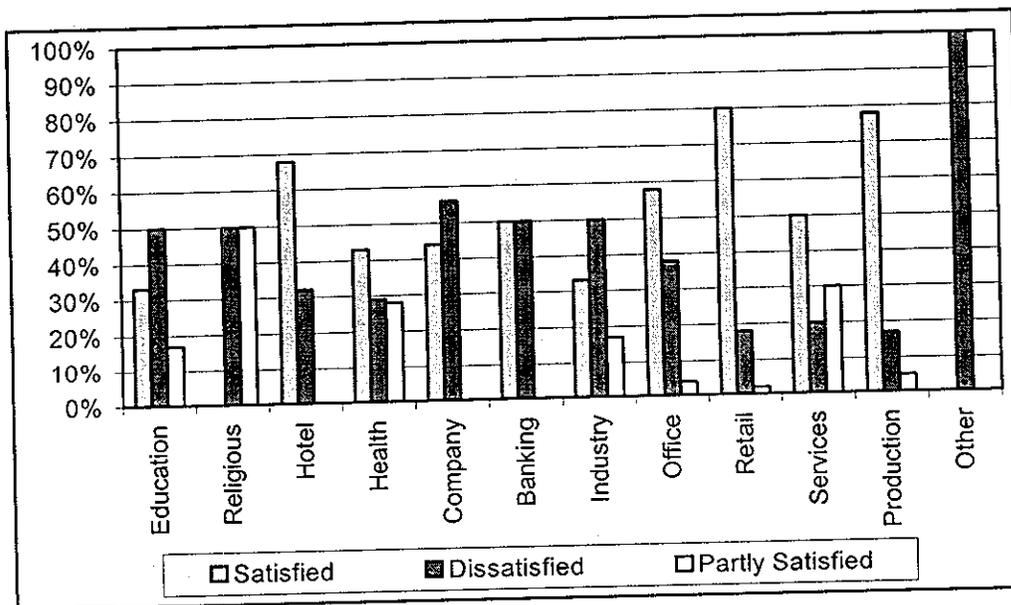


Figure 4.5 shows that religious entities are not satisfied with WAJ on billing procedures. Satisfaction is also very low among subscribers in the education and industry sectors (33% each are satisfied) and in the health domain (43% of subscribers are satisfied). Billing discrepancies do not apply to government agencies.

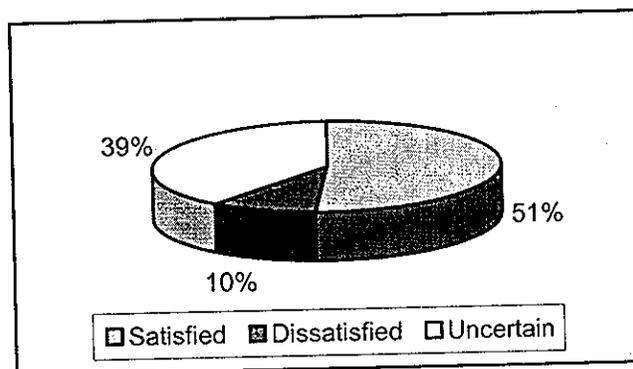
Figure 4.5
Satisfaction with WAJ's Responsiveness to Billing Discrepancies
According to Type of Sector (Activity)



3.1.2 Meter Reading Practices

Of the total 401 businesses surveyed, 51% indicate satisfaction with WAJ's meter reading precision, 39% are partly satisfied, and the remaining 10% are not satisfied (Figure 4.6).

Figure 4.6
Satisfaction with WAJ's Meter Reading Practices



Those least satisfied with this service consist mainly of the low to moderate level

consumers. Among those who consume between 11 and 20 cubic meters, only 42% are satisfied; between 31 and 40 cubic meters, only 41% are satisfied; and between 61 and 80 cubic meters, only 34% are satisfied. Of the low to middle level consumers (201 and 400 cubic meters), 40% are satisfied with WAJ's meter reading practices (Figure 4.7)

Figure 4.7
Satisfaction with Meter Reading Practices According to Consumption Levels

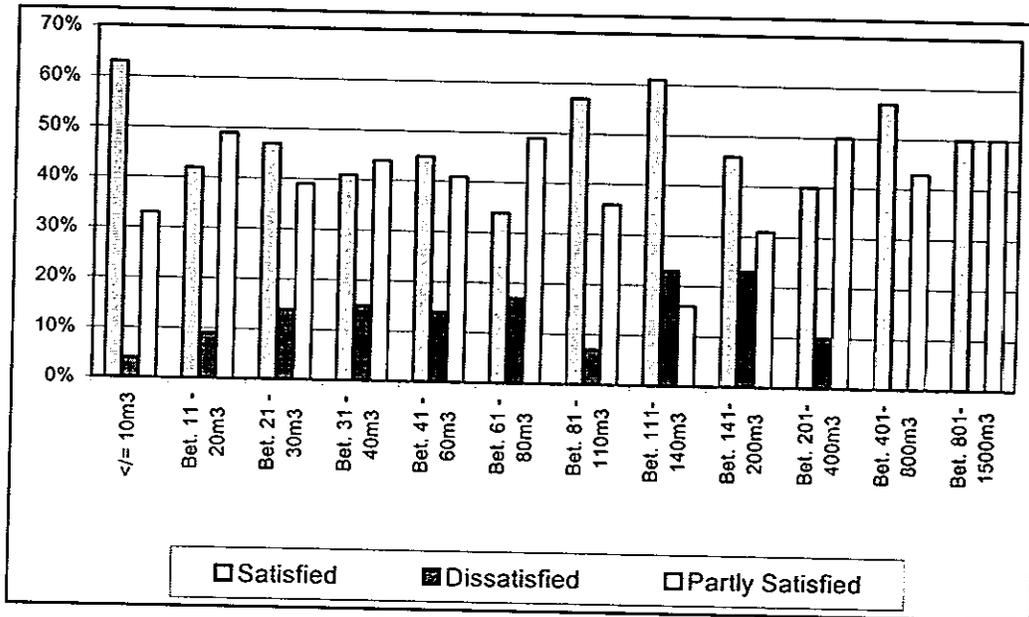


Figure 4.8 shows that the banking and education sectors are the least satisfied with WAJ's meter reading practices, at 20% and 33%, respectively. The hotel and production sectors, as well as companies, are also generally not satisfied with this service (42% each).

Figure 4.8
Satisfaction with WAJ's Meter Reading Practices According to Type of Sector

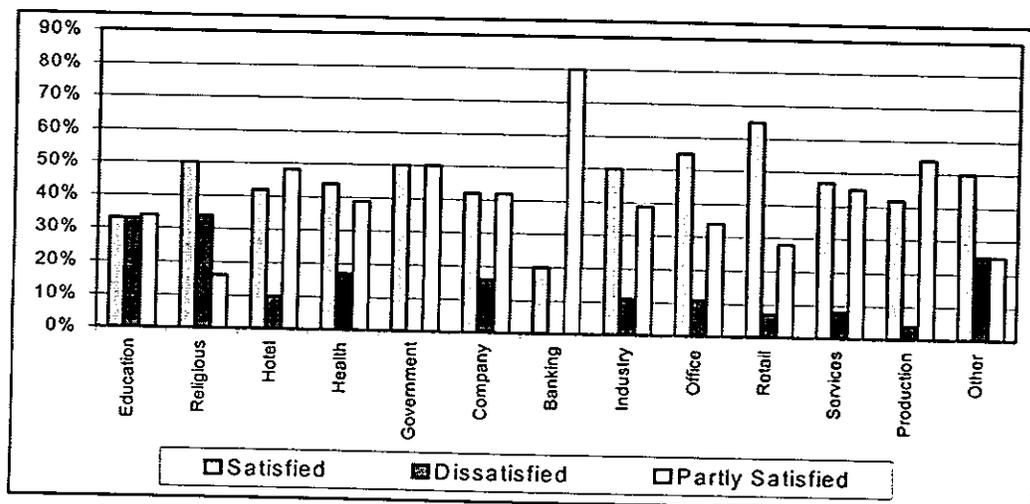
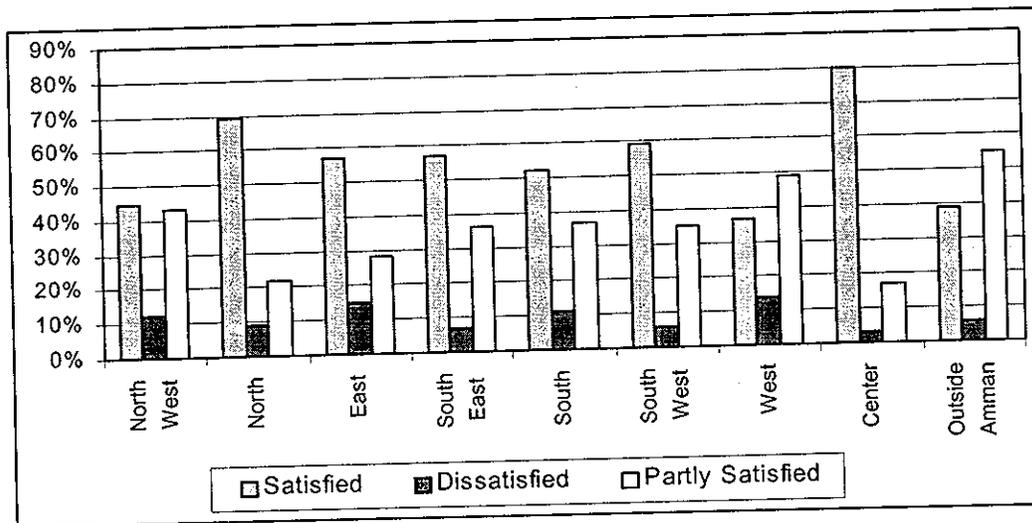


Figure 4.9 shows that entities in the west and outside Amman are least satisfied with WAJ's meter reading practices (37% and 39, respectively). The rest of the regions are moderately satisfied. Subscribers in the center of Amman are the most satisfied (80%).

Figure 4.9
Satisfaction with WAJ's Meter Reading Practices
According to Geographical Location



Observations and Implications

Like residential subscribers, non-residential entities have had unhappy experiences with meter reading practices. Meters are not adequate and collectors are not reliable all the time. Billing discrepancies represent a cause for mistrust in WAJ's practices.

It is not clear why the religious, education, industry and health sectors have had the worst experience with billing discrepancies. These sectors need further investigation by WAJ. Entities belonging to these sectors which are located in the southeast, east and north are least satisfied.

Quarterly billing with payments through banks rather than collectors is preferred. WAJ may want to continue quarterly billing and allow entities to pay through the banks, collectors, or WAJ's offices.

3.2 Maintenance of Water Pipes and Leakage

3.2.1 Pipe Conditions

Slightly more than 51% of subscribers are satisfied with the quality and condition of pipes. Among the remaining subscribers, 19% are dissatisfied and 30% are partly satisfied (Figure 4.10).

Figure 4.10
Satisfaction with Quality of Pipes

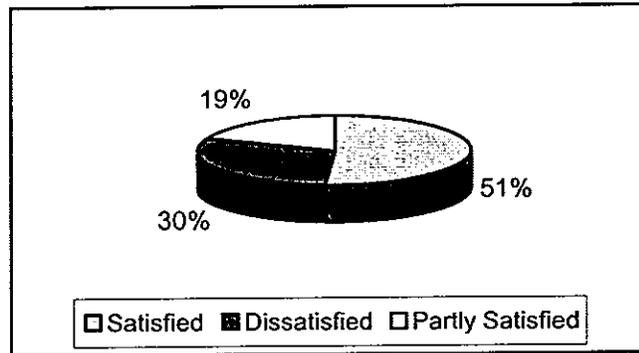


Figure 4.11 shows that the lowest number of satisfied customers with the conditions of the pipes belong to the banking sector (only 20% of subscribers are satisfied), government (25%), companies (29%) and services (38%).

Figure 4.11
Satisfaction with Quality of Pipes According to Type of Sector

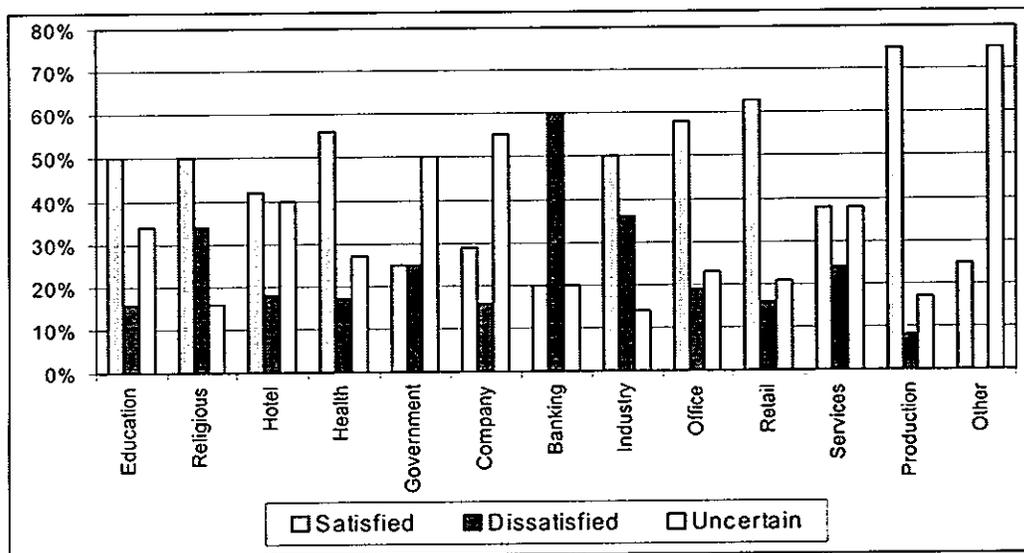


Figure 4.12 shows that subscribers in the northwest and west are the least satisfied with the quality of pipes (30% and 45%, respectively).

3.2.2 How Does WAJ Respond to Maintenance Calls Regarding Pipe Leakage?

Of the total population sample, only 211 subscribers have complained to WAJ about pipe leakage. Figure 4.13 shows that about 56% of those subscribers who complained are satisfied with WAJ's responsiveness to maintenance calls for the repair of pipe leakage.

Figure 4.12
Satisfaction with Quality of Pipes According to Geographical Location

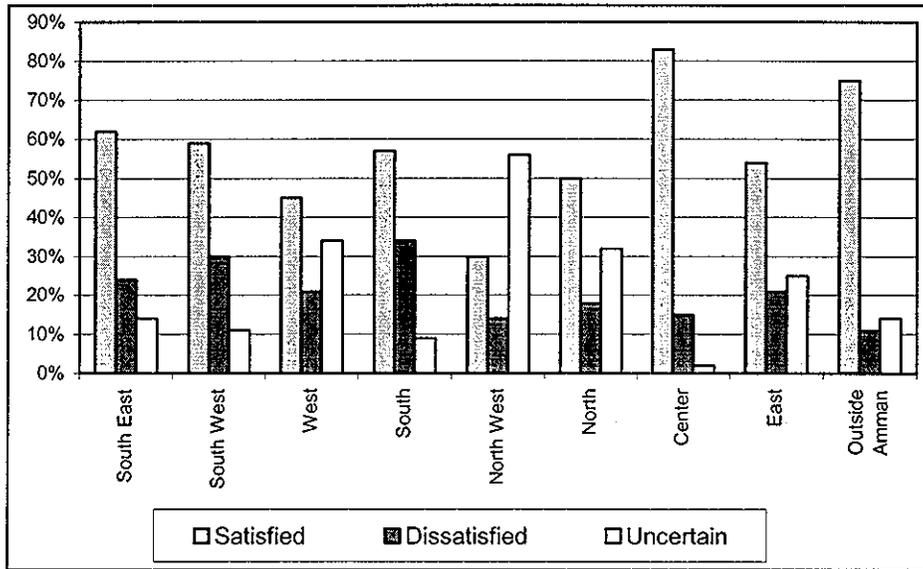
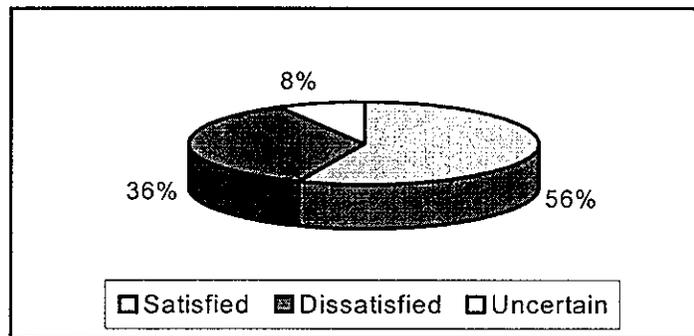


Figure 4.13
Satisfaction with WAJ's Maintenance of Pipe Leakage



Subscribers in the religious and banking segments of the population are uniformly dissatisfied with WAJ's responsiveness to maintenance calls for the repair of pipe leakage (Figure 4.14). Satisfaction is also very low among subscribers in the sectors of health (33% of subscribers are satisfied), industry (41%), companies (43%), and none of the subscribers in the religious and banking segments of the population are satisfied with WAJ's responsiveness to maintenance calls for the repair of pipe services (48%).

Figure 4.14
Satisfaction with WAJ's Responsiveness to Pipe Leakage
According to Type of Sector

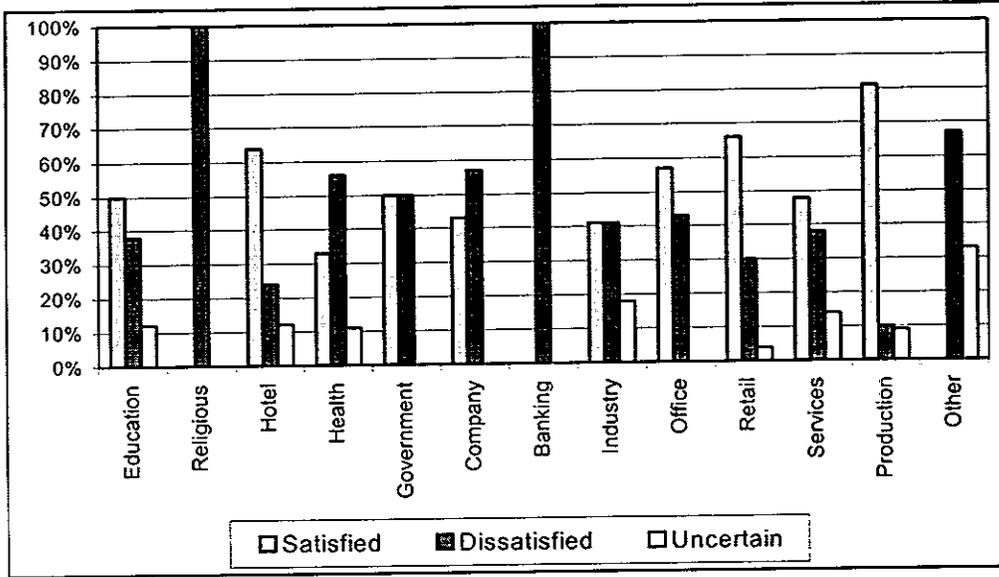
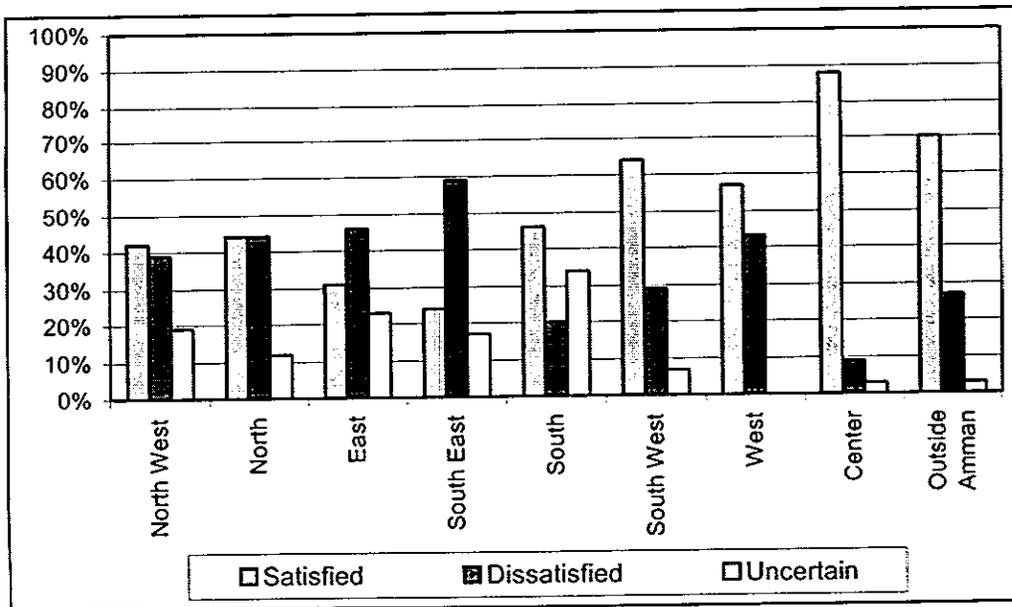


Figure 4.15 shows that the lowest number of satisfied subscribers is in the southeast (24% of subscribers are satisfied), followed by the east (31%), northwest (42%) and north (44%).

Figure 4.15
Satisfaction with WAJ's Responsiveness to Pipe Leakage
According to Geographical Location



3.3 How is WAJ Seen as a Problem Solver of Supply Disruptions?

Only 204 (51%) of subscribers have complained to WAJ about supply disruptions. Of these, about 54% are satisfied with WAJ's responsiveness to their calls for help when water supply is disrupted (Figure 4.16). About a third (37%) of the remainder are dissatisfied, claiming that they do not receive adequate responses from WAJ.

Figure 4.16
Satisfaction with WAJ's Responsiveness to Complaints about Supply Disruptions

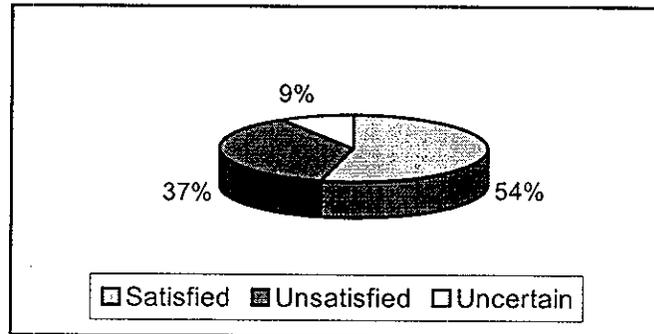


Figure 4.17 indicates that none of the subscribers of the religious segment is satisfied with WAJ's responsiveness to complaints about supply disruptions. Satisfaction is also low for subscribers in the industry, health, and banking sectors (12%, 25% and 33%, respectively).

Figure 4.17
Satisfaction with WAJ's Responsiveness to Complaints about Supply Disruptions According to Type of Sector

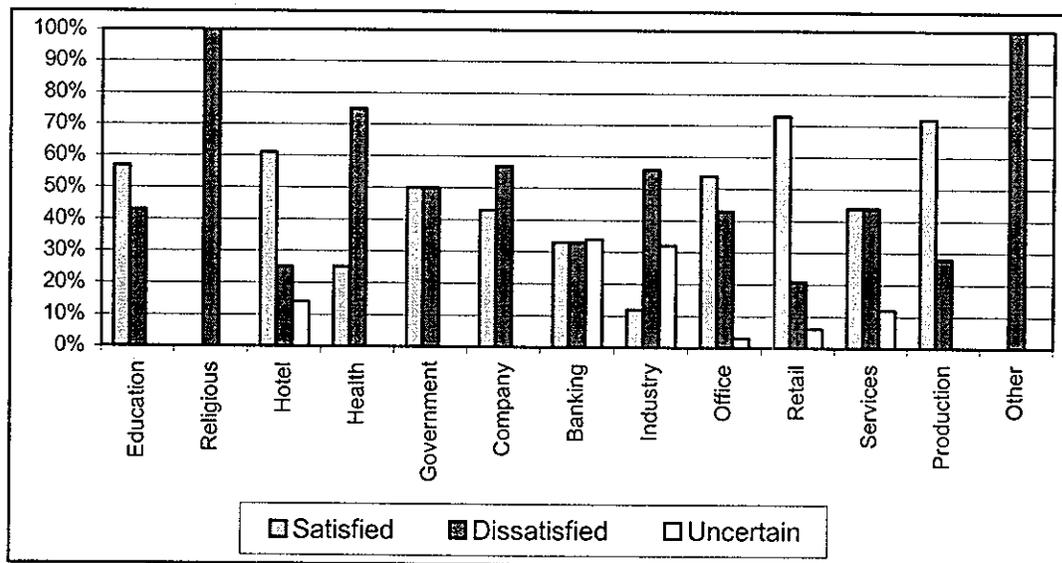
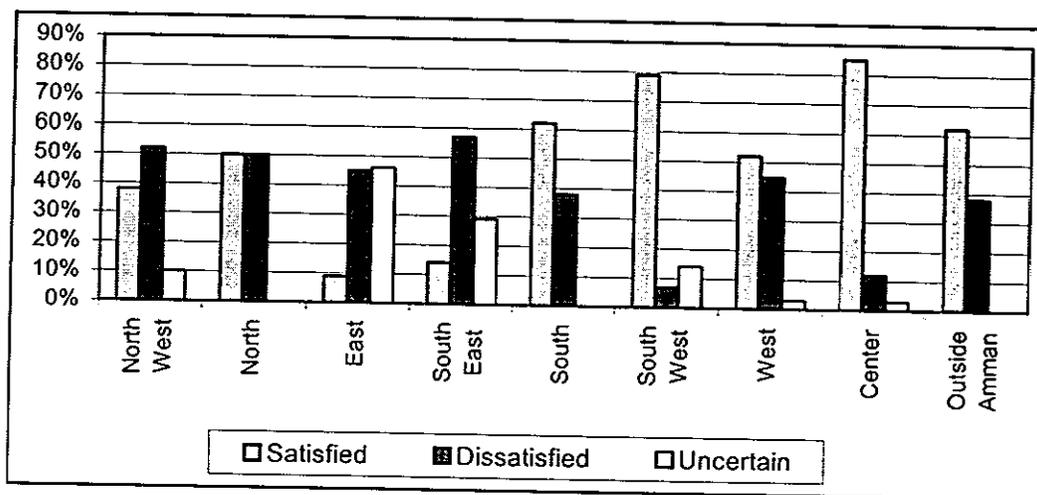


Figure 4.18 shows that only 9% of subscribers in the east are satisfied with WAJ's responsiveness, followed by 14% in the southeast, 38% in the northwest, 50% in the north,

52% in the west, 62% in the south and 79% in the southwest, and a strong 85% in the center of Amman.

Figure 4.18
Satisfaction with WAJ's Responsiveness to Complaints about Supply Disruptions
According to Geographical Location



Observations and Implications

Supply disruptions present a problem to more than one third of the entities in the study. Satisfaction with pipe conditions is not low; less than 20% of the entities are unhappy with WAJ's responsiveness to maintenance calls on pipe leakage. Religious organizations are most unhappy about WAJ's responsiveness to supply disruptions, followed by banks and other retail entities.

The quality of pipes is worst in the northwest, while responsiveness of WAJ to leakage and supply disruptions is weakest in the south and southeast; most of the dissatisfied entities are located in these regions.

One must appreciate the seriousness of the pipe leakage and water disruption problem for WAJ when the complaints of non-residential and residential subscribers are reviewed. Though the problem seems less acute in the non-residential sector, the combination of both segments of the population poses a formidable challenge to WAJ.

4. Alternative or Additional Water Supply Sources

4.1 Tanker Water

Like residential subscribers, only a minority of participants (27%) augment their water supply by buying tanker water from private tanker operators. Of the 108 participants who buy water from private companies, about 37% buy once a month, 27% buy twice a month, and 16% buy three to four times a month. The purchased quantity does not usually exceed

10 cubic meters each for 69% of subscribers a month. Furthermore, 73% of subscribers report paying about JD 1.5 – 2 per cubic meter. Reliance on tanker water is lowest for small and medium level consumers.

In general, the majority of subscribers who buy tanker water are satisfied with its quality in terms of color, purity, taste, potability and suitability for their type of business/activity. Also, a high percentage of subscribers, (87%), is satisfied with the 'waiting period' associated with delivery and supply. Dissatisfaction, however, is greatest with the price of tanker water. Significantly, 97% of the tanker customers have insisted that they would stop buying water if WAJ were able to provide adequate water supply and quality.

4.2 Bottled Water

The consumption of bottled water seems to be relatively low. Only a few respondents (11%) buy bottled water. Although for the majority (42%), consumption is usually less than 5 liters per week, another 42% purchase quantities between 5 and 36 liters per week and 16% purchase more than 51 liters per week. Twenty-seven percent of the subscribers who buy bottled water pay less than JD 1 per week for their purchases, about 22% pay between JD 1.76 and JD2.9 per week, and another 22% pay more than JD 10 per week. Bottled water is mainly used for drinking. The vast majority of respondents who buy bottled water (73%) are willing to stop doing so if they were sure WAJ can provide water of potable quality.

4.3 Observations and Implications

Like residential subscribers, the dependence of entities on alternative supply sources is low and inconsistent. The market share of tanker and bottled water is relatively small. Larger entities which use water for production or processing purposes often find it necessary to order supplementary supplies to sustain their operational momentum. These entities continue to favor WAJ as the sole supplier, if the latter is able to keep up with its water replenishment program. Loyalty to private suppliers is tenuous at best. The tanker water sector stands the risk of losing a significant market share if WAJ or the private operator were successful in providing adequate water supply.

5. Water Storage

5.1 Profile of Entities

An important determining factor of storage tanks' availability for a particular entity is usually its nature of business/activity. Of the population sample, 27% are retail shops, 14% are services, 13% are offices, 13% are hotels and catering agencies, 8% are companies, 7% are industrial entities, 6% are production, 4% are health institutions, 3% are educational institutions, 2% are religious institutions, 1% are banks, 1% are government agencies, and 1% are a variety of small businesses. The majority of businesses (80%) employ less than 10 employees, 9% employ 10 to 15 persons, and about 4% employ 16 to 20 persons. Only 1% employ more than 150 employees.

5.2 Availability of Tanks

Nearly all respondents (97%) own water storage tanks. Of these respondents, 43% own one water tank, 31% own two tanks, 12% own three tanks, 6% own four tanks, 1% own five tanks, and 6% own more than five tanks. The maximum combined storage capacity of all tanks owned by each of the entities is between 2 to 5 cubic meters (50%); the capacity for 24% is ≤ 1 cubic meter and the capacity for 16% is between 6 to 10 cubic meters. Most of the respondents (88%) have no underground wells. Of the remaining 12%, 92% own one well and 6% own two wells. Well capacity for 25% is between 6 and 16 cubic meters, for 30% it is between 17 and 49 cubic meters, and for 17% it is between 50 and 150 cubic meters. The majority of respondents (96%) do not collect rainwater. Of the 394 subscribers who have storage facilities, 76% have storage capacities that last for four days or more, for 14% for three days, and for about 9% for two days.

Many of the hotels and some of the schools and hospitals have wells which provide them with three to four days of reserves. Like residential subscribers, entities in all sectors depend heavily on tanks and wells. Without them, most will face serious supply problems.

6. Water Uses and Practices

WAJ's water is used for a variety of purposes. Uses cited by almost all respondents include cleaning, drinking, cooking, washing vegetables and fruits, irrigation and production-processing (Figure 4.18). The vast majority of respondents (90%) do not boil the water they receive from WAJ. Those who do boil water report that they use boiled water mainly for drinking and for specific production activities. Some use water for cooking (29% of the entities), and a few for washing vegetables and fruits (22%). Most (87% or $n=349$) of subscribers report that they do not filter the water they receive from WAJ. The most commonly used filtration systems are the sand and activated carbon systems. Both systems allow subscribers to use water for drinking, production purposes and cooking. More than half of the subscribers (58% or $n=232$) do not let tap water settle before using it.

Observations and Implications

Entities have themselves water storage capacities which are suitable for their type of business and size. The larger the entity, the bigger its storage capacity.

With the exceptions of some hotels, restaurants, schools, hospitals and commercial institutions, few entities pay special attention to water boiling or filtering. The potability of water is accepted by most.

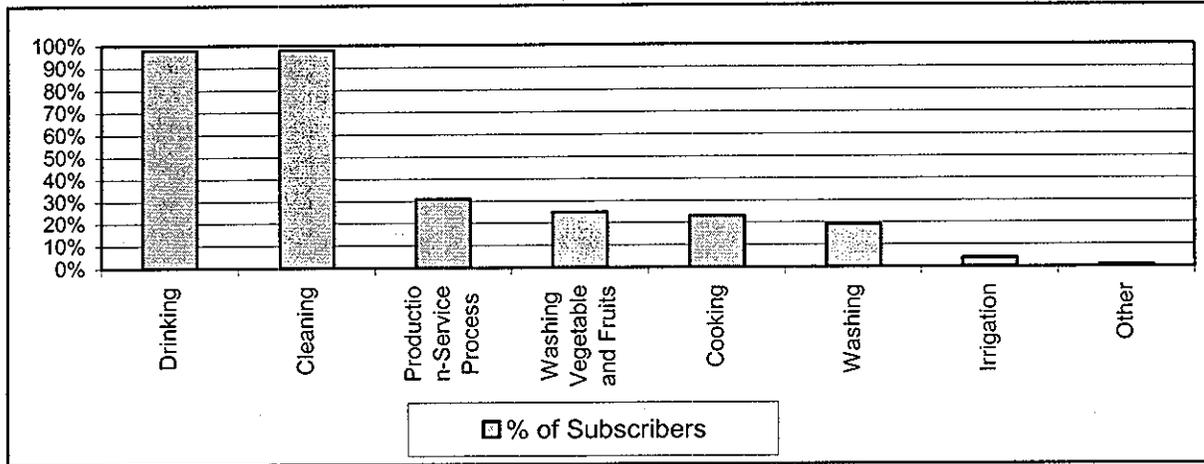
7. Awareness of and Support for Current Tariffs

7.1 Awareness of and Attitudes Toward the Current Rate

Only 42% of respondents are aware of the details of the current tariff system. Data obtained in the survey supports the fact that awareness of the current tariff system varies according

to subscribers' level of consumption, type of entity and geographical location.

Figure 4.19
Subscribers' Uses of Water



7.1.1 According to Consumption Levels

Figure 4.20 shows that, in general, the moderate to high level consumers (between 111 and 140 cubic meter, 201 and 400 cubic meters, and 801 and 1500 cubic meters) are the most aware of the current tariff system.

In general, there is little or no support for the current tariff system. None of the high level consumers (between 111 and 1500 cubic meters) support this tariff rate, an average of 5% of consumers between 21 and 110 cubic meters support it, and only 22% of consumers who consume ≤ 10 cubic meters, support it (Figure 4.21). About 87% of subscribers consider the current rate high.

While awareness of the current system is low, support for it is nearly non-existent. The complete lack of support by all medium and high level users is of concern. If anything, these findings present WAJ with a formidable challenge to overcome.

7.1.2 According to Type of Sector

Figure 4.22 shows that the banking sector is the most aware of the current tariff system (80% of subscribers are aware), followed by companies (52%), services (45%), retail (44%), industry and offices (43% each), hotel and health (39% each), production and government (25% each), and education and religious institutions (17% each). A significant 75% of the 'other' subscribers are aware of the current rate.

Figure 4.20
Awareness of the Current Tariff System According to Consumption Levels

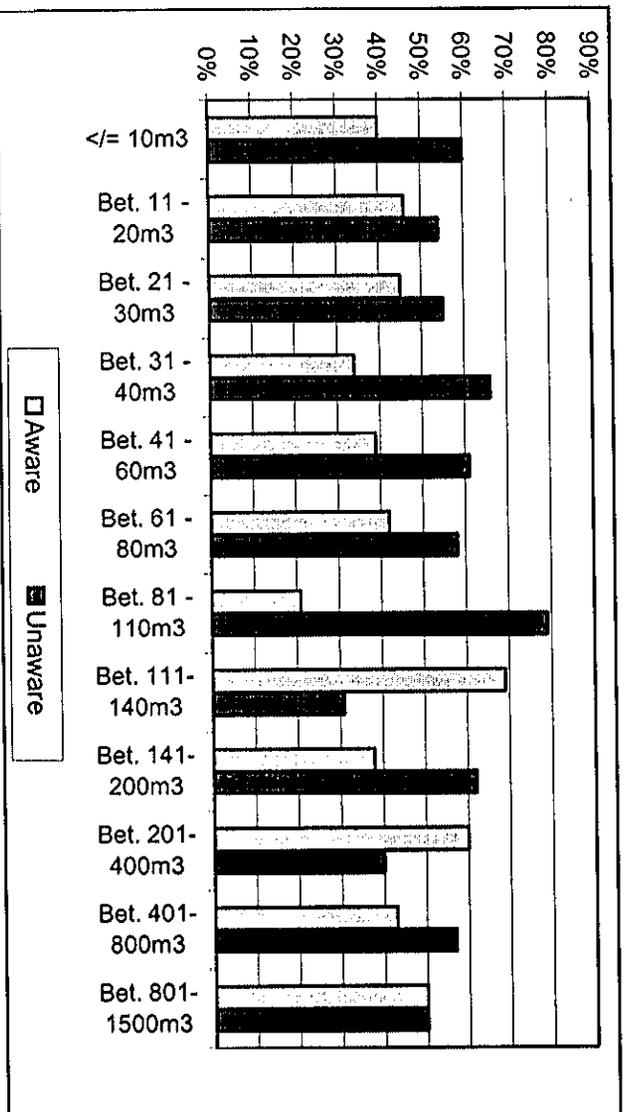


Figure 4.21
Subscribers' Attitudes towards Current Tariff According to Consumption Levels

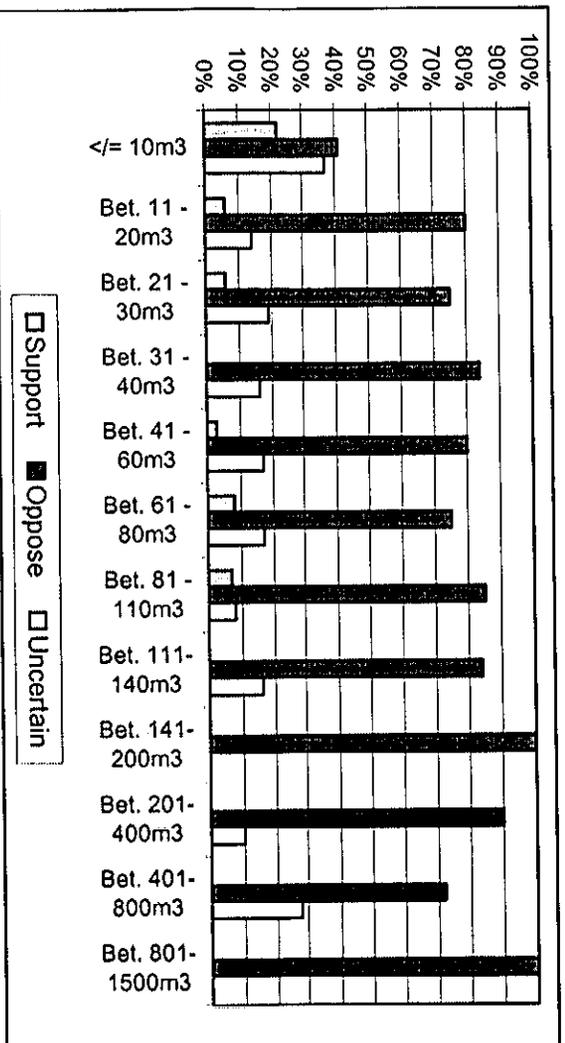


Figure 4.22
Awareness of Current Tariff According to Type of Sector

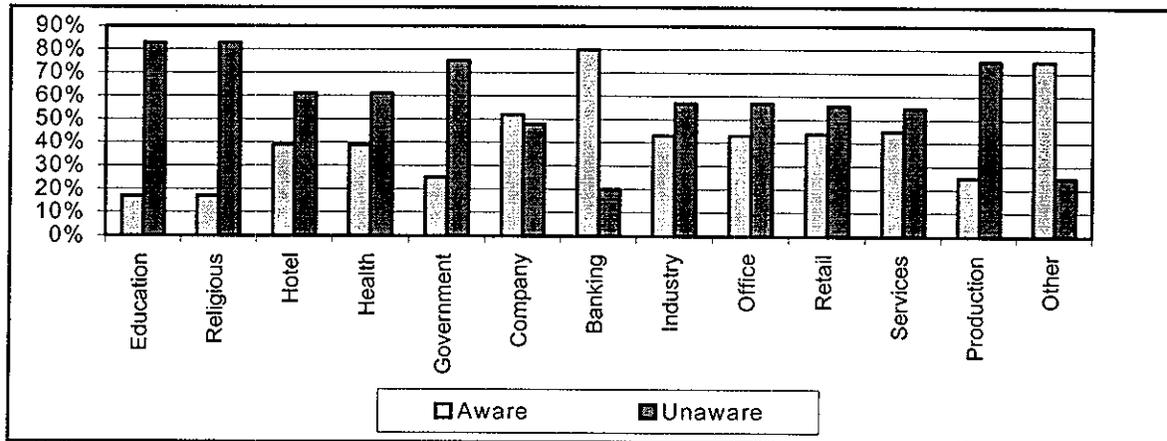
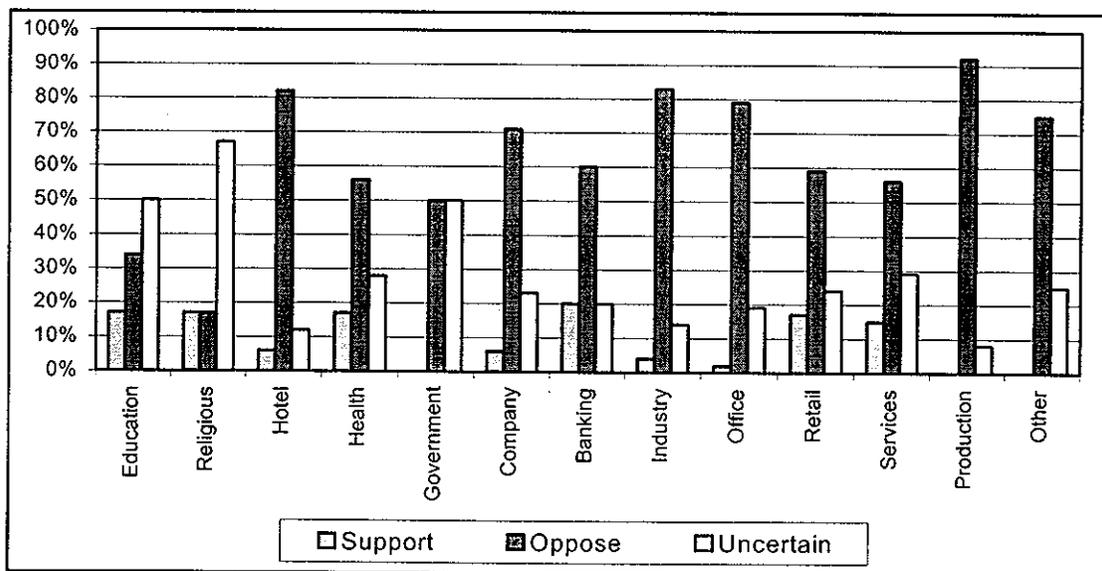


Figure 4.23 shows that support for the current rate is very low in all sectors (similar to consumption levels). None of the subscribers in the production, government and 'other' sectors supports the rate. Exceedingly low levels of support are also found in offices (2% of subscribers are satisfied), industry (4%), companies and hotels (6% each). Only 15% of subscribers in the services domain support the current rate. About 17% of subscribers in the education, religious, health and retail sectors support the current rate. The highest number of consumers who support the current rate is in the banking sector, and here only 20% support it.

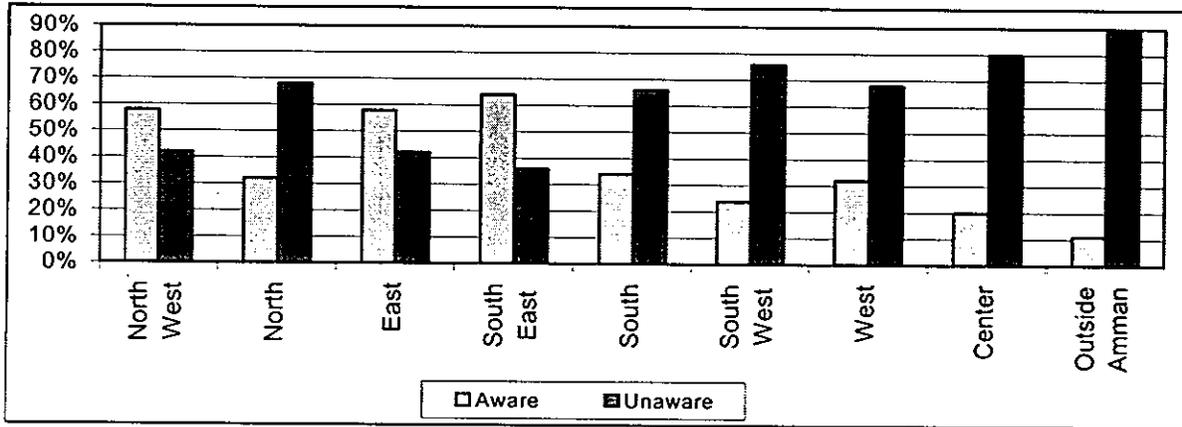
Figure 4.23
Subscribers' Attitudes towards Current Tariff According to Type of Sector



7.1.3 According to Geographical Location

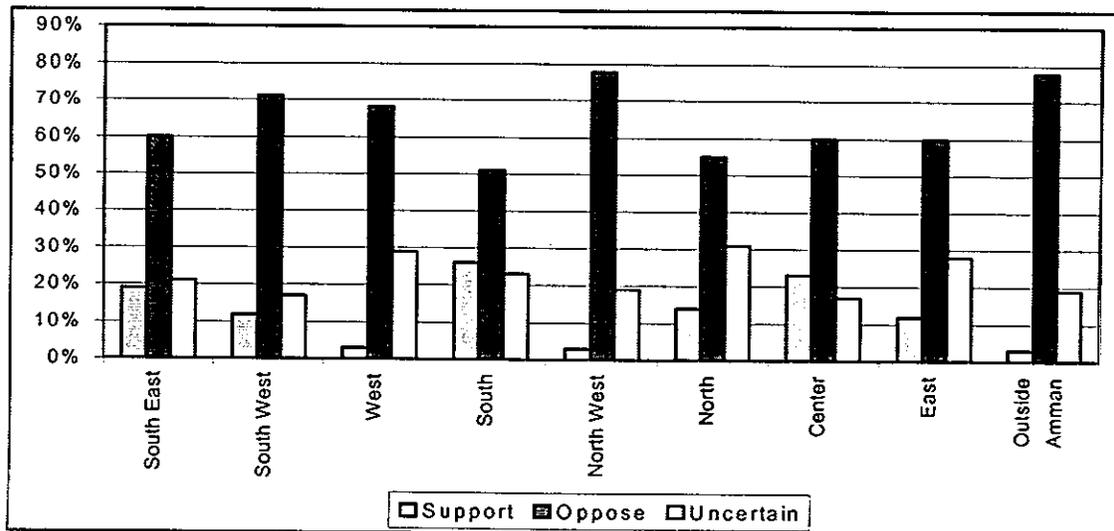
Figure 4.24 shows that entities outside Amman are the least aware of the current rate (11% of subscribers are aware), followed by the center of Amman (20%), southwest (24%), west and north (32% each), and the south (34%). Subscribers in the east and northwest show the highest level of awareness of the current tariff system (58% each).

Figure 4.24
Awareness of Current Tariff Rate According to Geographical Location



Subscribers outside Amman and in the west and northwest are the least supportive of the current rate (only 3% each of the entities support the current tariff). On the other hand, 26% of the subscribers in the south support the current tariff system (Figure 4.25). Among the very few entities which support the current tariff rate system are those that are least affected by it (i.e. retail shops, NGOs, and others).

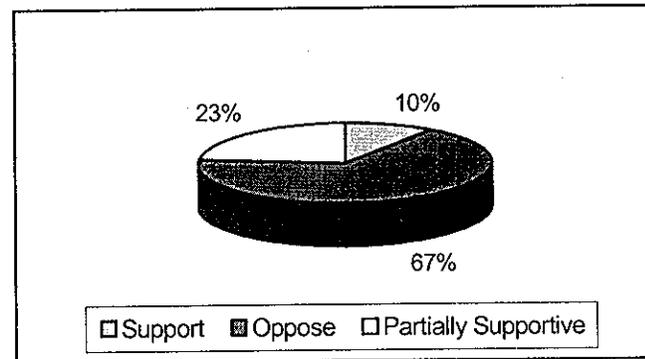
Figure 4.25
Subscribers' Attitudes towards Current Tariff System According to Geographical Location



7.2 Reactions after Current Tariff System Was Explained

After developing an understanding of the current tariff system during the interview, two thirds of subscribers (67%) continued to oppose it, 10% supported it, and 23% were partially supportive (Figure 4.26).

Figure 4.26
Views on Current Tariff Rate



A significant number (77%) of subscribers consider WAJ's current rates are 'high' to 'very high' and 17% fair. The remaining 6% had no views on the issue. All subscribers noticed increases in their current bills when compared to previous bills. For 37% of subscribers, the difference is less than JD 5 per cycle, for 20% the difference is between JD 5–10, for 14% the difference is between JD 11–20, and for 24% the difference is between JD 21–100. For the remaining 5%, the difference ranges between JD 101 and 1000.

These increases are very significant for at least 40% of all non-residential subscribers and may explain why most of them are very opposed to the current rate. Increases over JD 150 per cycle may impact significantly the profitability or even the sustainability of small or medium size organizations. Increases of JD 500 or more may have a similar impact on larger organizations.

Over one half of the subscribers (54%), report that they will not charge their customers extra fees to cover the expenses of the current tariff rate; about 13% will charge their customers extra fees. The remaining 33% of subscribers either do not know if they were going to charge their customers extra fees or feel the issue is not applicable to them. Even with the current increase in the tariff rate, for some 57% of subscribers, the rate remains more affordable than buying tanker water; whereas for 18% it is now more affordable to buy tanker water. Some 24% consider buying tanker water more affordable depending on the season.

For large entities, buying large amounts of tanker water is cost-effective: the larger the amount, the lower is the price. Tankers use a regressive tariff system which allows large consumers to save money on their purchases. In many cases, tanker water is less expensive than WAJ's, a convenience which may deprive WAJ of significant revenues.

7.3 Subscribers' Perceptions of WAJ's Use of Additional Revenues

Many non-residential subscribers (72%) think that WAJ's revenues will be enhanced because of the current tariff system, 3% do not think so, and 25% do not know. When asked about what they think WAJ will be using the additional revenues for, subscribers frequently replied: "to explore new resources", "to repair networks", "build new dams", "to cover its financial deficit", "to buy new treatment plants", "to increase salaries", "to cover its operational and maintenance costs" and "to cover its capital costs", in this order of importance.

Some respondents have high expectations of the additional revenues generated from the current tariff system. They believe that WAJ will put these new financial resources to good use. As a result of new revenues, the most anticipated positive results include improved water quality (34% of subscribers), more frequent water supply (25%) and better distribution of water and exploitation of new resources (21%). Repair of pipes, adequate responsiveness to complaints and training of employees followed, with 8%, 3%, and 2%, respectively. Conversely, 42% of subscribers have no hope of any improvements and do not expect anything in return.

7.4 Observations and Implications

While awareness of the current tariff rate is very low among educational, religious, government and production entities, support for the rate is alarmingly low across the board. Receptivity to the current system is low and subscribers' attitudes are negative. Entities involved in this study disagree with WAJ's tariff rate policies and oppose any additional water costs. Although several subscribers believe WAJ is going to put the additional revenues to good use, most are not concerned with this issue.

Reliance on tanker water is increasing among medium and high level consumers. Tankers are taking advantage of the current tariff by providing important opportunities to large businesses and industries.

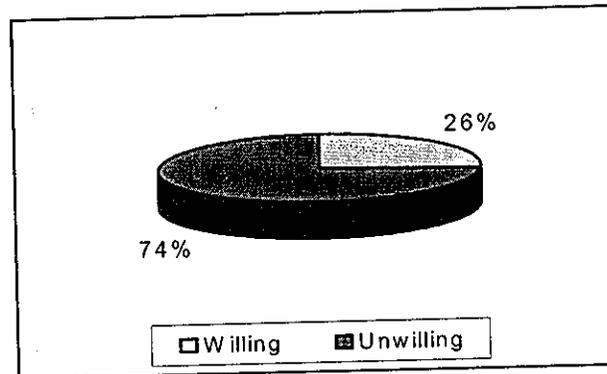
Subscribers' attitudes, perceptions and views of the current tariff system suggest significant opposition to any tariff increases. Additional revenues, which may be used to cover WAJ's improvements of its services, do not represent a justification for such increases. Opposition by all subscribers to WAJ on this issue is extremely strong.

8. Willingness and Ability to Pay More for Higher Tariff Rates

8.1 Willingness and Ability to Pay More

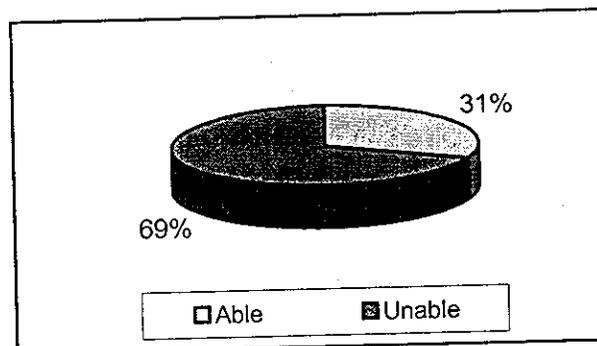
Only 26% of the non-residential subscribers are willing to pay more if the rate is increased (Figure 4.27). This question was not relevant for government agencies.

Figure 4.27
Willingness to Pay More



Even if willing, 69% of the subscribers in the survey are unable to pay more (Figure 4.28).

Figure 4.28
Ability to Pay More



8.1.1 Willingness and Ability to Pay More According to Type of Sector

Figures 4.29 and 4.30 show that none of the subscribers in the religious category are willing or able to pay more for water. The banking industry, on the other hand, is the most willing (60% of subscribers are willing) and able (80%) to pay more. Predictably, however, willingness and ability levels are quite low for most sectors.

Figure 4.29
Willingness to Pay More According to Type of Sector

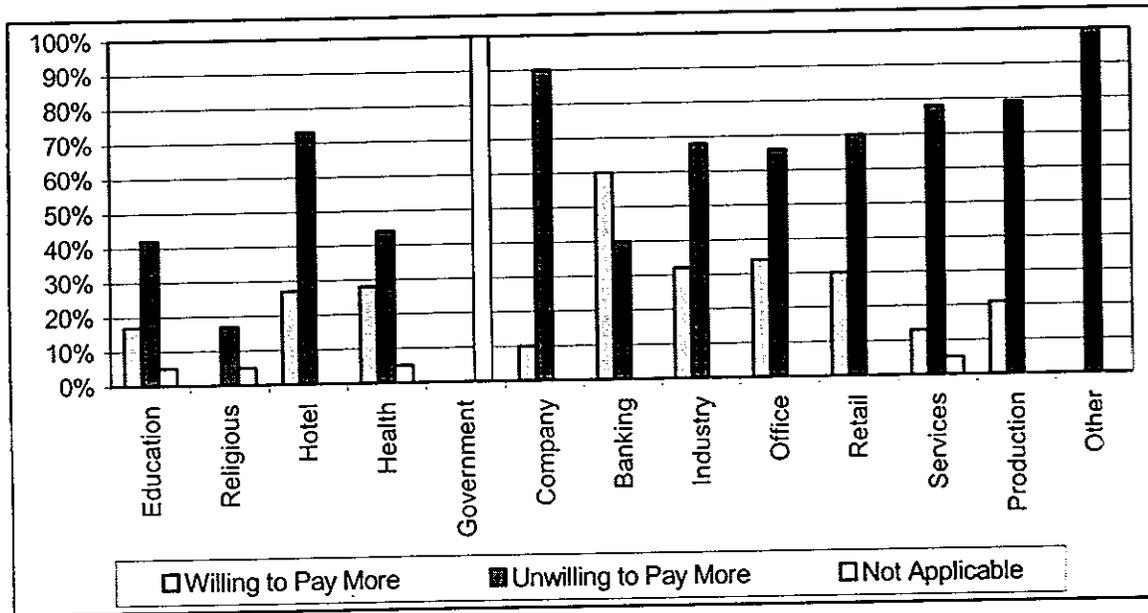
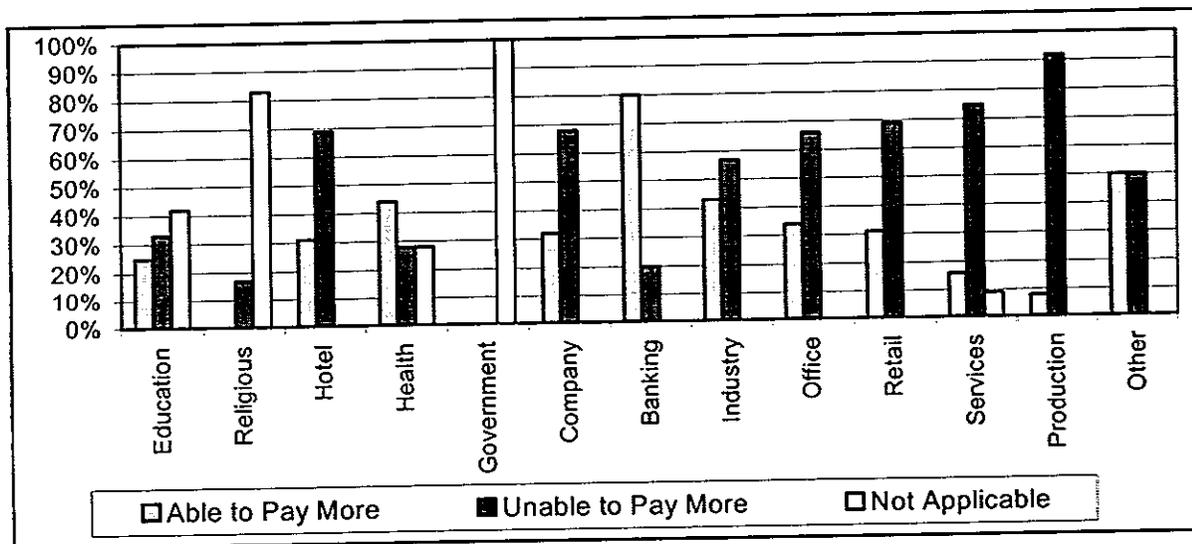


Figure 4.30
Ability to Pay More According to Type of Sector



8.1.2 Willingness and Ability to Pay More According to Consumption Levels

Figures 4.31 and 4.32 show that those who consume the least (≤ 10 cubic meters) are the most willing to pay more for increased future tariff rates (only 35% of subscribers in this category are willing). In general, however, it is the low-medium to high level consumers (201 and 800 cubic meters) who are most able to pay more for increased rates (42% of subscribers in these categories). The majority of subscribers who are unwilling and unable

to pay more in the future consume between 61 and 80 cubic meters (13% and 17% are willing and able, respectively). Entities in this category are relatively small and have very meager resources. The willingness and ability to pay more by most consumers is discouraging. Large consumers (801 and 1500 cubic meters) are neither willing nor able.

Figure 4.31
Willingness to Pay More According to Consumption Levels

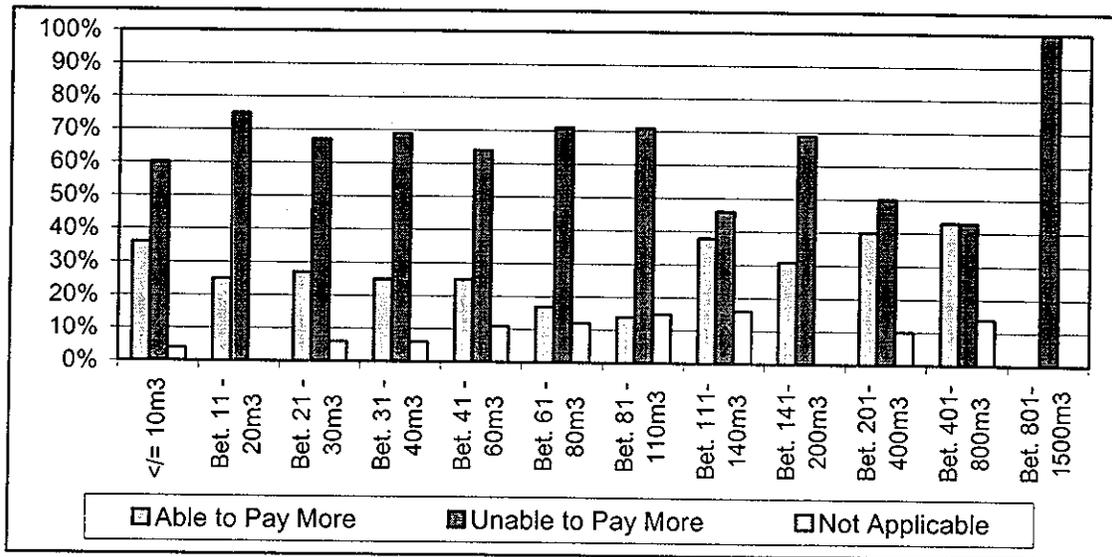
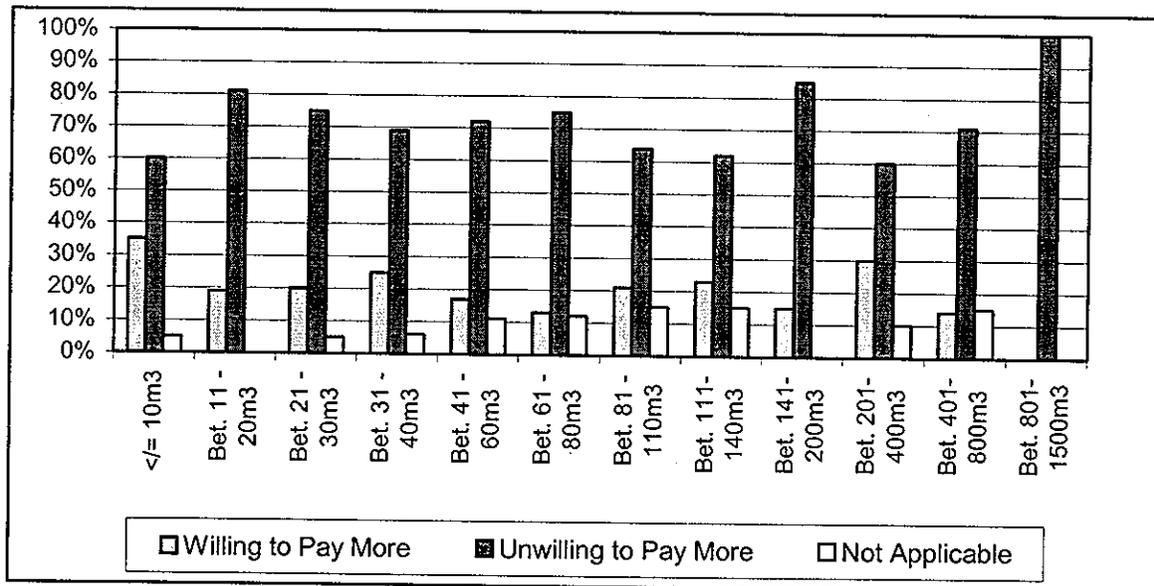


Figure 4.32
Ability to Pay More According to Consumption Levels



8.1.3 Willingness and Ability to Pay More According to Geographical Location

Those most willing to pay more manage businesses operating in the center of Amman,

whereas east Amman has businesses most able (but not necessarily willing) to pay more in the future (Figures 4.33 and 4.34). Entities in the center are usually small offices, banks, and the like. Rate increases may not affect them significantly.

Figure 4.33
Willingness to Pay More According to Geographical Location

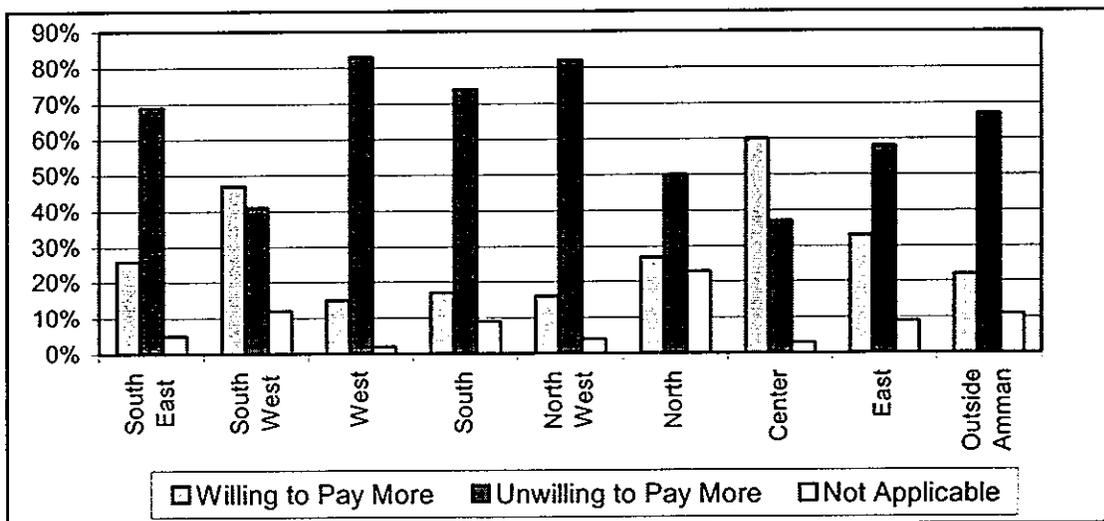
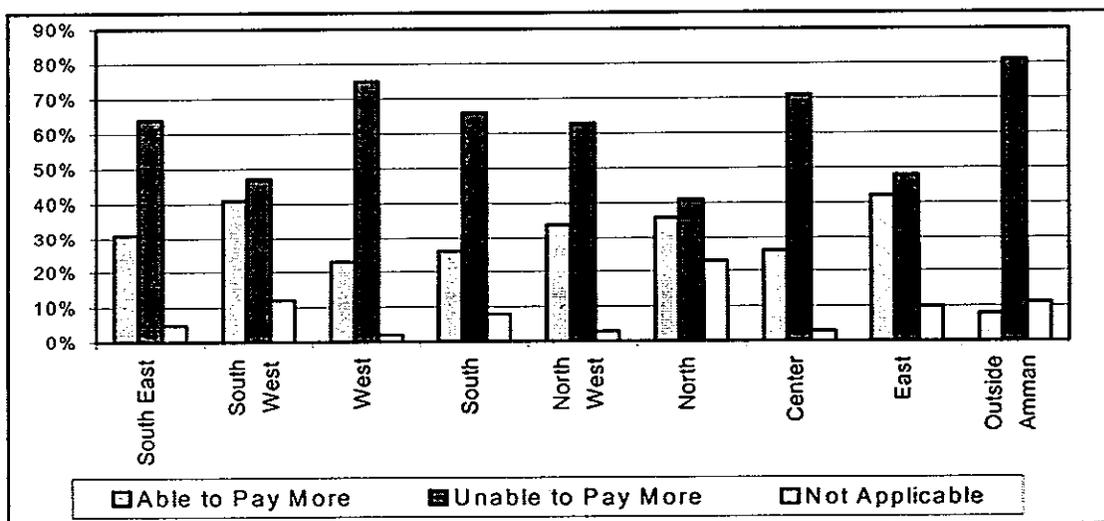


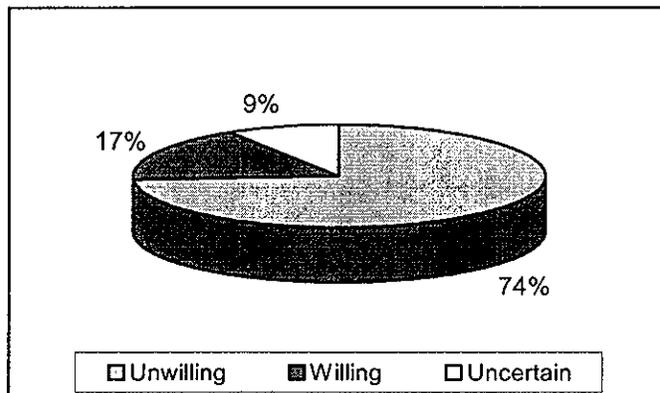
Figure 4.34
Ability to Pay More According to Geographical Location



8.2 Relation between Willingness to Pay More and Improved Services by WAJ

Most subscribers are unwilling to pay more for any of WAJ's improved services. Of the 377 responding, 74% refuse to pay more for such services, 17% are willing to pay more, and 9% are uncertain (Figure 4.35).

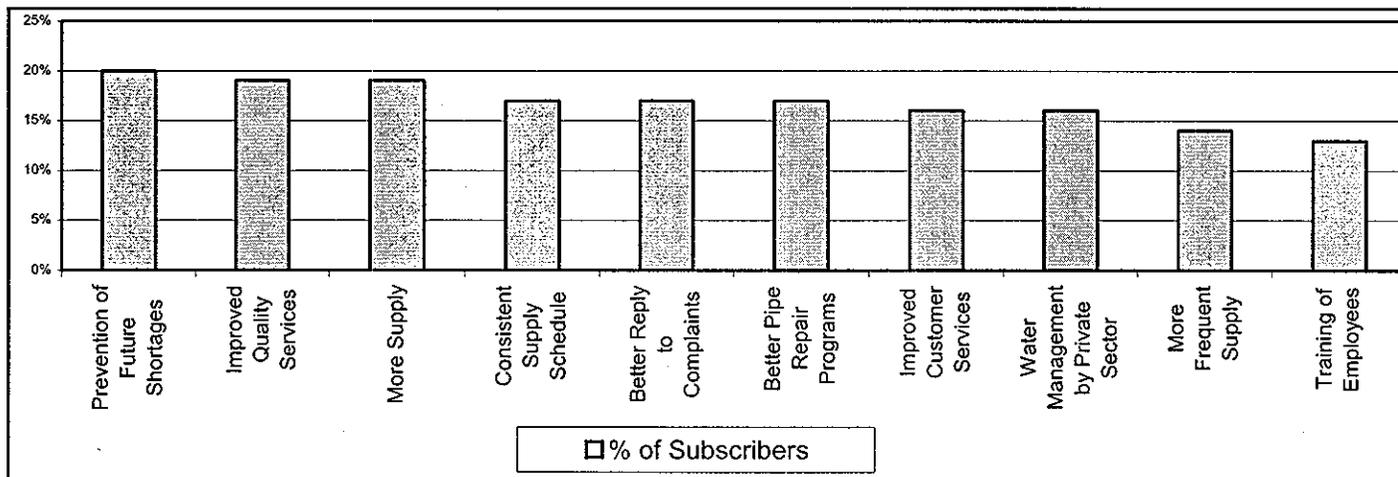
Figure 4.35
Willingness to Pay More for Improved Services



Subscribers rank ordered the reasons for their being unwilling to pay more for improved services as follows: 58% consider water to be an inherent right and that entities should not be charged for it, 44% are financially incapable of supporting additional expenses, 36% consider their water supply to be adequate and would not require more water, 16% mistrust the Authority, 11% do not support any measures by WAJ, and 7% consider the price to be high as it is.

Figure 4.36 shows that, regardless of the specific type of service which WAJ might offer or improve, subscribers are unwilling to pay more. Among the few who are willing, the highest degree of willingness is reported for prevention of future shortages (20% of subscribers supported a higher rate), improved water quality services and more supply (19% each), consistent water supply schedules, better responses by WAJ to complaints and better pipe repair programs (17% each), improved customer services and water management by a private company (16% each), more frequent billing (14%), and training employees (13%).

Figure 4.36
Subscribers Willing to Pay More for Improved Services



Observations and Implications

Unlike residential subscribers, a priority for entities is not quality but adequate supply. Supply disruptions are a threat to most non-residential entities. Like residential subscribers, these non-residential customers believe that water is an inherent right for all and that the government should not charge for it. Most entities refuse to pay more regardless of the improvements that WAJ may provide.

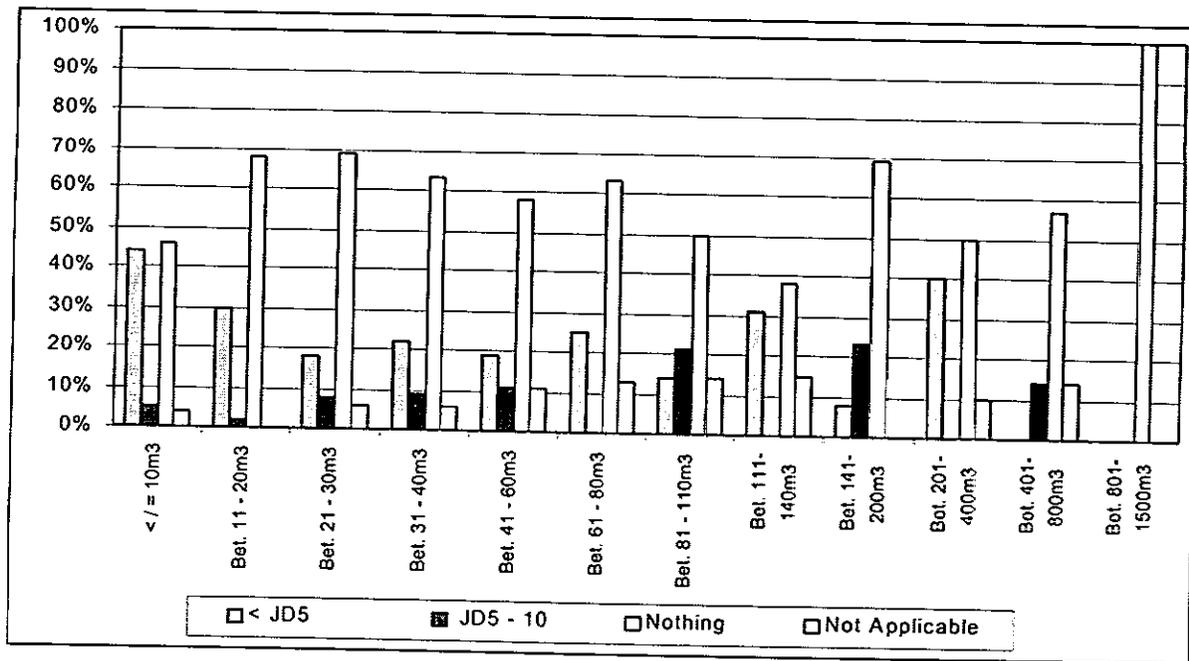
8.3 Hypothetically, How Much More Are Subscribers Able to Pay for Improved Services?

Subscribers' assessment of their ability to pay higher rates is not encouraging. About 32% of the 377 respondents (or 30% of the 401 sampled) are "hypothetically" able to pay an additional amount not exceeding JD5 for each billing cycle. About 7% are able to pay JD5-10 per billing cycle, and 61% are unable to pay anything more.

About 44% of subscribers who consume ≤ 10 cubic meters are able to pay less than JD 5 for each billing cycle. Similarly, 40% of subscribers who consume between 201 and 400 cubic meters are able to pay less than JD 5 for each billing cycle, and 31% of those who consume between 111 and 140 cubic meters are able to pay less than JD 5 for each billing cycle (Figure 4.37). In general, WAJ can expect from this low level of consumers about JD 5 per cycle for improved services.

These proposed increases by entities are negligible. Most medium to large organizations which consume most of the water are not willing to pay anything for any improved services.

Figure 4.37
Amount Subscribers are Able to Pay According to Consumption Levels



8.4 What Will Subscribers do if WAJ Went Ahead with Tariff Rate Increases?

Generally, subscribers are not receptive to higher tariff rates. WAJ will find it very difficult to introduce the notion of higher tariff rates. Respondents claim that they would take the following measures if their bills were increased: 34% would make deals with tankers, 33% would complain to WAJ, 32% would reduce consumption, 16% would disconnect the meter, 10% would re-allocate their budget to cover the new tariff rate, 2% would illegally connect a hose to the pipes to avoid meter reading, and 1% would tamper with the system (meter). In the event that WAJ fails to adequately address their complaints to cancel the increase, respondents would disconnect the meter (52%), make deals with tankers (43%), re-allocate the business budget to accommodate the new tariff (15%), reduce consumption (12%), tamper with the meter (2%), and illegally connect the hose to the pipes (2%).

8.5 Observations and Implications

WAJ will have to significantly improve its relationship with its non-residential clients before it considers any tariff increases. The current mood is overwhelmingly unsupportive, and most subscribers indicate inability to pay more. Like in the case of residential subscribers, WAJ will have to revitalize its image and help build a solid base of consumer trust in its policies and procedures. With non-residential entities, WAJ has the added challenge of assisting them maintain their economic viability. Without adequate quality and supply, and an affordable rate, some of these entities will be at serious threat.

9. Communication Medium and Method

When asked about what is the best communication medium for WAJ, almost all respondents (94%) chose television for providing information. Half of the respondents rank newspaper publications as their second choice, followed by the radio (33%). A few (7%) suggest leaflets.

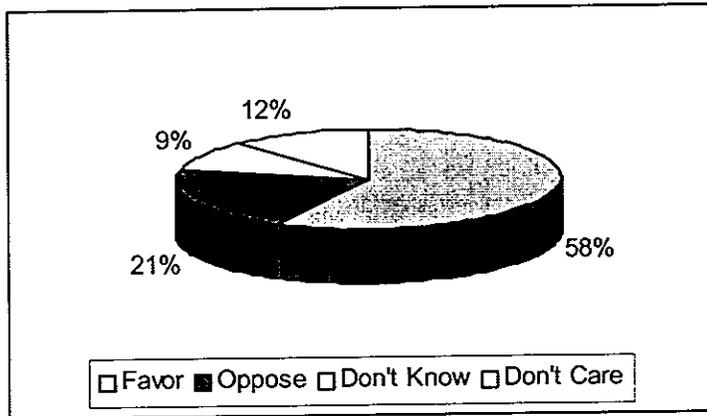
About 60% of subscribers say televised discussion panels with officials as the most effective information technique/method to review the current tariff system and other water related issues, 48% consider articles in newspapers and magazines as the next best method, 41% refer to commercial ads as the third best method, and 37% consider verbal and written public statements by officials as the fourth best approach.

10. Private Sector Involvement

10.1 Views on Private Sector Participation

More than half of the respondents (57%) are unfamiliar with government plans to involve the private sector in the operation and maintenance of water in Amman. One third of the respondents (34%) are aware of government plans to privatize WAJ, and 9% are not sure. After explaining private sector participation to the respondents, 58% favor the involvement of the private sector, and 21% are opposed (Figure 4.38). About 9% did not have any opinions, while 12% did not really care.

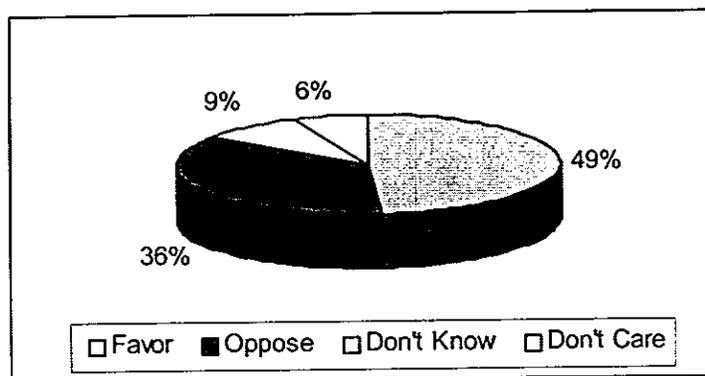
Figure 4.38
Views on Private Sector Participation



Views on who should participate in the private sector participation process varied: 40% of respondents prefer a Jordanian company for the job, 32% prefer a joint venture partnership between Jordanian and foreign companies, and some 16% prefer a joint venture partnership between Jordanian and Arab companies.

Like residential subscribers, a large number of entities (49%) are in favor of the involvement of a foreign company in some form or another in order to operate and maintain the water system in Jordan. According to them, a foreign company is more experienced and technologically advanced as well as able to provide enhanced water quality and improved services. For the 36% who are against foreign involvement, their fear is that a foreign company may control a very critical national resource and as such will undoubtedly increase tariff rates. These subscribers also believe that skilled Jordanian workers should be given the opportunity to do the work because they have a proven track record in the water service domain (Figure 4.39).

Figure 4.39
Management Contracting through a Foreign Company



10.2 Observations and Implications

Private sector participation is generally supported by the non-residential segment. Those opposed are concerned that a foreign company will take charge of an important resource in Jordan and that such an intervention is not healthy for the country. A Jordanian or Arab company which is supported, in one form or another, by a foreign company can be the ideal solution if the private sector were to take charge of WAJ. No matter which type of private operator is selected, WAJ must communicate the advantages and benefits of this kind of operator. It should also provide adequate assurances that the Authority's presence will continue, regardless of which operator is in charge of the day-to-day operations.

11. Summer 1998 Water Crisis

11.1 Attitudes Towards the Crisis

For 59% of the respondents, the summer 1998 crisis did not seriously effect on their businesses. However, all respondents had opinions about its cause. Most of the non-residential subscribers (69%) believed that the main reason was polluted water from the source. They also blamed WAJ for poor performance and negligence (45%). Others (41%) considered the agreement between Israel and Jordan as unsound.

Nearly everyone (98%) continued to use WAJ's water during the crisis along with supplementary sources. Some 48% bought tanker water, while 23% bought bottled water. Of those who bought bottled water, 40% continued to do so even after the crisis was over. Many (73%) of those surveyed did nothing to treat WAJ's water. However, 13% of respondents boiled WAJ's water and another 13% filtered it. Respondents complained that resorting to these measures forced them to incur extra expenses, which reduced profits.

Most of respondents (65%) believe that the crisis is over. However, 17% disagree and insist that the crisis may continue on and off. Only 38% think that the crisis will recur sometime in the future, as opposed to 44% who think that it may not happen again. For 44% of the respondents, the crisis could have been avoided if a private operator were in charge, but 25% believe that a private operator could not have prevented the problem from occurring. About a third (39%) say that the crisis justifies the take-over of the water management function by a private operator, while another third (34%) do not.

11.2 Observations and Implications

Non-residential subscribers do not believe that WAJ can address future problems. Most are supportive of a private operator despite their fear of a resulting tariff increase. Jordan's experience with private sector participation has been positive, but many prefer to have WAJ continue to provide water services in the future.

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

The cost of water services is of great importance to customers, the majority of whom strongly oppose any tariff increase. This opposition pervades Greater Amman no matter the residential or type of entity, income, or level of water consumption. WAJ and the private sector operator will need to make a concerted effort to change subscribers' negative perceptions about the quality and responsiveness of water services they receive before any tariff increase is imposed.

Although there were indications that some residential subscribers are willing to pay more to water, a tariff increase would have to be directly linked to the rehabilitation and modernization of Greater Amman's networks and the improvement of customer services. While these are a costly and time-consuming, they are unavoidable. Supply disruptions, pipe leakages, and the quality of water are regularly singled out by customers for improvement. As subscribers become aware of these improvements, WAJ is likely to secure their support. This approach has been used by water utilities elsewhere with noticeable success.

The results of the focus groups and surveys also indicated that WAJ's current major initiative to transfer management of the Greater Amman network to a private operator requires a carefully orchestrated public relations campaign. The benefits of private sector participation must be clearly communicated to build a solid base of support among subscribers. The public will also need to be assured of WAJ's continuing involvement and its intention to resolve their dissatisfaction with water services. The transition of management responsibilities from WAJ to a private company should be transparent and sensitive to subscribers' concerns.

1. Conclusions

1.1 Overall Conclusions

- The public has translated its awareness of Jordan's water shortages into water conservation behavior that is apparent in every aspect of their daily routine. Water shortages are "here to stay," and people have suggested that WAJ should play an active role in expanding water conservation measures.
- Subscribers do not believe that WAJ is responsible for water shortages, but they do blame the Authority for its inability to assure a reliable and consistent delivery schedule which is free of disruptions.
- A satisfactory "continuous" supply for residential subscribers means at least twenty uninterrupted hours delivery two or three days per week with adequate water pressure. For non-residential entities, the currently designated schedule is sufficient.

- Subscribers are relatively satisfied with water quality. Modest attention by WAJ to water taste, purity, and overall potability may significantly increase its support base among subscribers.
- Subscribers believe that WAJ is deliberately negligent and uncaring. They see this attitude expressed in WAJ's poor delivery of customer services. WAJ's unresponsiveness to water supply disruptions and billing/meter discrepancies has diminished its image in the minds of consumers.
- Despite their general disapproval of WAJ's delivery practices, customers remain faithful to the Authority. If WAJ were to improve supply and quality it would be the exclusive supplier of water for nearly all customers. In that event, the tanker and bottle water markets would largely disappear, with the exception of the largest users and isolated segments of the population.
- One of WAJ's priorities is to deal convincingly with those who can afford current tariffs and future increases but are unwilling to pay more.
- Most subscribers say they are opposed to the current tariff, although they do not know the current structure and are unwilling and unable to pay more in the future. This attitude pervades all consumption and income groups and is found among residential and non-residential subscribers. The general lack of support for future tariff increases can be explained in two ways: (1) tariff increases have not historically yielded any tangible improvements in WAJ's services and in many cases services have actually deteriorated, and (2) the majority of subscribers cannot afford to pay more.
- Most subscribers support private sector participation, if it leads to improved services without tariff increases which will affect their cost of living.
- Communication between WAJ and its customers needs attention and improvement. Subscribers do not understand WAJ's plans, procedures, and constraints. They also believe that WAJ lacks the resolve to communicate in a way that will reduce the misunderstandings with its customers.
- Most subscribers do not understand the details of the current tariff system although that knowledge would assist WAJ in making tariff adjustments in the future.
- On average, residential subscribers' willingness and ability to pay for a higher tariff does not exceed JD 3 per billing cycle. Non-residential willingness and ability does not exceed JD 5. For residential subscribers, although JD 3 or even 5 appears to be an insignificant amount, for many users it would mean a doubling of their present bill.
- Residential and non-residential subscribers are not willing to pay more for water if network supplies and services improve. This suggests that supplies and services already meet adequate standards so that their improvement does not warrant an increased tariff or that people are not willing to pay more for the improvements.

- The current quarterly billing system is approved by the majority of subscribers. Most pay collectors directly, but many also like to pay through banks.
- Subscribers rate WAJ low on its responsiveness to complaints about leakages, billing and meter discrepancies, and supply disruptions. Unless corrected, WAJ will continue to face strong opposition from subscribers.
- Almost all subscribers own storage tanks which provide reserves for three to four days. The ownership of tanks has contributed significantly to subscribers' ability to cope with water shortages and supply disruptions.
- Tanker and bottled water are used by a small 'following' of customers, but most of them are not loyal and would shift entirely to network water if it could meet their needs and standards.
- Televised panel discussions which involve WAJ officials and experts are the most effective communication medium for subscribers.

1.2 Residential Subscriber Conclusions

- Upper middle and high income subscribers, who are the largest consumers and reside in West and Northwest Amman, are most dissatisfied with WAJ's water supply procedures, quality standards, and customer services and the most opposed to the current tariffs.
- Residents of Central Amman, who are middle and low income subscribers, are the most satisfied with their water supply and WAJ's customer services. They are less satisfied with water quality and pressure.
- Most subscribers are generally dissatisfied with WAJ's maintenance services, complaining about pipe leakages, billing/meter reading discrepancies, and supply disruptions.
- Most subscribers do not "bother" to complain about billing discrepancies.
- Among the many subscribers who are able to pay more for water, a significant number are opposed. Upper middle and high income earners are among the most unwilling and unable, since inability is not a reflection of real worth but a ceiling on how much people will consider paying for services.

1.3 Non-Residential Subscriber Conclusions

- Schools, hotels, and factories are the least satisfied clients of WAJ concerning frequency and duration of water deliveries.
- Among those who are very dissatisfied with WAJ's inconsistent water delivery schedule are factories which consume 141-400 cubic meters and 801-1500 cubic meters; slaughterhouses, car wash/petrol stations, banks and mosques which consume 201-300

cubic meters; and farms/country houses, coffee shops/restaurants and hotels which consume 301-400 cubic meters.

- Most entities which are unhappy with the frequency and duration of water supply.
- Unhappiness with bill discrepancies is highest among entities which are situated in the southeast, east and northwest, particularly educational, industrial, and health institutions.
- Meter reading practices by WAJ's collectors are mainly contested by entities which consume 61-80 cubic meters and 141-400 cubic meters. The first group (61-80 cubic meters) is largely retail shops, offices/companies, repair shops, two and three star hotels, coffee shops, mosques, primary schools, and medical centers. The second group (141-400 cubic meters) consists mainly of small to medium size factories, farms, restaurants and the slaughterhouse. These entities are situated throughout Greater Amman, but many are located in the west and outside Amman.
- Government agencies, banks, and companies which are generally situated in the northwest and west of Amman are least pleased with the quality of pipes.
- Non-residential subscribers rate WAJ low for responsiveness to their complaints about supply disruptions. Those most negative were health, banking, industrial, and service entities in the east, southeast and northwest of Amman.
- In some cases, willingness to pay depends on the ability of the entity to pass the additional costs on to customers without losing their business.
- The few entities that are willing to pay more are mostly situated in the center of Amman, followed by the southwest and east. Of the few which have indicated an ability to pay, more are located in the east, southwest and north.

2. Recommendations on Customer Relations and Public Awareness

This willingness and ability to pay study reveals an interesting dilemma for the Water Authority of Jordan: both residential and non-residential subscribers say they are frustrated and unhappy with WAJ's operations but the vast majority are not willing to pay more for better services. When higher tariffs are tied to offers of a variety of improvements, willingness decreases. This is a surprising conclusion since large water utilities elsewhere have successfully linked tariff increases to tangible service improvements with little resistance from customers.

Subscribers appear to be more willing to accept existing conditions, despite their unhappiness with supplies and services than pay more for what it would cost to improve them. An explanation may be that subscribers' budgets are already stretched to the limit, and they have no more disposable income. While this is true for many lower income earners, it is more likely that they do not believe that tariff increases will actually

result in improved services, fearing they will pay more and get the same or less. The issue becomes then, if WAJ is seriously considering restructuring its water tariffs to increase revenues, how can it proceed without further alienating its customers?

The widespread indifference of subscribers to WAJ's constraints and their absence of sympathy for its challenges suggest that WAJ needs to communicate quickly and forthrightly with them. The study provided clear indications of customer attitudes. It is less revealing about the actions that WAJ must take to gain some measure of customer confidence. Therefore, the most supportable recommendations are those which use the study's results as the basis for further exploration and design of customer relations and public awareness programs. WAJ is already attempting to make the headquarters building more user-friendly to subscribers with new waiting rooms and colorful and visible signs.

In this changing atmosphere, it is suggested that WAJ consider the following:

- Identify strategies to develop and institutionalize customer service training programs in the Authority which instill in employees attitudes and behaviors to deal promptly and respectfully with customers.
- Determine the target participant audience for the training courses.
- Develop an approach and content for a public relations campaign which promotes and communicates messages. Some options include:
 - "Town meetings" which are televised from a variety of locations (urban, suburban, rural) throughout the country;
 - Documentaries which allow consumers access to WAJ's operations and plans and which demonstrate the various facets of the water supply and quality control operations;
 - Televised case studies which focus on different types of problems caused by consumers' negligence or lack of knowledge, and others;
 - A newsletter or other materials included with the bill, which provides relevant information to customers;
 - Educational curricula for schools about water resources, uses and practices, quality control, and costs; and
 - Educational seminars, courses and group discussions.

ANNEXES

ANNEX A STUDY METHODOLOGY

1. Qualitative Assessment Phase

Qualitative assessment of subscribers' views, attitudes and opinions was garnered through focus group discussions. The focus group methodology was adopted in moderating the discussions and in reporting the findings. The groups were selected from the target areas in Greater Amman. Focus group participants included males and females from residential, commercial and industrial segments of the target population. These participants were recruited from various geographical districts in Amman, as well as from Amman's suburbia. Fourteen focus groups were conducted; eight from the residential sector and six from the non-residential. Each focus group included approximately eight to ten participants.

1.1 Residential Focus Groups

1.1.1 Parameters

The recruitment process of focus group participants utilized the following parameters:

- Representation of different districts/zones
- All dwelling types were represented
- Size of dwellings (according to billing amount)
- Income level
- Educational level
- Gender

1.1.2 Focus Group Participants' Profile

Residential focus group participants included:

- Residents of single homes (detached, single main entrance-owners and paying tenants) of varying sizes located in Greater Amman;
- Residents of apartments (owners and tenants) from different geographical areas of Greater Amman; and
- Females and males from different income levels (high, medium and low) and from varied water quantity user groups (high, medium and low).

1.1.3 Geographical Profile

All focus group participants were chosen from Greater Amman, based on the city's districts:

- Greater Amman: 4 groups representing all districts (or zones)
- Suburban: 2 groups (Sahab, Akoumieh, Qwiesmieh)
- Rural: 2 groups (Jizeh, Khashafieh/Sahab)

Table A.1
Geographical Distribution Of Focus Groups

	Zone	District
1	Abdali	Abdali
2	Abdoun	Zahran
3	Al Hashami	Basman
4	Al Rashid	Jubeiha
5	Al Taj	Al Naser
6	Dabaybeh	Ras El Ein
7	Haddadeh	Basman
8	Hamzeh	Marka
9	Jebal Al Hussein	Abdali
10	Jebal Al Nathif	Ras El Ein
11	Muhajireen	Madina
12	Ras El Ein	Ras El Ein
13	Salheen	Tla'a Al Ali/ Khilda/Um Summaq
14	Shmeisani	Abdali
15	Sweifieh	Wadi Seir
16	Tla'a Al Ali	Tla'a Al Ali/Khilda/Um Summaq
17	Um Summaq	Tla'a Al Ali/khilda/Um Summaq
18	Um Uthaina	Zahran
19	Wasfi Al Tal Street	Tla'a Al Ali/Khilda/Um Summaq
20	Bayader Wadi Seir	Wadi Seir

1.1.4 Focus Group Structure

In structuring the focus groups, the following was done:

- Mixed gender discussion groups were achieved, despite the difficulty encountered in the recruitment process;
- Varying socioeconomic strata were mixed in the broadest way; and
- Representation of age cohorts was attained in most focus groups.

The following table sums up the profile of all focus groups:

**Table A.2
Profile of Focus Groups**

Group	Area	Gender	Type of Dwelling	Zones	Household Size	Socioeconomic Groupings
1	Greater Amman	Male & Female	40% Single Unit; 60% Apartment	9, 14, 17, 18	25% Low; 75% Medium	ABC1
2	Greater Amman	Male & Female	Apartment	3,5,7,8,16, 20	25% Low; 75% Medium	C2DE
3	Greater Amman	Male & Female	40% Single Unit; 60% Apartment	2,4,9,10,13, 15,17,9	75%Medium; 25% High	ABC1
4	Greater Amman	Male & Female	Apartment	1,6,8,9,11, 12,15,16	40% Low; 40%Medium; 20% High	C2DE
5	Suburban	Male & Female	Single Unit	Akoumieh, Qweismieh suburbs	50% Low; 50% Medium	C1C2
6	Suburban	Male & Female	80% Single Unit, 20% Apartment	Sahab suburb	30%Low; 50%Medium 20% High	C1C2
7	Rural	Male	Single Unit	Jizeh (rural)	40%Low; 50%Medium; 10% High	C2DE
8	Rural	Female	Single Unit	Khashafie/ Sahab (rural)	40% Low; 50%Medium; 10% High	C2DE

1.1.5 Billing Structure

Billing was defined by WAJ/Forward as follows:

- Low billing household: up to 40 m³
- Medium billing household: 41-129 m³
- High billing household: more than 130 m³

1.1.6 Recruitment and Screening of Focus Group Participants

Based on the parameters presented above, focus group participants were selected from a representative set of zones/towns/villages. Participants were selected from twenty zones

representing Greater Amman and four other towns/villages. Zone selection from the geographical target area ensured area representation.

Residents of each selected area/zone, who were known to recruiters, served as the initial contact pool. With their help, contacts were made with neighbors, friends and relatives, living in the selected area. Based on a screening process utilizing the parameters above, participants were then selected and assigned to the various focus groups.

In brief, only every other contact in the chain was invited to participate, (e.g. Contact A not eligible, introduces to Contact B; Contact B eligible, introduces to Contact C; Contact C not eligible, introduces to Contact D; Contact D eligible, introduces to Contact E, and so on...)

1.2 Non-residential Focus Groups

1.2.1 Groups' Constituency

Six non-residential focus group sessions were held, with approximately ten participants in each group. Participants in non-residential focus groups were selected from a list of water subscribers provided by WAJ. The list detailed subscribers' level of consumption and type of establishment they represented. These two independent variables were further subdivided: type of establishment was divided according to commercial, institutional and industrial; level of consumption was divided according to Low, Low/Medium, Medium/High and High usage patterns. The division was as follows:

Commercial sector:	Low:	up to 40cm ³ /quarter
	Low/Medium:	41-130 cm ³ /quarter
	Medium/High:	131-270 cm ³ /quarter
	High:	>271cm ³ /quarter
Industrial sector:	Low/Medium:	up to 170cm ³ /quarter
	Medium/High – High:	170-600cm ³ /quarter
Institutional sector:	Low:	up to 60cm ³ /quarter
	Low/Medium:	61-170cm ³ /quarter
	Medium/High:	171-320cm ³ /quarter
	High:	>321cm ³ /quarter

Two discussion groups were held in the Amra Hotel and the remaining four took place at the Market Research Organization's offices.

2. Quantitative Assessment Phase

A baseline survey was conducted among a representative sample of subscribers in Greater Amman.

2.1 Residential Subscribers

2.1.1 Pilot Study

Fieldwork for the pilot study was conducted in January 1999. A total of 49 interviews were conducted in three areas in Amman. These were Ras El Ein, Abdali and Yarmouk. Following the pilot study, an additional training session of two days was conducted for the interviewers and field supervisors. The findings of the pilot study confirmed the need for additional sampling lists from WAJ; since the original two lists supplied by WAJ did not include enough names with clear addresses. Two additional lists were obtained from WAJ, each having the names and addresses of 1000 subscribers.

2.1.2 Sampling

A comprehensive sampling frame was developed and used to select sample units. MPRC selected a proportionately stratified representative sample of 1000 subscribers (For more details, see appendix A). This sample was based on a target population of (N=247,633 residents). Sampling was stratified by areas (n=26) and sub-areas (n=142). By applying n/N (1000/247633), every nth or 248th unit was selected from the sample list supplied by WAJ. The list included the specified collection area, number and name of subscribers as well as their average water consumption levels for the last 8 cycles. This list was complemented by an Operation Management Support (OMS) list providing the selected subscribers' addresses and telephone numbers. WAJ and OMS lists were merged to provide a comprehensive sample.

Sampling Distribution

Twenty-six main areas were covered in the sample. The sample was representative of the number of subscribers residing in each area. The sample structure was as follows:

Table A.3
Sampling Distribution of Subscribers by Geographical Location

	Area	Location	Universe (%)	Sample (%)
1	Bader	South/West	5	6
2	Zahran	West	6	6
3	Abdali	North/West	8	8
4	Tareq	North	3	2
5	Yarmouk	South	6	5
6	Quweismeh	South/East	5	5
7	Khreibet El Souk-Jawa-Yadoudeh	South	3	2
8	Mqabalein/Bnayat/Um Qseir	South/West	2	2
9	Ras El Ein	South	4	4
10	Madineh	Center	2	2
11	Basman	North	11	12
12	Marka	East	4	5
13	Nasser	South/East	8	8
14	Wadi El Seir	West	8	8

15	Bader El Jadideh	West	0.3	0.3
16	Sweileh	North/West	3	4
17	Tla'a El Ali/Khilda/Um Summmaq	North/West	8	8
18	Jubeihah	North/West	5	5
19	Shafa Badran	North	1	1
20	Abu Nseir	North	2	1
21	Na'our	Outside Amman West	1	1
22	Sahab	Outside Amman South/East	1	1
23	Muwaqar	Outside Amman East	1	1
24	Jizeh	Outside Amman South	1	1
25	Um Basateen	Outside Amman West	1	1
26	Marj El Hamam	Outside Amman West	2	2

Consumption Levels

Table A. 4
Sampling Distribution by Consumption Levels

Consumption	Universe (%)	Sample (%)
0-10m ³	14	15.1
11-20 m ³	17	14.1
21-30 m ³	19	19.5
31-40 m ³	15	16.5
41-50 m ³	11	10.9
51-60 m ³	7	8.9
61-70 m ³	5	4.6
71-80 m ³	3	3.3
81-90 m ³	2	2.4
91-130 m ³	4	3.3
More than 131 m ³	2.9	1.4

2.1.3 Instrument

The Interview Schedule was constructed on the basis of information received from focus group findings as well as in-depth discussions with WAJ officials. The instrument consisted of 178 questions divided into thirteen sections plus a section on demographics. It covered the following:

- Screening
- Sewerage Network Connection

- General Issues
- Water Supply
- Satisfaction with Quality and Service
- Alternative Water Supply Sources
- Storage
- Habits, Uses and Practices
- Problems
- WAJ's Billing Practices
- Current Tariff System
- Private Sector Involvement
- Recent Crisis

2.1.4 Data Collection

Eleven interviewers were recruited and trained to collect data from the field. The training of interviewers included the refinement of their interview techniques and the instillation of a common understanding of each question in the instrument. All interviewers were requested to simulate interview situations in order to ensure a common approach in the data collection process.

Each interviewer received a training manual, which included the following:

- Explanation of the new tariff system;
- Subjects covered in the survey;
- Sampling methodology; and
- Guidelines for coding the Likert scale questions.

2.1.5 Data Entry and Analysis

QPS was used in creating a database that allowed the researcher to analyze the multi-dimensional aspects of the study. Data analysis included the criteria of consumption levels, socio-economic status and geographical location of subscribers.

2.1.6 Grading of Social Class

The method of grading social class is based primarily on the occupation of the head of household. Also, education of respondent and of the head of household and place of residence are criteria used to define social grading. Weight given for each criteria is as follows:

Occupation:	45%
Education:	40%
Place of Residence:	15%

2.2 Non-residential Subscribers

2.2.1 Pilot Study

Fieldwork for the pilot test survey was conducted in February 1999. A total of 24 interviews were conducted in three areas in Amman, namely Al-Madineh, Abdali and Marka. Following the pilot test survey, additional training sessions were conducted.

As a result of the pilot test survey, few questions were modified. All changes in the instrument were reviewed and approved by WAJ and USAID. The researcher sought and received two additional samples lists from WAJ (n=400 each). This allowed the researcher to identify and locate sample units; a situation which was not possible with the original sample lists. According to WAJ's list, the total number of non-residential subscribers was 26,693. Average consumption of the last eight cycles was also recorded.

OMS provided addresses for the subscribers based on municipality divisions of the areas. None of the results obtained from the pilot test survey were admitted for analysis. All the completed questionnaires from the pilot study were discarded.

2.2.2 The Sample

A similar sampling frame was developed and used to select n=401 non-residential sample units. These 401 subscribers were proportionately selected from the sampling frame. WAJ supplied a list of these subscribers specifying the collection area, name and number of subscribers, their average water consumption levels and type of business. This list was complemented by an OMS list providing subscribers' addresses and telephone numbers. WAJ's and OMS' lists were merged to provide a comprehensive sampling list.

Sampling Area

Twenty four main areas were covered in the sample. The sample structure was as follows:

Table A.5
Sample Structure

	Area	Location	Universe (%)	Sample (%)
1	Bader	South/West	2	3
2	Zahran	West	9	7
3	Abdali	North/West	14	15
4	Tareq	North	2	1
5	Yarmouk	South	5	4
6	Quweismeh	South/East	6	7
7	Khreibet El Souk-Jawa-Yadoudeh	South	2	1
8	Mqabalein/Bnayat/Um Qseir	South/West	2	1
9	Ras El Ein	South	3	3
10	Madineh	Center	12	9
11	Basman	North	4	3
12	Marka	East	7	8

13	Nasser	South/East	4	3
14	Wadi El Seir	West	10	8
15	Bader El Jadideh	West	0.1	< 1
16	Sweileh	North/West	3	3
17	Tla'a El Ali/Khilda/Um Summmaq	North/West	8	8
18	Jubeihah	North/West	4	3
19	Shafa Badran	North	0.3	1
20	Abu Nseir	North	0.1	0
21	Na'our	Outside Amman West	0.1	1
22	Sahab	Outside Amman South/East	0.1	1
23	Muwaqar	Outside Amman East	0.6	< 1
24	Jizeh	Outside Amman South	1	4
25	Um Basateen	Outside Amman West	0.1	0
26	Marj El Hamam	Outside Amman West	0.4	1
27	Um El Rasas	Outside Amman South	0.05	0

Consumption Levels

Table A.6
Sample Structure by Consumption

Consumption	Universe (%)	Sample (%)
0-10 m ³	33	34
11-20 m ³	16	16
21-30 m ³	10	13
31-40 m ³	7	8
41-60 m ³	10	9
61-80 m ³	5	6
81-110 m ³	5	3
111-140 m ³	3	3
141-200 m ³	4	3
201-300 m ³	3	1
301-400 m ³	1	1
401-600 m ³	2.3	1
601-800 m ³	0.4	1
801-1000 m ³	0.2	0.2
1001-1500 m ³	0.3	0.2
1501-2000 m ³	0.1	0
More than 2000 m ³	0.4	0

Type of Business

Table A.7
Sample Structure by Type of Business

Type of Business	Universe (%)	Sample (%)
Retail shop	23	23
Office/Company	21	21
Skilled labor	6.04	7
Farm/Country house	6	5
Nursery garden	0.17	1
Hotel	4	3
Coffee shop/Restaurant	6	8
Factory	2.05	5
Beauty salon	2	2
Clinic	2	3
Mosque	2	1
Fitness center	0.4	1
Car wash/Petrol station	1.2	2
Bank	1	1
Warehouse	2	1
Government department/Directorate	3.1	1
Tile/Brick factory	1.4	1
Stone cutting factory	1	<1
Community college/School	3.1	2
Educational institute	0.4	1
Housing	1.2	1
Community center	1.2	1
Health center	0.4	1
Hospital	0.2	<1
Laboratory	0.2	<1
Public park	1	<1
Bakery	1	1
Nursery school	1	<1
Slaughterhouse	0.03	<1
Workshop	3	1
Embassy	1	
Prison/Military camps	1	
Olive press	0.01	
Theater	0.07	
University	0.02	
Public toilet	0.01	
Unions	0.10	
Cemetery	0.01	
Vegetable market	0.16	
Other	2.06	

The original list included a few premises where interviewers could not enter to conduct interviews. Replacement premises were chosen from the substitute list. In some cases substitute subscribers were not in the same business category as was the case with the original subscribers. They did have, however, have similar consumption levels. The following represents the list of institutions, which had to be substituted by other firms:

**Table A.8
Substitution List of Institutions**

Type of Establishment	Reasons for No Entry	Substitute
Embassy	Security pass required	Factory
Embassy	Security pass required	Factory
Prison	Security pass required	Factory
Olive press	Out of season	Office
Military camps (2)	Security pass required	Factory (n=2)
Olive press	Out of season	Factory
Ministry of Water and Irrigation/ Tankers Division		Factory

2.2.4 Nature of Business

The nature of business was defined in coordination with WAJ. All outlets that sell food and beverage were classified under 'hotel and catering'. These included hotels, restaurants, coffee shops, and refreshment shops. Services included car wash/petrol stations, skilled labor, workshops, fitness centers, printing press, and housing services. Production included farms, country houses, and nursery gardens.

In 24 cases the section on "willingness and ability to pay" in the instrument was not answered by the interviewees. These interviews were conducted in government departments, where decisions relating to payments are not taken by any one person.

2.2.5 Sector

**Table A.9
Sample Structure by Sector**

	Universe (%)	Sample (%)
Commercial	85	86
Industrial	5	7
Institutional	10	7

2.2.6 Instrument

The Interview Schedule was constructed on the basis of information received from focus group findings as well as in-depth discussions with WAJ officials. The instrument consisted

of 154 questions divided into twelve sections, plus a section on demographics:

- Screening
- Sewerage Network Connection
- General Issues
- Water Supply
- Satisfaction with Quality and Service
- Alternative Water Supply Sources
- Storage
- Habits, Uses and Practices
- WAJ's Billing Practices
- Current Tariff System
- Private Sector Involvement
- Recent Crisis

2.2.7 Data Collection

Six interviewers were recruited and trained to undertake the field survey. The training of interviewers helped refine their interview techniques and develop their complete understanding of each question in the instrument. All interviewers were requested to simulate interview situations in order to insure a common understanding and approach in the data collection process.

Interviewers were assigned specific areas and provided with lists of names and addresses under the supervision of a field supervisor. Each field supervisor was responsible for ensuring that:

- Interviewers carried out their responsibilities adequately and on time;
- All completed Interview Schedules were edited in the field and corrections made on the spot; and
- Interviewers were visited randomly and observed while conducting the interview.

In addition, field supervision for non-residential subscribers ensured that appointments were made with all prospective sample units. Upon completion of all interviews, a random number of sample units were called to assess their views on how the interview went.

Fieldwork was conducted on the following dates: 10 April and 24 April 1999.

2.3 Data Entry and Analysis

QPS was used in creating a database that allowed the researcher to analyze the multi-dimensional aspects of the study. All data was analyzed according to types and sizes of organization, location and consumption level.

ANNEX B DISCUSSION GUIDE FOR RESIDENTIAL FOCUS GROUPS

Introduction

Thank you for taking the time to participate in this group discussion. We are seeking your views on issues related to water. The information we gather will be used by the authorities to better understand your requirements and expectations. We are interested in your frank opinion, there are no right or wrong answers. All the relevant materials of this study will be treated confidentially. Please speak up, and only one person speak at a time.

General Discussion (10 minutes)

- In your opinion, how important is the water issue to the Jordanian population? Do you think there is a serious issue of water shortage?
- What are the main sources of water? For how long will they sustain Jordan's requirements?
- Which sector consumes more? Domestic, industrial or agricultural?

General Usage and Attitudes (30 minutes)

- How frequently do you get water? Does the frequency change seasonally? Is it enough? Do you have a reservoir? Size?
- Source of water?
- How often do you suffer shortages? What do you do during long intervals when you don't get water? (Probe: purchases of water tanks, from where, is it easy to obtain? How much does it cost, how does it compare with the water bills received from WAJ? If same, which do you choose?) Do you store in bathtubs, bowls...?
- What is understood by continuous water supply?
- Have you had problems like leakage and other problems? (Identify by area). Have you ever complained about water shortage? Water leakage? What do you usually complain about? Where do you go, (describe the procedure)? How long does it usually take to correct the problem? Should it be centralized?
- Do you use water for purposes other than the regular household usage? (Watering gardens, car washing...?).
- What do you think of the quality of the water? (Hard/soft, clarity, smell of chlorine...) Do you think it is safe? If not, why not?

- Do you use tap water for drinking? Do you ever use bottled water? When? Why? Do you ever boil tap water, or use filters? Why?
- Is your house connected to the main sewerage system or not? Do you have any problems (smell, difficulty of draining waste water....)

Awareness of Tariff Rates (15 minutes)

- How is the water consumption billed? (Probe: awareness of new tariff rates). What does the water bill include? (Connection, meter, maintenance...?)
- What was your reaction to the latest bill you have received from the Authority? When was it received? What did you do about it? (Probe: filed a complaint? What was the outcome?).
- If not aware of new tariff system, explain and ask: Why do you think the Water Authority has introduced new tariff rates? (Probe: Which do they prefer, progressive or flat?)

Expenditures (40 minutes)

- On average, how much do you consume? (Probe: how do users measure consumption, by m³ or other).
- How frequently do you receive water bills? What do you think of the billing frequency? (Probe: preference for shorter/longer frequencies). If more frequent billings are desired, what would say if this involves additional service cost?
- What would be the best way of paying? (Through a bank, direct to collector, to WAJ).
- How much of your current expenses does the water bill represent? Do you know how this compares with other countries of the region or elsewhere? How does the water consumption per capita differ? Is it less, more or the same as other countries?
- What services do you expect to receive?
- Would you be willing to pay more if... and if yes, to what extent would you be willing to pay more? (Probe: percentage of income? Flat amounts...?).
 - * The services are improved? How do you envisage the services to be improved?
 - * If the water quality was improved? How can the water quality be improved?
 - * If this will ensure more frequent water supply? More consistent supply?
 - * Consistent schedule of supply?
 - * Adequate responsiveness to complaints?
 - * If this would prevent water shortages in the future?

- If not willing to pay for any of the above, what alternative measures would you suggest for the Water Authority to adopt in order to improve the quality and services?
- How could this be achieved? What if WAJ's cost of water requires the increase?
- If services and quality are improved, and you are getting more frequently supply of water, how much more would you be able to pay (Probe: percentage of income? Flat amounts...?).
- Now that the tariff has increased, have you seen an improvement? What?
- If improvements don't take place, how willing will you be able to pay?

Sources of Information (15 minutes)

- From where do you usually get information from about the quality of water? Safety of water? To what extent do you trust the credibility of these sources?
- Whom would you trust to get information about water quality and safety? (Probe: doctors, environmental groups, WAJ, friends, local media?).
- Have you seen any advertisement? What did you think of it? Was it convincing?
- If you were to communicate a message about the new tariff rates, conservation of water and other issues, what would that message be? How would you communicate it? Which type of media would you choose?

Private Management: Pros and Cons (10 minutes)

- Do you think a private operator should manage water, or the state? Why? (Probe: Do they trust WAJ?)
- How do you think the service would differ if publicly or privately managed? What are the implications of public/private management? (In terms of billing, collection, dealing with complaints...)
- Would you be willing to pay more if private management?

ANNEX C

DISCUSSION GUIDE FOR NON-RESIDENTIAL FOCUS GROUPS

Introduction

Thank you for taking the time to participate in this group discussion. We are seeking your views on issues related to water. The information we gather will be used by the authorities to better understand your requirements and expectations. We are interested in your frank opinion, there are no right or wrong answers. All the relevant materials of this study will be treated confidentially. Please speak up, and only one person speak at a time.

General Discussion (10 minutes)

- In your opinion, how important is the water issue to the Jordanian population? Do you think there is a serious issue of water shortage?
- What are the main sources of water? For how long will they sustain Jordan's requirements?
- Which sector consumes more? Industrial, agricultural or residential?

General Usage and Attitudes (30-40 minutes)

- Do you know the source of water that gets to your area?
- How frequently do you get water? Does the frequency change seasonally? Is it enough?
- Do you have other sources of water such as wells? If so, what percentage of your water do you buy from WAJ (Industrial and tourist sector)?
- How often do you suffer shortages? What do you do during long intervals when you don't get water? (Probe: purchases of water tanks, from where, how much does it cost? How much does it compare with the water bills received from WAJ? Difference in quality?). Do you have a reservoir? Do you store in any other way? How?
- What is understood by continuous water supply?
- What is the shortage capacity for your property?
- Do you treat the water in any way before you discharge it? What do you do? If no, why not? Do you reuse water at any state? How?
- Have you had problems like leakage? Have you ever complained about water shortage? Water leakage? To whom? What do you usually complain about? Where do you go, describe the procedure (should it be centralized?)? How long did it take to correct the problem?

- What do you think of the quality of the water? Do you think it is safe? If not, why not? (Probe: cleanliness, safe to drink, hard/soft, smell of chlorine...)
- Are you willing to invest in reuse treatment plants or in techniques that enable reuse of gray water? (Industrial and tourist sectors)
- Are you willing to invest in treatment plants and water saving technologies if you get incentives such as tax incentives?
- Do you pay extra expenses to soften or treat water? (Industrial sector)
- Is your facility connected to the main sewerage system?
- Do you have any problems with the sewerage system? (Smell, difficulty of draining waste water...)
- Do you carry any expenses to pre-treat your sewage effluent? (Industrial and tourist sectors).
- How do you feel about the government control and supervision of industrial waste? The quality of control the government practices and the frequency?
- What kind of technical help does WAJ offer the industrial sector, if any?
- How could WAJ services in this domain be improved?

Awareness of Tariff Rates (15 minutes)

- How is the water consumption billed? (Probe: awareness of new tariff rates). What does the water bill include?
- What was your reaction to the latest bill you have received from the Authority? What did you do about it? (Probe: Filed a complaint? What was the outcome?)
- If not aware of new tariff rates, explain and ask: Why do you think the Water Authority has introduced new tariff rates? (Probe: Which do you prefer flat or progressive?)
- Do you think that water tariff increases would result in a decrease in consumption or will it promote illegal behavior (illegal connection or removal of meters)?
- Do you agree on special tariff for non-domestic users?

Expenditures (40 minutes)

- On average, how much do you consume? (Probe: how do users measure consumption, by m³ or other?)

- How frequently do you receive water bills? What do you think of the billing frequency? (Probe: preference for shorter/longer frequencies). If more frequent billing is desired, what would you say if this involves additional service cost?
- What would be the best way of paying? (Cash, through banks...).
- How much of your current expenses (overheads, rent...) does the water bill represent? Do you know how this compares with other countries of the region or elsewhere? How does the water consumption per capita differ? Is it less, more or the same as other countries?
- Would you be willing to pay more if... and if yes, to what extent would you be willing to pay more?
 - * The services are improved? How do you envisage the services to be improved?
 - * If the water quality were improved? How can the water quality be improved?
 - * If this will ensure more frequent water supply? More consistent supply?
 - * If this would prevent water shortages in the future?
- If not willing to pay more for any of the above, what alternative measures would you suggest for the Water Authority to adopt in order to improve the quality and services? How could this be achieved? What if WAJ's cost of water requires the increase?
- If services and quality are improved, and you are getting more frequent supply of water, how much more would you be able to pay?
- Now that the tariff has increased, have you seen an improvement? What?
- If improvements don't take place, how much more will you be able to pay?

Sources of Information (15 minutes)

- From where do you usually get information about the quality of water? Safety of water? To what extent do you trust the credibility of these sources?
- Whom would you trust to get information about water quality and safety? (Probe: doctors, environmental groups, WAJ, friends, local media?).
- Have you seen any advertisement? What did you think of it? Was it convincing?
- If you were to communicate a message about the new tariff rates, conservation of water and other issues, what would that message be? How would you communicate it? Which type of media would you choose?

Private Management (15 minutes)

- Do you think a private company should manage water, or state? Why? (Probe: Trusting WAJ?)
- How do you think the service would differ if publicly or privately managed? What are the implications of public/private management? (In terms of billing, collection, dealing with complaints, efficiency and conservation of water...) What services do you expect to receive from both?
- Would you be willing to pay more if private managed or government and why?

ANNEX D
POST-CRISIS DISCUSSION GUIDE FOR
RESIDENTIAL AND NON-RESIDENTIAL SUBSCRIBERS

Introduction

Thank you for taking the time to participate in this group discussion. We are seeking your views on issues related to water and the recent water crisis in Amman. The information we gather will be used by the authorities to better understand your requirements and expectations. We are interested in your frank opinion, there are no right or wrong answers. All the relevant materials of this study will be treated confidentially. Please speak up, and only one person speak at a time.

General Discussion (15 minutes)

- In your opinion, what was the reason for the recent water crisis in Amman?

Usage and Attitudes during the Crisis (40 minutes)

- How frequently did you get water supply during the crisis (Specify area of residence)? How does it differ from the usual frequency during this period?
- What action did you take to make up for the shortage in supply?
 - Add tanks? Get water from springs?
 - Buy from tankers? How often? How did you get them (stand in line?...) How long did you have to wait? How much did you pay? Did you buy tankers before now?
 - How did the government deal with the tankers? Was this early enough? Sufficient?
- Did you boil or filter the water? What did you use it for? Did you use to boil or filter water before the crisis? Are you still boiling, filtering it? Why?

(For residential users:)

- Did you have to treat the water in any way? How?
- Did you buy bottled water? What did you use it for? Was it easy to fund? How much did it cost? Before? Now?
- Did you incur costs more than you normally do? How much more? How did you pay for the extra cost? (Borrow, reallocate resources?).

(For non-residential users:)

- Have you increased your charges? Are you still doing that?

- Did the problem have any serious effect on your business? How? Did it affect your customers in any way? How?
- What do you think about the government's decision to cancel the bills covering this period? Did it compensate for the additional cost?
- Did you change your usage habits during this period? How? (Garden, swimming pool, reducing water related activities).
- Did you use more water when you knew that you were not paying for this cycle?

(For residential users:)

- Did the quality of water (WAJ or other) cause any health problems to any member of your family? How? (if incurred, cost of hospitalization, medicine).

Usage and Attitudes (Future) (10 minutes)

- How do you feel about this issue now?
- Do you think there is any possibility of its recurrence in the future? If so, have you taken any measures at home? What?

Attitudes Towards WAJ and Private Sector Involvement (15 minutes)

- Do you know of any plans to involve the private sector in the operation and maintenance of water in Amman?

(Explain that a private foreign company will operate the system in Amman; it will be a French company which has vast experience in similar work throughout the world.)

- How do you feel about this? What do you expect from the private operator and from WAJ?
- Who is most likely (government or private) to prevent the recurrence of the crisis? Why?

Financial Willingness and Affordability (15 minutes)

- On average, how much water do you consume? How much does it cost you? (Last 3 bills). How much did it cost you before?
- How much of your current expenses does the water bill represent?

(Describe new system)

- Why do you think WAJ has introduced this new tariff system?
- Is this more or less fair than the old system?

- Under the new system you are paying... for your water consumption, if required to do so, would you be willing to pay more? To what extent would you be willing to pay more? What do you expect in return?
- Regardless of your willingness or expectations, how much more would you be able to pay for your water consumption?
- If cost increases by...%, what ...% would you be able to pay?
- If tankers or bottled water bought: If WAJ provides good quality water would you stop tankers and bottled water?
- How much more would you pay for improved services?

ANNEX E
RESIDENTIAL SUBSCRIBERS SURVEY RESULTS
(WHOLE COUNT)

Serial number .

Card number .

1. Are you a current subscriber of the Water Authority of Jordan?	Yes	1000	Close
	No	0	

2. Are you the one who handles payment of water bills to WAJ, participates in decisions related to water use and purchase of water from other sources?	Yes	1000	Close
	No	0	

ASK: If subscriber and handles all matters:

3. Do you have a water meter for this house or unit only?	Yes	849	Ask 4a
	No	151	Ask 4a

ASK: If water meter shared:

4. How many housing units share in this water meter?	Two	84
	Three	41
	Four	18
	Five	4
	Six	3
	Seven	1
	Eight or more	0

4A. Do you share your meter with other activities like pharmacy, store, office or others?	Yes	75
	No	925

5. Is your house/unit connected to the sewerage system?	Yes	895	Go to 11
	No	105	Ask 6

ASK: If not connected:

6. How is the sewage discharged?

Septic tanks	104	Ask 7
Wadis	0	Go to 11
Onto the ground	1	Go to 11
Treatment & recycling systems	0	Go to 9
Other	0	Go to 11

ASK: If not connected:

AND: If septic tanks:

7. On average, how often do you discharge your septic tanks?

More than once a month	17
Once a month	12
Once every 3 months	12
Once every 6 months	27
Once a year	9
Never	15
Other	12

ASK: If septic tanks:

8. What is the size of your septic tank?

Less than 4 m3	14
4-8 m3	15
9-12 m3	10
13-18 m3	3
19-24 m3	4
More than 24 m3	7
Don't know	51

ASK: If treatment & recycling used:

9. How much did the treatment and recycling system cost you?

Less than JD 500	0
JD 500-1000	0
JD 1001-1500	0
JD 1501-2000	0
More than JD 2000	0
Don't know	0

ASK: If treatment & recycling used:

10. What do you use it for?

Gardening	0
Cleaning	0
Other	0

11. Do you believe that there is a water shortage problem in Jordan?

Yes	839	Ask 12
No	77	Go to 14
Don't know	84	Go to 14

ASK: If existing problem:

12. Please express the extent to which you believe the water situation is critical? (Read out)

Not critical	68
Some problems but not critical	168
Critical but manageable	534
Critical and hopeless	69

ASK: If existing problem:

13. What do you think are the reasons for the existing water problem in Jordan?

Little rainfall	671
Fast growing population	190
Reverse migration	45
High water leakage values	117
Worn-out networks	115
Poor water supply agreements with neighbouring countries	49
Mismanagement by Authority	146
Waste by users	250
Existing water resources are scarce	138
Diversion of the sources of water	16
Stealing of water by consumers	13
Water pollution	10
Other	11

14. Do you believe that there would be a water shortage problem in Jordan in twenty years?

Yes	444	Ask 15
No	138	Go to 17
Don't know	418	Go to 17

ASK: If potential problem:

15. Please express the extent to which you believe the water situation will be critical in twenty years? (Read out)

Not critical	7
Some problems but not critical	39
Critical but manageable	275
Critical and hopeless	123

ASK: If potential problem:

16. What do you think are the reasons for the potential water problem in Jordan?		
Little rainfall		315
Fast growing population		195
Reverse migration		35
High water leakage values		61
Worn-out networks		56
Poor water supply agreements with neighbouring countries		43
Mismanagement by Authority		66
Waste by users		125
Existing water resources are scarce		94
Diversion of the sources of water		7
Stealing of water by consumers		7
Other		7

17. Do you know from which water source does WAJ supply you from?			
Yes		455	Ask 18
No		545	Go to 19

ASK: If yes:

18. Please state the source:		
Spring water		61
Dams		109
Ground water		40
Other governorates		47
Zai treatment plant		168
Neighbouring countries		15
Other		18

19. In general, how many days a week are you promised to receive water from WAJ in summer (May-October)?		
One day/week		147
Two days/week		537
Three days/week		140
Four days/week		22
Five days/week		15
Six days or more/week		24
Don't know		110
Other		5

20. On average, how many days a week during the summer months (May-October) do you actually get water from WAJ network?		
One day/week		241
Two days/week		563
Three days/week		111
Four days/week		23
Five days/week		11
Six days or more/week		20
Don't know		10
Less often		20
Other		1

21. On average, and when supplied, how many uninterrupted hours is the duration of the supply during the summer months?		
	Less than 3 hours	9
	3-6 hours	27
	7-9 hours	43
	10-12 hours	206
	13-15 hours	87
	16-20 hours	122
	More than 20 hours	360
	Don't know	146

22. In general, how many days a week are you promised to receive water from WAJ in winter (November-April)?		
	One day/week	109
	Two days/week	475
	Three days/week	191
	Four days/week	41
	Five days/week	31
	Six days or more/week	33
	Don't know	114
	Other	6

23. On average, how many days a week during the winter months (November-April) do you actually get water from WAJ network?		
	One day/week	151
	Two days/week	469
	Three days/week	219
	Four days/week	61
	Five days/week	29
	Six days or more/week	43
	Don't know	23
	Other	5

24. On average, and when supplied, how many uninterrupted hours is the duration of the supply during the winter months?		
	Less than 3 hours	4
	3-6 hours	15
	7-9 hours	19
	10-12 hours	130
	13-15 hours	63
	16-20 hours	106
	More than 20 hours	519
	Don't know	144

25A. Is the quantity of water that you receive from WAJ sufficient for your needs during the summer months?		
	Yes	458
	No	542

25B. Is the quantity of water that you receive from WAJ sufficient for your needs during the winter months?		
	Yes	896
	No	104

26. In general, how would you describe the water pressure coming through the network to your pipes?		
	Very low (nearly nonexistent)	23
	Low	177
	Medium	527
	High	255
	Don't know	18

27A. Do you have pumps to increase the water pressure to reach your tanks?	Yes	336	Ask 27b
	No	659	Go to 28
	Don't know	5	Go to 28

ASK: If pumps available:

27B. Where are the pumps located?

On pipes after the meter	102
On pipes before the meter	5
On the well	132
Don't know	1
On the tank	91
Other	6

28. If the water pressure was medium to high, how many days a week would water supply be necessary in order to be sufficient for your needs?

One day/week	29
Two days/week	222
Three days/week	386
Four days/week	247
Five days/week	47
Six days or more/week	41
Don't know	26
Other	2

29A. Please tell me to what extent are you satisfied/ dissatisfied with "quality of water in terms of colour" as it relates to the water received from WAJ?

Very dissatisfied	81
Quite dissatisfied	154
Uncertain	13
Quite satisfied	454
Very satisfied	298

29B. Please tell me to what extent are you satisfied/ dissatisfied with: "quality of water in terms of purity (existence of particles)" as it relates to water received from WAJ?

Very dissatisfied	94
Quite dissatisfied	183
Uncertain	31
Quite satisfied	431
Very satisfied	261

29C. Please tell me to what extent are you satisfied/ dissatisfied with: "quality of water in terms of taste" as it relates to water received from WAJ?

Very dissatisfied	84
Quite dissatisfied	162
Uncertain	24
Quite satisfied	447
Very satisfied	283

29D. Please tell me to what extent are you satisfied/ dissatisfied with "potability of water" as it relates to water received from WAJ?		
Very dissatisfied	89	
Quite dissatisfied	130	
Uncertain	42	
Quite satisfied	437	
Very satisfied	302	
29E. Please tell me to what extent are you satisfied/ dissatisfied with "frequency of supply" as it relates to water received from WAJ?		
Very dissatisfied	173	
Quite dissatisfied	227	
Uncertain	61	
Quite satisfied	299	
Very satisfied	240	
29F. Please tell me to what extent are you satisfied/ dissatisfied with "duration of supply" as it relates to water received from WAJ?		
Very dissatisfied	160	
Quite dissatisfied	225	
Uncertain	64	
Quite satisfied	298	
Very satisfied	253	
29G. Please tell me to what extent are you satisfied/ dissatisfied with "pressure of supply" as it relates to water received from WAJ?		
Very dissatisfied	163	
Quite dissatisfied	249	
Uncertain	66	
Quite satisfied	281	
Very satisfied	241	
29H. Please tell me to what extent are you satisfied/ dissatisfied with: "WAJ's response to complaints relating to leakage?"		
Very dissatisfied	128	
Quite dissatisfied	67	
Uncertain	67	
Quite satisfied	110	
Very satisfied	95	
Did not experience	533	
29I. Please tell me to what extent are you satisfied/ dissatisfied with: "WAJ's response to complaints relating to supply problems?"		
Very dissatisfied	121	
Quite dissatisfied	69	
Uncertain	71	
Quite satisfied	125	
Very satisfied	76	
Did not experience	538	
29J. Please tell me to what extent are you satisfied/ dissatisfied with: "accuracy of reading the meter?"		
Very dissatisfied	67	
Quite dissatisfied	61	
Uncertain	270	
Quite satisfied	305	
Very satisfied	297	

29K. Please tell me to what extent are you satisfied/ dissatisfied with: "WAJ's response to complaints about billing?"		
	Very dissatisfied	99
	Quite dissatisfied	62
	Uncertain	64
	Quite satisfied	135
	Very satisfied	93
	Did not experience	547

29L. Please tell me to what extent are you satisfied/ dissatisfied with: "quality of pipes?"		
	Very dissatisfied	82
	Quite dissatisfied	77
	Uncertain	247
	Quite satisfied	289
	Very satisfied	305

30. Do you think that the level of chlorine in WAJ water is..? (Read out)		
	Very high	78
	High	252
	Average	504
	Low	75
	Very low	5
	Non-existent	9
	Don't know	77

31. Did you face any problems with your connection to WAJ's sewerage network?			
	Yes	72	Ask 32
	No	823	Go to 33a
	Not connected	105	Go to 34

ASK: If problems faced with sewerage:

32. Please specify the problems:		
	Odour	17
	Blockage	43
	Flooding	28
	Not enough capacity	16
	Poor maintenance system	14
	Other	0

ASK: If connected to sewerage network:

33A. Please tell me to what extent are you satisfied/ dissatisfied with "connection of your sewerage system?"		
	Very dissatisfied	29
	Quite dissatisfied	27
	Uncertain	26
	Quite satisfied	371
	Very satisfied	442

ASK: If connected to sewerage network:

33B. Please tell me to what extent are you satisfied/ dissatisfied with "blockage repairs" as it relates to your sewerage system?		
	Very dissatisfied	36
	Quite dissatisfied	21
	Uncertain	18
	Quite satisfied	137
	Very satisfied	139
	Did not experience	544

ASK: If connected to sewerage network:

33C. Please tell me to what extent are you satisfied/ dissatisfied with "response to complaints related to flooding?"		
	Very dissatisfied	26
	Quite dissatisfied	22
	Uncertain	14
	Quite satisfied	103
	Very satisfied	116
	Did not experience	614

ASK: If connected to sewerage network:

33D. Please tell me to what extent are you satisfied/ dissatisfied with "sewerage maintenance system?"		
	Very dissatisfied	49
	Quite dissatisfied	32
	Uncertain	35
	Quite satisfied	128
	Very satisfied	122
	Did not experience	529

34. Do you buy water from tankers for household usage?

Yes	279	Ask 34a
No	721	Go to 43

ASK: If tankers bought:

34A. From where do you mainly buy water tankers?		
	Private tankers	261
	WAJ tankers	18

ASK: If tankers bought:

35. On average, how often do you buy water from tankers per month during the summer season (May-Oct)?		
	Once a month	95
	Twice a month	103
	3-4 times/month	54
	5 times or more/month	13
	Less often	14

ASK: If tankers bought:

36. How much do you usually pay for a cubic meter from tankers during the summer season (May-Oct)?

Less than JD 1/m3	1
JD 1/m3	22
JD 1.5/m3	80
JD 2/m3	130
JD 3/m3	19
More than JD 3/m3	23
Other	4

ASK: If tankers bought:

37. What quantity of water, in cubic meters, do you usually buy from tankers per month during the summer season (May-Oct)?

Less than 3m3/month	60
3-6 m3/month	120
7-10 m3/month	48
11-14 m3/month	20
15-18 m3/month	9
More than 18 m3/month	22

ASK: If tankers bought:

38. On average, how often do you buy water from tankers per month during the winter season (Nov-April)?

Once a month	25	
Twice a month	4	
3-4 times/month	3	
5 times or more/month	3	
less often	4	
Do not buy in winter	240	Go to 41

ASK: If tankers bought:

AND: In winter:

39. How much do you usually pay for a cubic meter from tankers during the winter season (Nov-April)?

Less than JD 1/m3	1
JD 1/m3	4
JD 1.5/m3	11
JD 2/m3	17
JD 3/m3	3
More than JD3/m3	3
Other	0

ASK: If tankers bought:

AND: In winter:

40. What quantity of water, in cubic meters, do you usually buy from tankers per month during the winter season (Nov-April)?

Less than 3 m3/month	9
3-6 m3/month	20
7-10 m3/month	1
11-14 m3/month	6
15-18 m3/month	2
More than 18 m3/month	1

ASK: If tankers bought:

41A. On a scale of 1 to 5, where 1 means very dissatisfied and 5 means very satisfied, please indicate the degree of satisfaction with the quality of tanker water in terms of "color?"

Very dissatisfied	51
Dissatisfied	61
Uncertain	13
Satisfied	117
Very satisfied	37

ASK: If tankers bought:

41B. Please indicate the degree of satisfaction with the quality of tanker water in terms of "purity?"

Very dissatisfied	54
Dissatisfied	67
Uncertain	23
Satisfied	102
Very satisfied	33

ASK: If tankers bought:

41C. Please indicate the degree of satisfaction with the quality of tanker water in terms of "taste?"

Very dissatisfied	52
Dissatisfied	63
Uncertain	18
Satisfied	109
Very satisfied	37

ASK: If tankers bought:

41D. Please indicate the degree of satisfaction with the quality of tanker water in terms of "potability?"

Very dissatisfied	51
Dissatisfied	47
Uncertain	32
Satisfied	113
Very satisfied	36

ASK: If tankers bought:

41E. Please indicate the degree of satisfaction with the quality of tanker water in terms of "price?"

Very dissatisfied	116
Dissatisfied	68
Uncertain	19
Satisfied	65
Very satisfied	11

ASK: If tankers bought:

41F. Please indicate the degree of satisfaction with "waiting time" as it relates to water tankers?

Very dissatisfied	90
Dissatisfied	71
Uncertain	17
Satisfied	76
Very satisfied	25

ASK: If tankers bought:

42. If WAJ provides adequate water of good quality, would you stop buying water from tankers?

Yes	270
No	9

43. Do you buy bottled water?

Yes	144	Ask 44a
No	856	Go to 48

ASK: If bottled water bought:

44A. On average, how many liters of bottled water do you buy per week, during the winter season (Nov-April)?

Less than 5 liters/week	39
5-9 liters/week	36
10-15 liters/week	21
16-22.5 liters/week	10
23-30 liters/week	4
31-36 liters/week	5
37 or more liters/week	3
Do not buy in winter	26

ASK: If bottled water bought:

AND: In winter:

44B. On average, how much does it cost you to buy bottled water per week, during the winter season (Nov-April)?

Less than JD 1/week	19
JD 1-1.75/week	36
JD 1.760-2.900/week	32
JD 3-4.350/week	18
JD 4.360-5.800/week	4
JD 5.810-6.960/week	2
More than JD 7/week	7

ASK: If bottled water bought:

45A. On average, how many liters of bottled water do you buy per week, during the summer season (May-Oct)?

Less than 5 liters/week	18
5-9 liters/week	33
10-15 liters/week	39
16-22.5 liters/week	27
23-30 liters/week	12
31-36 liters/week	3
37 or more liters/week	12

ASK: If bottled water bought:

45B. On average, how much does it cost you to buy bottled water per week, during the summer season (May-Oct)?

Less than JD 1/week	11
JD 1-1.75/week	22
JD 1.760-2.900/week	31
JD 3-4.350/week	46
JD 4.360-5.800/week	10
JD 5.801-6.960/week	11
JD 7 or more/week	13

ASK: If bottled water bought:

46. What do you use the bottled water for?

Cooking	28
Drinking	141
Washing vegetables & fruits	13
Other	0

ASK: If bottled water bought:

47. If you are sure that WAJ would provide adequate water of good quality, would you stop buying bottled water?

Yes	135
No	9

48. Do you have water storage tanks for this housing unit?

Yes	994	Ask 49a
No	6	Go to 51

ASK: If tanks available:

49A. How many water tanks do you have on the roof?

One	432
Two	444
Three	77
Four	14
Five or more	3
None	24

ASK: If tanks available:

49B. How many water tanks do you have in the basement?

One	34
Two	14
Three	3
Four	0
Five or more	0
None	943

ASK: If tanks available:

49C. How many water tanks do you have on the ground level?

One	117
Two	20
Three	2
Four	0
Five or more	0
None	855

ASK: If tanks available:

49D. Total number of water tanks:

One	361
Two	458
Three	131
Four	34
Five or more	10

ASK: If tanks available:

50. How many cubic meters do all the tanks total up to?

Less than 1 m3	4
1 m3	124
2 m3	359
3 m3	208
4 m3	195
5 m3	49
6 m3 or more	54
Don't know	1

51. Do you have underground water wells?

Yes	227	Ask 52
No	773	Go to 54

ASK: If wells available:

52. How many wells do you have?

One	220
Two	5
Three	0
Four or more	2

ASK: If wells available:

53. How many cubic meters do the wells total up to?

3 m3 or less	34
4-6 m3	39
7-9 m3	30
10-12 m3	19
13-15 m3	16
More than 15 m3	48
Don't know	41

54. Do you collect rainwater in a well?

Yes	79
No	921
By other means	0

55. Do you use the water that you receive from WAJ for...?(Read out)			
	Drinking	941	
	Cooking	979	
	Washing vegetables and fruits	886	
	Gardening	252	
	Bathrooms	988	
	House cleaning	989	
	Laundry	976	
	Bathing/showering	797	
	Other	13	

56. Do you boil the water that you receive from WAJ?			
	Yes	156	Ask 57
	No	707	Go to 58
	Sometimes	137	Ask 57

ASK: If boils water:

57. What do you use the boiled water for?			
	Drinking	281	
	Cooking	126	
	Washing vegetables and fruits	32	
	Other	0	

58. Do you usually filter the water that you receive from WAJ?			
	Yes	254	Ask 59
	No	733	Go to 62
	Sometimes	13	Ask 59

ASK: If filters water:

59. What system do you use to filter the water?			
	Sand filter	73	
	Activated carbon	61	
	Reverse osmoses system	11	
	Ultra violet	0	
	Sediment	34	
	Ceramic	78	
	Other	10	
	Don't know	1	

ASK: If filters water:

60. How much did the filter cost?

Less than JD 10	45
JD 10-30	83
JD 30-50	45
JD 51-80	16
JD 81-110	11
JD 111-140	1
JD 141-170	0
JD 171-200	3
More than JD 200	20
Don't know	43

ASK: If filters water:

61. What do you use the filtered water for?

Drinking	254
Cooking	189
Washing vegetables and fruits	100
Other	7

62. Do you let tap water settle before using it?

Yes	226
No	573
Sometimes	201

63. Do you normally leave the water flowing continuously when taking a shower?

Yes	173
No	671
Not applicable	156

64. Do you normally leave the water flowing continuously when brushing your teeth?

Yes	63
No	917
Not applicable	20

65. Do you normally leave the water flowing continuously when washing the dishes?

Yes	16
No	562
Not applicable	422

66. Do you normally leave the water flowing continuously when shaving?

Yes	2
No	414
Not applicable	584

67. Do you use a hose to wash your car?

Yes	34
No	533
Not applicable	433

68. Do you flush the toilet completely every time you use the bathroom?

Yes	235
No	404
Not applicable	361

69. Has any member of your family experienced any health problems that you believe are related to the water quality that you received from WAJ?			
Yes	181	Ask	70
No	819	Go to	71

ASK: If experienced health problems:

70. What did it cause?			
Diarrhea	84		
Stomach ache	49		
Dry skin	16		
Hair loss	45		
Eye irritation	8		
Fever	15		
Vomiting	15		
Dysentery	20		
Kidney stones	4		
Other	8		

71. Have any of your neighbours, relatives, friends experienced any health problems that you believe are related to the quality of water that they receive from WAJ?			
Yes	183	Ask	72
No	817	Go to	73

ASK: If others experienced health problems:

72. What did it cause?			
Diarrhea	102		
Stomach ache	67		
Dry skin	3		
Hair loss	38		
Eye irritation	5		
Fever	9		
Vomiting	21		
Dysentery	14		
Kidney stones	2		
Other	4		

ASK: If health problems:

72A. How did you know that water was the cause of the health problems?			
From the doctor	201		
Analyzed the water	16		
Heard from others	56		
Other	3		

73. How often do you get billed by WAJ for water supply?			
Once every 3 months	961		
Twice a year	27		
Once a year	6		
Other	6		

74A. How often would you like to receive the bills?		
Same as I receive them now	735	Go to 75
Monthly	255	Ask 74b
Every two months	4	Go to 75
Twice a year	3	Go to 75
Once a year	2	Go to 75
Other	1	Go to 75

ASK: If monthly billing preferred:

74B. Do you think that the bill amount per month would be less than the amount paid for each month of billing in the quarterly cycle?		
Yes	230	
No	25	

75. How do you prefer to receive the bills?		
Delivered to your house by collectors	850	
Sent by mail	143	
Other	7	

76. Does the amount you are being billed by WAJ reflect the amount of water you use?		
Yes	681	
No, I am billed more than I use	278	
No, I am billed less than I use	4	
Don't know	37	

77. have you ever complained to WAJ regarding the amount you were billed?		
Yes	243	
No	757	

78. In what manner would you prefer to pay the bills?		
To collector	442	
To WAJ offices	154	
Through banks	398	
By mail	5	
Other	1	

79. Consumption level:		
10 m3 or less	151	
11-20 m3	141	
21-30 m3	195	
31-40 m3	165	
41-50 m3	109	
51-60 m3	89	
61-70 m3	46	
71-80 m3	33	
81-90 m3	24	
91-130 m3	33	
More than 130 m3	14	

80. In general, how many cubic meters per cycle did you buy from WAJ according to the old tariff system (prior to Oct.1997 or the fourth cycle,1997)?

10 m3 or less	48
11-20 m3	67
21-30 m3	55
31-40 m3	44
41-50 m3	16
51-60 m3	13
61-70 m3	6
71-80 m3	5
81-90 m3	1
91-130 m3	6
More than 130 m3	46
Don't know	693

81. In general, do you know how much you were paying for water services per cycle (every 3 months) according to the old tariff system?

Yes	730	Ask 82
No	270	Go to 83

ASK: If amount known:

82. Please specify the amount you were paying?

JD 5 or less	432
JD 6-10	127
JD 11-15	59
JD 16-20	38
JD 21-30	30
JD 31-40	9
JD 41-50	9
JD 51-70	8
JD 71-100	8
JD 101-120	5
JD 121-150	4
More than JD 150	1

83. Are you aware of the current tariff system (as of Oct.97) of WAJ?

Yes	275	Ask 84
No	725	Go to 85

ASK: If aware of current system:

84. What is the system used?

Increasing block system	24
Linear increase	135
Flat system	12
Other	18
Don't know	86

85. How many cubic meters per cycle do you buy from WAJ during the summer season (May-Oct) according to the current tariff system?		
	10 m3 or less	42
	11-20 m3	68
	21-30 m3	54
	31-40 m3	55
	41-50 m3	26
	51-60 m3	21
	61-70 m3	15
	71-80 m3	7
	81-90 m3	4
	91-130 m3	8
	More than 130 m3	49
	Don't know	651

86. How much do you pay for your water bill per cycle (every 3 months) during the summer season (May-Oct) according to the current tariff?		
	Less than JD 5	459
	JD 5-8	190
	JD 9-12	83
	JD 13-20	91
	JD 21-30	70
	JD 31-40	27
	JD 41-50	21
	JD 51-70	21
	JD 71-100	20
	JD 101-120	3
	JD 121-150	11
	More than JD 150	4

87. How many cubic meters per cycle do you buy from WAJ during the winter season (Nov-Apr) according to the current tariff system?		
	10 m3 or less	54
	11-20 m3	86
	21-30 m3	62
	31-40 m3	46
	41-50 m3	25
	51-60 m3	15
	61-70 m3	9
	71-80 m3	3
	81-90 m3	5
	91-130 m3	9
	More than 130 m3	44
	Don't know	643

88. How much do you pay for your water bill per cycle (every 3 months) during the winter season (Nov-Apr) according to the current tariff?		
	Less than JD 5	499
	JD 5-8	174
	JD 9-12	83
	JD 13-20	89
	JD 21-30	61
	JD 31-40	20
	JD 41-50	24
	JD 51-70	18
	JD 71-100	17
	JD 101-120	4
	JD 121-150	8
	More than JD 150	4

89. Concerning your water bill, what is the difference in the amount you paid between the old and the current systems for the same quantity?

No difference	450
JD 2 or less	249
JD 3-6	163
JD 7-10	58
JD 11-14	26
JD 15-20	22
JD 21-26	10
JD 27-32	14
JD 33-40	3
JD 41-60	4
JD 61-80	0
JD 81-100	0
JD 101-150	1
More than JD 150	0

90. To what extent do you support or oppose the current tariff system?

Strongly oppose	108
Oppose	365
Uncertain	283
Support	235
Strongly support	9

91. What is your opinion about the price of WAJ water according to the current tariff system?

Very high	144
High	385
Fair	380
Low	5
Very low	0
Don't know	86

92. Do you think that WAJ will be collecting more money from the current tariff system than it did from the previous system?

Yes	586
No	130
Don't know	284

93. For what purpose do you think WAJ will be using the revenue it is receiving from the current system?

To repair networks	417
To explore new resources	238
To cover its operational and maintenance costs	111
To cover its capital costs	33
To cover its financial deficit	54
Build new dams	181
Increase salaries	90
Buy new treatment plants	120
Don't know	343
Other	44

94. What do you expect to receive in return for this current tariff system?

Improved quality of water	507
More frequent supply	300
Adequate responsiveness to complaints	41
Better distribution of water	171
Exploitation of new resources	100
Repair of pipes	121
Training of employees	48
Nothing	323
Other	30

95A. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "improved water quality"?		
	1- not willing at all	462
	2	98
	3	128
	4	273
	5 - very willing	39

95B. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "more frequent water supply"?		
	1- not willing at all	480
	2	102
	3	139
	4	251
	5 - very willing	28

95C. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "consistent schedule of supply"?		
	1- not willing at all	486
	2	120
	3	156
	4	218
	5 - very willing	20

95D. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "adequate responsiveness to complaints"?		
	1- not willing at all	507
	2	129
	3	193
	4	154
	5 - very willing	17

95E. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "prevention of future water shortages"?		
	1- not willing at all	477
	2	123
	3	155
	4	215
	5 - very willing	30

95F. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "improved service"?		
	1- not willing at all	462
	2	113
	3	173
	4	226
	5 - very willing	26

95G. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "more frequent billing (e.g. monthly)"?		
	1- not willing at all	540
	2	125
	3	189
	4	129
	5 - very willing	17

95H. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "management of water by private company"?

1- not willing at all	558
2	121
3	194
4	113
5 - very willing	14

95I. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "repair of pipes"?

1- not willing at all	544
2	135
3	167
4	137
5 - very willing	17

95J. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "training of employees"?

1- not willing at all	575
2	129
3	174
4	106
5 - very willing	16

ASK: If willing to pay more for any service; (3,4,5) on the scale:

96. On average, how much more are you willing to pay on your bill?

Less than JD 3	367
JD 3-5	96
JD 6-9	19
JD 10-15	8
JD 16-20	3
JD 21-30	0
JD 31-40	0
JD 41-50	0
More than JD 51	0

ASK: If not willing to pay more for any service; (1,2) on the scale:

97. Is your unwillingness to pay more due to...? (Read out)

Lack of support to WAJ	54
Financial incapability	415
Water supply is adequate	126
Mistrust of the Authority	101
Water is an inherent right	398
Other	32

98. Regardless whether you are willing or unwilling to pay more, how much more are you able to pay?

Less than JD 3	462
JD 3-5	94
JD 6-9	19
JD 10-15	10
JD 16-20	4
JD 21-30	0
JD 31-40	0
JD 41-50	0
More than JD 51	0
Nothing	411

99A. Will you be willing to pay more if WAJ were to increase the current tariff system in the future?	Yes	273
	No	727

99B. Will you be able to pay more if WAJ were to increase the current tariff system in the future?	Yes	348
	No	652

100A. What would you do if the water bill is increased to an extent beyond your ability to pay?	Disconnect meter	131	
	Make deals with tankers	85	
	Connect a hose to the pipes before the meter	5	
	Re-allocate the household budget to cover new tariff	90	
	Reduce consumption	287	
	Tamper with the system (meter)	6	
	Share water consumption with other households	51	
	Complain to WAJ	560	Ask 100b
	Other	22	

ASK: If complain to WAJ:

100B. If complaint does not work, then what will you do?	Disconnect meter	193	
	Make deals with tankers	100	
	Connect a hose to the pipes before the meter	13	
	Re-allocate the household budget to cover new tariff	25	
	Reduce consumption	182	
	Tamper with the system (meter)	16	
	Share water consumption with other households	33	
	Complain to a higher authority	63	
	Pay in installments	37	
	Other	17	

101. What would you do if the water bill is increased to an extent that you believe to be unjustified?	Disconnect meter	242	
	Make deals with tankers	99	
	Connect a hose to the pipes before the meter	6	
	Re-allocate the household budget to cover new tariff	47	
	Reduce consumption	204	
	Tamper with the system (meter)	12	
	Share water consumption with other households	52	
	Complain to WAJ	501	
	Nothing	55	
	Other	15	

102. Are you aware that there is a separate tariff system for wastewater?	Yes	572	Ask 103
	No	323	Ask 103
	Not connected	105	Go to 104

ASK: If connected to the sewerage system:

103. Have you noticed a difference in your wastewater bill between the old and the current one?	Yes	229	
	No	666	

104. What is the best communication medium to be used by WAJ to further inform you about the current tariff system?	TV	908	
	Radio	326	
	Newspapers	313	
	Leaflets	35	
	On the back of the bill	38	
	Through collectors	12	
	Other	6	

105. What, in your opinion, would be the most informative technique to be used by WAJ to inform subscribers about the current tariff system?	Panel discussions with officials	543	
	Statement by an official	255	
	Commercial ad	477	
	Articles in newspapers & magazines	208	
	Leaflets with the bill	28	
	Other	3	

106. Do you know of any plans to involve the private sector in the operation and maintenance of water in Amman?	Yes	298	
	No	674	
	Not sure	28	

106A. Are you in favour or against the involvement of the private sector?	In favour	547	
	Against	202	
	Don't know	133	
	Don't care	118	

107. If the water supply was to be managed by a private company, which of these types of organizations do you think it should be managed by?	A Jordanian company	452	
	A non-Jordanian Arab company	50	
	A non-Arab company	111	
	A joint venture between Jordanian and Arab companies	140	
	A joint venture between Jordanian and foreign companies	149	
	Other	5	
	Don't know	93	

108. Are you in favour or against the involvement of a foreign company (French) in operating and maintaining the water system in Amman?	In favour	498	Go to 110
	Against	271	Ask 109
	Don't know	119	Go to 111
	Don't care	112	Go to 111

ASK: If against foreign involvement:

109. Please specify the reasons why you are against:

Water will be more expensive	119
Revenues will migrate	54
Quality and service will not improve	17
Skilled Jordanian workers can do the job	101
Water is a national security issue and must be handled by local authority	75
Do not trust foreign companies	85
Other	10

ASK: If in favour of foreign involvement:

110. Please specify the reasons why you are in favour:

Provide better water quality	223
Provide better water services	216
Any other operator is better than WAJ	48
More advanced/experienced	312
More credible	36
Other	30

111. In your opinion, what were the reasons behind the recent water crisis that started last July in Amman?

Poor WAJ performance	354
Poor filtration technology	212
Conspiracy between tank owners and government officials	17
Poor agreement between Israel and Jordan	221
Dirty water from the source	622
Don't know	77
Other	23

112. Did you buy tanker water during the crisis?

Yes	592	Ask 113
No	408	Go to 114

ASK: If tankers bought:

113. In your estimate, how much did you pay in total for tankers during the crisis?

less than JD 2	2
JD 2-5	12
JD 6-10	31
JD 11-15	36
JD 16-20	99
JD 21-40	133
JD 41-60	88
JD 61-80	50
JD 81-100	46
JD 101-120	24
JD 121-140	20
More than JD 141	51

172

114. Did you buy bottled water during the crisis?

Yes	463	Ask 115
No	537	Go to 117

ASK: If bought bottled water:

115. In your estimate, how much did you pay in total for bottled water during the crisis?

JD 20 or less	148
JD 21-40	115
JD 41-60	81
JD 61-80	46
JD 81-100	26
JD 101-120	19
JD 121-140	5
More than JD 141	23

ASK: If bought bottled water:

116. Are you still using bottled water even after the crisis?

Yes	191
No	272

117. Did you continue to use WAJ water during the crisis?

Yes	874	Ask 118
No	126	Go to 119

ASK: If used WAJ water:

118. What did you continue to use the WAJ water for?

Cooking	602
Bathing	734
Gardening	157
House cleaning	809
Drinking	539
Laundry	763
Bathrooms	50
Other	14

119. Did you do anything to treat WAJ water during the crisis?

Boil	366	Ask 120
Filter	236	Ask 120
Other	20	Ask 120
Nothing	433	Go to 121

ASK: If treated WAJ water:

120. Are you still doing that?

Yes	271
No	296

121. Do you think the crisis is over?

Yes	480
No	282
Don't know	238

122. Do you think the crisis will happen again?

Yes	469
No	243
Don't know	288

123A. Do you think that the crisis would have happened if a private operator was in charge?

Yes	186
No	389
Don't know	425

123B. Does the crisis justify the take-over of water management by a private operator?

Yes	383
No	225
Don't know	392

D1. Age of respondent:

18-24	46
25-34	253
35-44	314
45-54	192
55-64	134
65+	61

D2. Sex

Male	422
Female	578

D3A. Education of respondent:

No formal education	106
Completed elementary	112
Completed intermediate	181
Completed secondary	292
Completed post-secondary (community college)	185
University degree (BA, BS or equivalent)	114
Graduate degree (MA, MS or higher)	10

D3B. Education of head of household:

No formal education	88
Completed elementary	100
Completed intermediate	173
Completed secondary	221
Completed post-secondary (community college)	190
University degree (BA, BS or equivalent)	207
Graduate degree (MA, MS or higher)	21

174

D4. Occupation of the main earner in the household:

Owner of a large business	34
Manager of enterprise	19
Manager of division or department	23
Professional	63
White collar worker/officer employee	44
Clerical-level office worker	94
Technician/skilled worker	117
Semi-skilled worker	97
Unskilled worker	82
Military (officer)	8
Military (non-officer)	14
Civil servant (police, teacher, etc.)	80
Owner of a small business	130
Retired	154
Other	41

D5. Total household income from all sources per month:

Less than JD 80	24
JD 81-120	61
JD 121-150	99
JD 151-180	64
JD 181-200	129
JD 201-250	92
JD 251-300	86
JD 301-350	60
JD 351-450	37
JD 451-600	45
JD 601-800	21
JD 801-1000	13
JD 1001-1500	6
JD 1501-2000	4
More than JD 2000	9
Refused to answer	250

D5A. What percentage of your household income is spent on water?

Less than 2%	322
2-4%	150
More than 4%	24
Don't know	504

D6. Household size:

One person	7
Two	80
Three	92
Four	146
Five	220
Six	144
Seven	112
Eight	83
Nine	48
Ten or more	68

D7A. Number of household members under 12

One	169
Two	210
Three	121
Four	62
Five	30
Six	17
Seven or more	6
None	385

D7B. Number of household members 12-17 years

One	218
Two	201
Three	58
Four	18
Five	2
Six	2
Seven or more	0
None	501

D7C. Number of household members 18-24 years

One	207
Two	157
Three	69
Four	17
Five	5
Six	1
Seven or more	1
None	543

D7D. Number of household members 25-34 years

One	271
Two	219
Three	37
Four	10
Five	3
Six	0
Seven or more	0
None	460

D7E. Number of household members 35-44 years

One	277
Two	198
Three	5
Four	0
Five	0
Six	0
Seven or more	0
None	520

D7F. Number of household members 45-54 years

One	246
Two	113
Three	0
Four	0
Five	0
Six	0
Seven or more	0
None	641

D7G. Number of household members 55-64 years

One	171
Two	65
Three	1
Four	0
Five	0
Six	0
Seven or more	0
None	763

D7H. Number of household members 65+ years

One	87
Two	35
Three	2
Four	0
Five	0
Six	0
Seven or more	0
None	876

D8. Which of the following do you have in your household?

One vehicle	523
More than one vehicle	51
Coloured TV	983
VCR	436
Telephone landline	698
Mobile telephone	90
Dishwashing machine	17
Microwave oven	29
Automatic washing machine	293

D9. Identify type of building:

Single unit house	454
Apartment	546

ASK: If apartment:

D10. Floor level of the apartment:

Ground level	100
1st floor	144
2nd floor	226
3rd floor	55
4th floor	18
5th floor or higher	3

D11. How many floors is the building?

One	213
Two	224
Three or more	563

D12. Size of housing unit or apartment:

Less than 80 m2	82
80-120 m2	406
121-170 m2	344
171-250 m2	137
251-320 m2	14
321-400 m2	9
401-500 m2	3
501-600 m2	4
601-700 m2	0
More than 700 m2	1

D13. How many families live in this housing unit?

One family	907
Two families	82
Three families	7
More than three families	4

D14. How many bathrooms are there in this housing unit?

One	509
Two	441
Three	41
Four	6
Five+	3

D15. How many bedrooms are there in this housing unit?

One	175
Two	521
Three	275
Four	24
Five+	5

D16. How many kitchens are there in this housing unit?

One	981
Two	15
Three or more	4

D17. Size of garden, if available:

Less than 10 m2	107
10-50 m2	86
51-100 m2	20
101-150 m2	3
151-200 m2	5
201-250 m2	2
251-300 m2	4
301-400 m2	1
401-500 m2	2
501-600 m2	0
601-800 m2	0
More than 801 m2	0
Don't know	15
Not available	755

D18. Geographical sub area:

Hamranieh	1
Thrae'	14
Hilal	11
Nazzal	3
Al-Akhdar	32
Um Uthina	15
Al-Diyar	4
Radwan	13
Jabal Amman	18
Abdoun	11
Shmeisani	23
Al-Madineh Al-Riyadieh	5
Jabal Al-Hussein	34
Jabal Al-Weibdeh	16
Abu Alia	1
Al-Khazneh	3
Al-Shaheed	9
Tabarbour	8
Al-'Awdeh	22
Jabal Al-Ashrafieh	23
Yarmouk	7
Al-Jumrouk	2
Jwaideh	2
Al-Raqeem	1
Qweismeh	16
Ma'adi	11
Al-Maghaba	1
Naharieh	12
Hiteen	4
Abu Suwaneh	1
Jawa/Khreibet El-Souk	12
Yadoudeh	9
Um-Qseir	3
Bnayat	3
Husseinieh	1
Al-Karama	1
Al-Yasmeen	1
Mugabelein	8
Al-Rawda	13
Jabal Al-Natheef	17
Zhour	7
Jabal Al-Jofeh	2
Al-Rjourn	2
Al-Adlieh	2
Al-Qala'a	4
Al-Mudarraaj	1
Al-Muteleh	1
al-Muhajireen	3
Wadi Srour	1
Al-Jurn	17
Al-Rawaq	2
Al-Qusour	3
Al-Hashimi	36
Al-Nuzha	46
Raghadan	10
Al-Zahra'a	16
Msheirfeh	1

Al-Amira Alia	3
Al-Rabwa	6
Al-Manara	15
Jabal Al-Taj	30
Jabal Al-Nasser	10
Jandaweel	12
Al-Rawabi	25
Al-Rawnaq	8
Al-Sahel	4
Al-Sina'a	4
Al-Snobar	13
Sweifieh	18
Zibdeh	3
Al-Basha'er	1
Al Hai Al-Sharqi	9
Al-Rahmanieh	3
Al-Fadeeleh	10
Al-Kamalieh	7
Maysaloun	6
Um Summaq	2
Tla'a Al-Shamali	11
Al-Khaldeen	3
Al-Salam	12
Al-Salheen	14
Barakeh	25
Tla'a Al-Sharqi	12
Khalda	3
Iben 'Ouf	3
Al-Baladieh	7
Al-Jama'a	9
Al-Rasheed	14
Al-Zaitouneh	2
Al-Siddeeq	4
Qatana	9
Marj Al-Faras	1
Yajouz	3
Al-Zahiry	2
Iskan Abu Nseir	14
Zabboud/Sayl Husban	1
Al-'Amirieh	1
Na'our	9
Sahab	10
Al-Faisalieh	13
Um Al-'Amad	1
Al-Qastal	1
Dhaba'a	1
Jizeh/Al-Talibieh	5
Al-Samek	1
Nitel	1
Um-Al-Basateen	4
Al 'Al/Rawda	2
Iskan Al-Dhubat	18

D19. Area

Bader	61
Zahran	61
Al-Abdali	78
Tareq	21
Yarmouk	52
Qweismeh/Abu-'Alanda/Rajeeb	50
Jawa/Yadoudeh/Khreibet Al-Souk	21
Um-Qseir/Mqabalein/Bnayat	17
Ras El-Ein	37
Al-Madina	16
Basman	115
Marka	53
Al-Nasser	77
Wadi El-Seir	84
Bader Al-Jadidah	3
Sweileh	36
Tla'a Al 'Ali/Um Sumaq	82
Jubeiha	48
Shafa Badran	6
Abu Nseir	14
Na'our	11
Sahab	10
Muwaqar	13
Jizeh	10
Um Al-Basateen	6
Marj Al Hamam	18

D20. Social class:

AB	70
C1	226
C2	494
DE	210

ANNEX F

**NON-RESIDENTIAL SUBSCRIBERS SURVEY RESULTS
(WHOLE COUNT)**

Serial number .

Card number .

1. Is your business a current subscriber of the Water Authority of Jordan?	Yes	401	Close
	No	0	

2. Are you in a position to participate in decisions related to the payment of water bills to WAJ, as well as decisions related to water use and purchase of water from other sources?	Yes	401	Close
	No	0	

3A. Do you have a water meter for your business?	Yes	361	go to 4a
	No	40	ask 3b

ASK: If meter shared:

3B. With what type of activity do you share the meter?	House	5
	Other commercial activity	35
	Other	0

4A. What is the nature of your business?	Educational	12
	Political	0
	Religious	6
	Hotel and catering	51
	Health	18
	Government agencies	4
	Companies	31
	Banking	5
	Industrial	28
	Office	53
	Retail	110
	Services	55
	Production	24
	Other	4

4B. How do you use water in your premises?

Drinking	398
Production	92
Cooling	42
Cleaning	385
Washing	77
Irrigation	16
Cooking/washing vegetables & fruits	14
Other	8

5A. Is water... (Read out)

Extremely essential to your business?	134
Essential to your business?	157
Not essential to your business?	110

5B. What is the source of water that is used in your business?
(Read out)

WAJ network	396
Private underground wells	14
Water tankers	46
Other	2

6. Is your business connected to the sewerage system?

Yes	337	Go to 12
No	63	Ask 7
Partial connection	1	Ask 7

ASK: If not connected/partial connection:

7. How is the sewage discharged?

Septic tanks	58	Ask 8
Wadis	1	Go to 12
Onto the ground	3	Go to 12
Treatment & recycling systems	1	Go to 10
Other	1	Go to 12

ASK: If septic tanks:

8. On average, how often do you discharge your septic tanks?

More than once a month	2
Once a month	3
Once every 3 months	4
Once every 6 months	23
Once a year	11
Never	15
Other	0

ASK: If septic tanks:

9. What is the size of your septic tank?

Less than 4 m3	3
4-10 m3	16
11-15 m3	7
16-25 m3	7
26-36 m3	1
37-47 m3	0
48-58 m3	0
59-69 m3	0
70-80 m3	0
81-100 m3	0
More than 101 m3	0
Don't know	24

ASK: If treatment & recycling systems:

10. How much did the system cost you?

Less than JD 500	0
JD 500-1000	0
JD 1001-2000	0
JD 2001-5000	0
JD 5001-10000	0
JD 10,001-20,000	0
JD 20,001-30,000	0
JD 30,001-40,000	0
JD 40,001-50,000	0
More than JD 50,001	1

ASK: If treatment & recycling systems:

11A. What were the laboratory results of the treated water?

In accordance with the specifications	0
Not in accordance with specifications	0
The system needs upgrading	0
Not required	1

ASK: If treatment & recycling systems:

11B. What do you use the treated water for?

Irrigation	0
Cleaning	0
Production	1

12. Do you believe that there is a water shortage problem in Jordan?

Yes	373	Ask 13
No	17	Go to 15
Don't know	11	Go to 15

ASK: If existing problem:

13. Please express the extent to which you believe the water situation is critical? (Read out)		
	Not critical	74
	Some problems but not critical	102
	Critical but manageable	163
	Critical and hopeless	34

ASK: If existing problem:

14. What do you think are the reasons for the existing water problem in Jordan?		
	Little rainfall	308
	Fast growing population	39
	Reverse migration	17
	High water leakage values	55
	Worn-out networks	70
	Poor water supply agreements with neighbouring countries	76
	Mismanagement by Authority	68
	Waste by users	102
	Existing water resources are scarce	164
	Diversion of the sources of water	11
	Stealing of water by consumers	15
	Other	11

15. Do you believe that there would be a water shortage problem in Jordan in twenty years?			
	Yes	235	Ask 16
	No	35	Go to 18
	Don't know	131	Go to 18

ASK: If potential problem:

16. Please express the extent to which you believe the water situation will be critical in twenty years? (Read out)		
	Not critical	7
	Some problems but not critical	14
	Critical but manageable	128
	Critical and hopeless	86

ASK: If potential problem:

17. What do you think are the reasons for the potential water problem in Jordan?

Little rainfall	157
Fast growing population	74
Reverse migration	10
High water leakage values	32
Worn-out networks	49
Poor water supply agreements with neighbouring countries	75
Mismanagement by Authority	23
Waste by users	64
Existing water resources are scarce	133
Diversion of the sources of water	7
Stealing of water by consumers	3
Other	2

18. Do you know from which water source does WAJ supply you from?

Yes	198	Ask 19
No	203	Go to 20

ASK: If source known:

19. Please state the source:

Spring water	23
Dams	38
Ground water	9
Other governorates	19
Zai treatment plant	99
Neighbouring countries	13
Other	7

20. In general, how many days a week are you promised to receive water from WAJ?

One day/week	33
Two days/week	140
Three days/week	91
Four days/week	9
Five days/week	3
Six days or more/week	4
Don't know	121
Other	0

21. On average, how many days a week do you actually get water from WAJ?		
One day/week	48	
Two days/week	235	
Three days/week	59	
Four days/week	15	
Five days/week	4	
Six days or more/week	5	
Less often	7	
Don't know	27	
Other	1	

22. On average, and when supplied, how many uninterrupted hours is the duration of the supply?		
Less than 3 hours	0	
3-6 hours	6	
7-9 hours	2	
10-12 hours	73	
13-15 hours	35	
16-20 hours	20	
More than 20 hours	160	
Don't know	105	

23. Is the quantity of water that you receive from WAJ sufficient for your needs?		
Yes	310	
No	91	

24. In general, how would you describe the water pressure coming through the network to your pipes?		
Very low	10	
Low	51	
Medium	253	
High	76	
Don't know	11	

25A. Do you have pumps to increase the water pressure?		
Yes	74	Ask 25b
No	317	Go to 26
Don't know	10	Go to 26

ASK: If pumps available:

25B. If yes, where are the pumps located?		
On pipes after the meter	25	
On pipes before the meter	0	
On the ground well	24	
Don't know	2	
On the tank	22	
Other	2	

26. If the water pressure was medium to high, how many days a week would water supply be necessary in order to be sufficient for your needs?		
One day/week	11	
Two days/week	65	
Three days/week	136	
Four days/week	87	
Five days/week	25	
Six days or more/week	61	
Don't know	16	
Other	0	

27A. Please tell me to what extent are you satisfied/dissatisfied with "quality of water in terms of colour" as it relates to the water received from WAJ?		
Very dissatisfied	38	
Quite dissatisfied	23	
Uncertain	12	
Quite satisfied	190	
Very satisfied	138	

27B. Please tell me to what extent are you satisfied/dissatisfied with: "quality of water in terms of purity (existence of particles)" as it relates to water received from WAJ?		
Very dissatisfied	40	
Quite dissatisfied	50	
Uncertain	25	
Quite satisfied	164	
Very satisfied	122	

27C. Please tell me to what extent are you satisfied/dissatisfied with: "quality of WAJ water in terms of taste?"		
Very dissatisfied	38	
Quite dissatisfied	42	
Uncertain	30	
Quite satisfied	178	
Very satisfied	113	

27D. Please tell me to what extent are you satisfied/dissatisfied with: "potability of WAJ water?"		
Very dissatisfied	36	
Quite dissatisfied	38	
Uncertain	37	
Quite satisfied	179	
Very satisfied	111	

27E. Please tell me to what extent are you satisfied/dissatisfied with: "frequency of supply" as it relates to water received from WAJ?		
Very dissatisfied	48	
Quite dissatisfied	77	
Uncertain	36	
Quite satisfied	150	
Very satisfied	90	

27F. Please tell me to what extent are you satisfied/ dissatisfied with: "duration of supply" as it relates to water received from WAJ?		
	Very dissatisfied	39
	Quite dissatisfied	79
	Uncertain	44
	Quite satisfied	144
	Very satisfied	95

27G. Please tell me to what extent are you satisfied/ dissatisfied with: "pressure of supply" as it relates to water received from WAJ?		
	Very dissatisfied	43
	Quite dissatisfied	83
	Uncertain	30
	Quite satisfied	143
	Very satisfied	102

27H. Please tell me to what extent are you satisfied/ dissatisfied with: "WAJ's response to complaints relating to leakage?"		
	Very dissatisfied	37
	Quite dissatisfied	38
	Uncertain	18
	Quite satisfied	65
	Very satisfied	53
	Did not experience	190

27I. Please tell me to what extent are you satisfied/ dissatisfied with: "WAJ's response to complaints relating to supply problems?"		
	Very dissatisfied	40
	Quite dissatisfied	36
	Uncertain	17
	Quite satisfied	72
	Very satisfied	39
	Did not experience	197

27J. Please tell me to what extent are you satisfied/ dissatisfied with: "accuracy of reading the meter?"		
	Very dissatisfied	21
	Quite dissatisfied	20
	Uncertain	156
	Quite satisfied	109
	Very satisfied	95

27K. Please tell me to what extent are you satisfied/ dissatisfied with: "WAJ's response to complaints about billing?"		
	Very dissatisfied	33
	Quite dissatisfied	24
	Uncertain	20
	Quite satisfied	77
	Very satisfied	38
	Did not experience	209

27L. Please tell me to what extent are you satisfied/ dissatisfied with: "quality of pipes?"		
	Very dissatisfied	31
	Quite dissatisfied	46
	Uncertain	119
	Quite satisfied	106
	Very satisfied	99

27M. Please tell me to what extent are you satisfied/ dissatisfied with: "suitability of water for your type of business" as it relates to water received from WAJ?		
	Very dissatisfied	12
	Quite dissatisfied	22
	Uncertain	21
	Quite satisfied	194
	Very satisfied	152

28. Do you think that the level of chlorine in WAJ water is...? (Read out)		
	Very high	21
	High	91
	Average	188
	Low	25
	Very low	6
	Non-existent	8
	Don't know	62

29. Did you face any problems with your connection to WAJ's sewerage network?			
	Yes	12	Ask 30
	No	326	Go to 31a
	Not connected	63	Go to 32

ASK: If problems faced:

30. Please specify the problems:		
	Odour	7
	Blockage	3
	Flooding	3
	Not enough capacity	1
	Poor maintenance system	0
	Other	1

ASK: If connected to the sewerage system:

31A. Please tell me to what extent are you satisfied/ dissatisfied with: "connection of your sewerage system?"		
	Very dissatisfied	4
	Quite dissatisfied	4
	Uncertain	4
	Quite satisfied	138
	Very satisfied	188

ASK: If connected to the sewerage system:		
31B. Please tell me to what extent are you satisfied/ dissatisfied with: "blockage repairs" as it relates to your sewerage system?		
Very dissatisfied	4	
Quite dissatisfied	4	
Uncertain	3	
Quite satisfied	27	
Very satisfied	111	
Did not experience	189	

ASK: If connected to the sewerage system:		
31C. Please tell me to what extent are you satisfied/ dissatisfied with: "response to complaints related to flooding?"		
Very dissatisfied	3	
Quite dissatisfied	4	
Uncertain	5	
Quite satisfied	22	
Very satisfied	96	
Did not experience	208	

ASK: If connected to the sewerage system:		
31D. Please tell me to what extent are you satisfied/ dissatisfied with: "sewerage maintenance system?"		
Very dissatisfied	5	
Quite dissatisfied	6	
Uncertain	15	
Quite satisfied	22	
Very satisfied	90	
Did not experience	200	

32. Do you buy water from tankers?			
Yes	109	Ask	
		32a	
No	292	Go to	
		38	

ASK: If tankers bought:		
32A. From where do you mainly buy water tankers?		
Private tankers	100	
WAJ tankers	3	
Own tanker	3	
By special arrangement	3	

ASK: If tankers bought:

33. On average, how often do you buy water from tankers per month?

Once a month	40
Twice a month	29
3-4 times a month	17
5-7 times a month	1
8-10 times a month	1
More than 10 times a month	13
Less often	8
Other	0

ASK: If tankers bought:

34. How much do you usually pay for a cubic meter of water from tankers?

Less than JD 1/m ³	4
JD 1/m ³	5
JD 1.5/m ³	20
JD 2/m ³	60
JD 3/m ³	11
More than JD 3/m ³	4
Do not pay (special arrangement)	5
Other	0

ASK: If tankers bought:

35. What quantity of water, in cubic meters, do you usually buy from tankers per month?

Less than 5 m ³	41
5-10 m ³	34
11-20 m ³	8
21-30 m ³	9
31-50 m ³	3
51-100 m ³	6
101-150 m ³	1
151-250 m ³	1
251-350 m ³	3
351-450 m ³	0
More than 451 m ³	3

ASK: If tankers bought:

36A. On a scale of 1 to 5, where 1 means very dissatisfied and 5 means very satisfied, please indicate the degree of satisfaction with the quality of tanker water in terms of "colour?"

Very dissatisfied	5
Dissatisfied	2
Uncertain	6
Satisfied	66
Very satisfied	30

ASK: If tankers bought:

36B. Please indicate the degree of satisfaction with the quality of tanker water in terms of "purity?"

Very dissatisfied	3
Dissatisfied	4
Uncertain	9
Satisfied	67
Very satisfied	26

ASK: If tankers bought:

36C. Please indicate the degree of satisfaction with the quality of tanker water in terms of "taste?"

Very dissatisfied	3
Dissatisfied	3
Uncertain	14
Satisfied	64
Very satisfied	25

ASK: If tankers bought:

36D. Please indicate the degree of satisfaction with the quality of tanker water in terms of "potability?"

Very dissatisfied	5
Dissatisfied	1
Uncertain	15
Satisfied	66
Very satisfied	22

ASK: If tankers bought:

36E. Please indicate the degree of satisfaction with the quality of tanker water in terms of "price?"

Very dissatisfied	14
Dissatisfied	20
Uncertain	7
Satisfied	49
Very satisfied	19

ASK: If tankers bought:

36F. Please indicate the degree of satisfaction with "waiting time" as it relates to water tankers?

Very dissatisfied	4
Dissatisfied	8
Uncertain	2
Satisfied	48
Very satisfied	47

ASK: If tankers bought:

36G. Please indicate the degree of satisfaction with the quality of tanker water in terms of "suitability for your type of business?"

Very dissatisfied	6
Dissatisfied	1
Uncertain	4
Satisfied	51
Very satisfied	47

ASK: If tankers bought:

37. If WAJ provides adequate water of good quality, would you stop buying water from tankers?

Yes	106
No	3

38. Do you buy bottled water?

Yes	45	Ask 39
No	356	Go to 42

ASK: If bottled water bought:

39. On average, how many liters of bottled water do you buy per week?

Less than 5 liters	19
5-9 liters	6
10-15 liters	8
16-22.5 liters	1
23-30 liters	2
31-36 liters	2
37-50 liters	0
More than 51 liters	7

ASK: If bottled water bought:

39A. On average, how much does it cost you to buy bottled water per week?

Less than 1 JD	12
JD 1-1.75	7
JD 1.760-2.900	10
JD 3-4.350	5
JD 4.360-5.800	0
JD 5.810-6.960	0
JD 7-10	1
More than JD 10	10

ASK: If bottled water bought:

40. What do you use the bottled water for?

Cooking	0
Drinking	44
Washing vegetables & fruits	1
Other	3

ASK: If bottled water bought:

41. If you are sure that WAJ would provide adequate water of good quality, would you stop buying bottled water?

Yes	33
No	12

42. Do you have water storage tanks?

Yes	389	Ask 43
No	12	Go to 45

ASK: If tanks available:

43. How many water tanks do you have?

One	169
Two	119
Three	47
Four	23
Five	6
More than five	25

ASK: If tanks available:

44. How many cubic meters do all the tanks total up to?

1 m3 or less	95
2-5 m3	196
6-10 m3	63
11-16 m3	13
17-27 m3	5
28-38 m3	5
39-49 m3	1
50-60 m3	2
61-70 m3	0
71-81 m3	0
82-92 m3	1
93-103 m3	1
More than 103 m3	2
Don't know	5

45. Do you have underground water wells?

Yes	47	Ask 46
No	354	Go to 48

ASK: If underground well available:

46. How many wells do you have?

One	44
Two	3
Three	0
Four or more	0

ASK: If underground well available:

47. How many cubic meters do the wells total up to?

5 m3 or less	3
6-16 m3	12
17-27 m3	6
28-38 m3	6
39-49 m3	2
50-70 m3	4
71-100 m3	2
101-120 m3	1
121-150 m3	1
151-250 m3	0
251-350 m3	0
351-450 m3	1
More than 451 m3	0
Don't know	9

48. Do you collect rainwater in a well?

Yes	14
No	385
By other means	2

48A. For how many days does your storage capacity last?

One day	3
Two days	34
Three days	54
Four days or more	303
No storage facilities	7

49. Do you use the water that you receive from WAJ for... (Read out)?

Drinking	393
Cooking	93
Washing vegetables and fruits	99
In the production-service process	126
Cleaning purposes	392
Washing	76
Irrigation	17
Other	5

50. Do you boil the water that you receive from WAJ?

Yes	24	Ask 51
No	360	Go to 52
Sometimes	17	Ask 51

ASK: If water boiled:

51. What do you use the boiled water for?

Drinking	23
Cooking	12
Washing vegetables and fruits	9
In the production-service process	22
Other	1

52. Do you filter the water that you receive from WAJ?

Yes	46	Ask 53
No	349	Go to 55a
Sometimes	6	Ask 53

ASK: If filter used:

53. What system do you use to filter the water?

Sand filter	19
Activated carbon	13
Reverse osmoses system	5
Ultra violet	0
Other	10
Don't know	6

ASK: If filter used:

54. How much did it cost?

Less than JD 30	19
JD 30-60	9
JD 61-90	3
JD 91-130	1
JD 131-170	0
JD 171-200	1
JD 201-300	1
JD 301-500	0
JD 501-700	0
JD 701-1000	1
JD 1001-1500	0
JD 1501-2000	0
More than JD 2000	2
Don't know	15

ASK: If filter used:

55. What do you use the filtered water for?

Drinking	48
Cooking	8
Washing vegetables and fruits	8
In the production-service process	10
Other	1

55A. Do you have water softeners?

Yes	3	Ask 55b
No	398	Go to 56

ASK: If softener used:

55B. How much did the softener cost you?

Less than JD 1000	0
JD 1001-1500	3
JD 1501-2000	0

56. Do you let tap water settle before using it?

Yes	87
No	232
Sometimes	82

57. How often do you get billed by WAJ for water supply?

Once every 3 months	394
Twice a year	5
Once a year	1
Other	1

58. How often would you like to receive the bills?

Same as I receive them now	290	Go to 60
Monthly	106	Ask 59
Every two months	2	Go to 60
Twice a year	2	Go to 60
Once a year	1	Go to 60
Other	0	Go to 60

ASK: If prefer monthly billing:

59. Do you think that the bill amount per month would be less than the amount paid for each month of billing in the quarterly cycle?

Yes	97
No	9

60. Does the amount you are being billed by WAJ reflect the amount of water you use?		
	Yes	209
	No, I am billed more than I use	145
	No, I am billed less than I use	0
	Don't know	47

61. have you ever complained to WAJ regarding the amount you were billed?		
	Yes	51
	No	350

62. How do you prefer to receive the bills?		
	Delivered to your business by collectors	303
	Sent by mail	95
	Other	3

63. In what manner would you prefer to pay the bills?		
	To collector	125
	To WAJ offices	54
	Through banks	211
	By mail	4
	Other	7

64A. Consumption leve in cm3l:		
	10 or less	136
	11-20	63
	21-30	51
	31-40	32
	41-60	36
	61-80	24
	81-110	14
	111-140	13
	141-200	13
	201-300	5
	301-400	5
	401-600	3
	601-800	4
	801-1000	1
	1001-1500	1
	1501-2000	0
	> 2000	0

64B. In general, how many cubic meters per cycle did you buy from WAJ according to the old tariff system (prior to Oct.1997 or the fourth cycle,1997)?

10 m3 or less	53
11-20 m3	15
21-30 m3	6
31-40 m3	3
41-60 m3	3
61-80 m3	1
81-110 m3	1
111-140 m3	1
141-200 m3	3
201-300 m3	1
301-400 m3	0
401-600 m3	0
601-800 m3	1
801-1000 m3	1
1001-1500 m3	0
1501-2000 m3	0
More than 2000 m3	1
Don't know	298
Not applicable	13

65. In general, do you know how much you were paying for water services per cycle (every 3 months) according to the old tariff system?

Yes	229	Ask 66
No	172	Go to 67

ASK: If amount known:

66. Please specify the amount you were paying?

JD 5 or less	84
JD 6-10	37
JD 11-15	23
JD 16-20	14
JD 21-30	16
JD 31-40	12
JD 41-60	15
JD 61-80	8
JD 81-100	7
JD 101-130	1
JD 131-160	2
JD 161-200	2
JD 201-300	3
JD 301-500	1
JD 501-700	1
JD 701-1000	2
More than JD 1000	1

67. Are you aware that there is a new tariff system implemented by WAJ as of October 1997 or 4th quarter 1997?			
	Yes	168	Ask 68
	No	233	Go to 69

ASK: If aware of new tariff:

68. What is the tariff system?		
	Increasing block system	4
	Linear increase	24
	Unified price for non-residential	106
	Flat system	30
	Other	4

69. How many cubic meters per cycle do you buy from WAJ according to the current tariff system?		
	10 m3 or less	69
	11-20 m3	33
	21-30 m3	17
	31-40 m3	8
	41-60 m3	11
	61-80 m3	13
	81-110 m3	4
	111-140 m3	3
	141-200 m3	3
	201-300 m3	0
	301-400 m3	1
	401-600 m3	1
	601-800 m3	4
	801-1000 m3	0
	1001-1500 m3	0
	1501-2000 m3	1
	More than 2000 m3	1
	Don't know	217
	Not applicable	15

70. How much do you pay for your water bill per cycle (every 3 months) according to the current tariff?		
	JD 5 or less	37
	JD 6-10	84
	JD 11-15	16
	JD 16-20	22
	JD 21-30	45
	JD 31-40	41
	JD 41-60	40
	JD 61-80	26
	JD 81-100	18
	JD 101-130	19
	JD 131-160	9
	JD 161-200	10
	JD 201-300	16
	JD 301-500	8
	JD 501-700	1
	JD 701-1000	2
	More than JD 1000	7

71. Concerning your water bill, what is the difference in the amount you paid between the old and the current systems for the same quantity?		
	Less than JD 5	148
	JD 5-10	81
	JD 11-20	56
	JD 21-30	39
	JD 31-50	33
	JD 51-100	23
	JD 101-150	9
	JD 151-200	6
	JD 201-300	2
	JD 301-500	0
	JD 501-700	3
	JD 701-1000	1
	More than JD 1000	0

71A. How much does your water bill constitute from your production cost?		
	Less than 1%	38
	1%-1.5%	27
	1.6%-2.5%	29
	More than 2.5%	22
	Not applicable	280
	Refused to answer	5

71B. How much does your water bill constitute from your overall cost?		
	Less than 1%	244
	1%-1.5%	73
	1.6%-2.5%	46
	More than 2.5%	23
	Refused to answer	15

72. To what extent do you support or oppose the current tariff system?		
	Strongly oppose	71
	Oppose	199
	Uncertain	90
	Support	40
	Strongly support	1

73. What is your opinion about the price of WAJ water supply according to the current tariff system?		
	Very high	73
	High	234
	Fair	69
	Low	0
	Very low	0
	Don't know	25

74. Will you charge your customers extra money to cover the expenses of the current tariff rate?		
	Yes	52
	No	218
	Don't know/ Not applicable	131

75. With the current increase in the tariff system, is it more affordable for you to buy tankers' water?		
	Yes	73
	No	230
	Only at times (depending on the season)	98

76. Do you think that WAJ will be collecting more money from the current tariff system than it did from the previous system?		
	Yes	290
	No	12
	Don't know	99

77. For what purpose do you think WAJ will be using the revenue it is receiving from the current system?		
	To repair networks	145
	To explore new resources	156
	To cover its operational and maintenance costs	27
	To cover its capital costs	15
	To cover its financial deficit	66
	Build new dams	89
	Increase salaries	34
	Buy new treatment plants	42
	Don't know	111
	Other	9

78. What do you expect to receive in return for this current tariff system?		
	Improved quality of water	138
	More frequent supply	100
	Adequate responsiveness to complaints	11
	Better distribution of water	86
	Exploitation of new resources	85
	Repair of pipes	31
	Training of employees	7
	Nothing	168
	Other	6

79A. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "improved water quality"?		
	1- not willing at all	188
	2	76
	3	41
	4	55
	5 - very willing	17
	Not applicable	24

79B. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "more frequent water supply"?		
	1- not willing at all	188
	2	76
	3	42
	4	55
	5 - very willing	16
	Not applicable	24

79C. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "consistent schedule of supply"?		
	1- not willing at all	181
	2	86
	3	45
	4	46
	5 - very willing	19
	Not applicable	24

79D. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "adequate responsiveness to complaints"?		
	1- not willing at all	156
	2	126
	3	32
	4	23
	5 - very willing	40
	Not applicable	24

79E. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "prevention of future water shortages"?		
1- not willing at all	118	
2	137	
3	45	
4	21	
5 - very willing	56	
Not applicable	24	

79F. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "improved service"?		
1- not willing at all	127	
2	147	
3	43	
4	17	
5 - very willing	43	
Not applicable	24	

79G. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "more frequent billing (e.g. monthly)"?		
1- not willing at all	148	
2	148	
3	30	
4	10	
5 - very willing	41	
Not applicable	24	

79H. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "management of water by private company"?		
1- not willing at all	153	
2	135	
3	28	
4	16	
5 - very willing	45	
Not applicable	24	

79I. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "repair of pipes"?		
1- not willing at all	160	
2	124	
3	28	
4	22	
5 - very willing	43	
Not applicable	24	

79J. On a scale of 1 to 5, where 1 means not willing at all and 5 means very willing, to what extent would you be willing to pay more in the future in return of "training of employees"?		
1- not willing at all	176	
2	125	
3	26	
4	18	
5 - very willing	32	
Not applicable	24	

ASK: If willing to pay more for any service:

80. On average, how much more are you willing to pay on your bill?		
Less than JD 5	105	
JD 5-10	23	
JD 11-20	1	
JD 21-30	0	
JD 31-50	1	
JD 51-100	0	
JD 101-150	0	
JD 151-250	0	
JD 251-300	0	
JD 301-500	0	
More than JD 501	0	

ASK: If not willing to pay more for any service:

81. Is your unwillingness to pay more due to...:		
Lack of support to WAJ	31	
Financial incapability	123	
Water supply is adequate	101	
Mistrust of the Authority	45	
Water is an inherent right	160	
Price is already high	19	
Other	17	

82. Regardless whether you are willing or unwilling to pay more, how much more are you able to pay on the current bill?		
Less than JD 5	119	
JD 5-10	26	
JD 11-20	1	
JD 21-30	1	
JD 31-50	1	
JD 51-100	0	
JD 101-150	0	
JD 151-250	0	
JD 251-300	0	
JD 301-500	0	
More than JD 501	0	
Nothing	229	
Not applicable	24	

83A. Will you be willing to pay more if WAJ were to increase the current tariff system in the future?		
	Yes	99
	No	278
	Not applicable	24

83B. Will you be able to pay more if WAJ were to increase the current tariff system in the future?		
	Yes	118
	No	259
	Not applicable	24

84A. What would you do if the water bill is increased to an extent beyond your ability to pay?		
	Disconnect meter	61
	Make deals with tankers	130
	Connect a hose to the pipes before the meter	6
	Re-allocate the business budget to cover new tariff	39
	Reduce consumption	122
	Tamper with the system (meter)	4
	Complain to WAJ	124
		Ask 84b
	Other	9
	Not applicable	24

ASK: If complain to WAJ:

84B. If complaint does not work, then what will you do?		
	Disconnect meter	65
	Make deals with tankers	53
	Connect a hose to the pipes before the meter	2
	Re-allocate the business budget to cover new tariff	18
	Reduce consumption	15
	Tamper with the system (meter)	3
	Other	5

85. What would you do if the water bill is increased to an extent that you believe to be unjustified?		
	Disconnect meter	129
	Make deals with tankers	159
	Connect a hose to the pipes before the meter	6
	Re-allocate the business budget to cover new tariff	16
	Reduce consumption	42
	Tamper with the system (meter)	5
	Complain to WAJ	145
	Nothing	0
	Other	7
	Not applicable	24

86. Are you aware that there is a separate tariff system for wastewater?			
	Yes	215	Ask 87
	No	123	Ask 87
	Not connected	63	Go to 88

ASK: If connected:

87. Have you noticed a difference in your wastewater bill between the old and the current one?		
	Yes	159
	No	179

88. What is the best communication medium to be used by WAJ to further inform you about the current tariff system?		
	TV	375
	Radio	132
	Newspapers	201
	Leaflets	27
	On the back of the bill	0
	Other	2

89. What, in your opinion, would be the most informative technique to be used by WAJ to inform subscribers about the current tariff system?		
	Panel discussions with officials	241
	Statement by an official	148
	Commercial ad	165
	Articles in newspapers & magazines	194
	Leaflets with the bills	20
	Other	3

90. Do you know of any plans to involve the private sector in the operation and maintenance of water in Amman?		
	Yes	138
	No	228
	Not sure	35

90A. Are you in favour or against the involvement of the private sector?		
	In favour	231
	Against	83
	Don't know	38
	Don't care	49

91. If the water supply was to be managed by a private company, which of these types of organizations do you think it should be managed by? (Read out)		
A Jordanian company	160	
A non-Jordanian Arab company	15	
A non-Arab company	24	
A joint venture between Jordanian and Arab companies	64	
A joint venture between Jordanian and foreign companies	129	
Other	9	

92. Are you in favour or against the involvement of a foreign company (French) in operating and maintaining the water system in Amman?			
In favour	198	Go to 94	
Against	146	Ask 93	
Don't know	35	Go to 95	
Don't care	22	Go to 95	

ASK: If against:

93. Please specify the reasons why you are against:		
Water will be more expensive	88	
Revenues will migrate	21	
Quality and service will not improve	11	
Skilled Jordanian workers can do the job	58	
Water is a national security issue and must be handled by local authority	54	
Do not trust foreign companies	44	
Other	3	

ASK: If in favour:

94. Please specify the reasons why you are in favour:		
Provide better water quality	86	
Provide better water services	64	
Any other operator is better than WAJ	22	
More advanced/experienced	153	
More credible	22	
Other	9	

95. In your opinion, what were the reasons behind the recent water crisis (that started last July) in Amman?		
Poor WAJ performance	181	
Poor filtration technology	86	
Conspiracy between tank owners and government officials	4	
Poor agreement between Israel and Jordan	166	
Dirty water from the source	277	
Don't know	19	
Other	19	

96. Did you buy tanker water during the crisis?

Yes	193	Ask 97
No	208	Go to 98

ASK: If tankers bought:

97. In your estimate, how much did you pay in total for tankers during the crisis?

JD 20 or less	32
JD 21-50	62
JD 51-70	24
JD 71-100	30
JD 101-150	8
JD 151-200	15
JD 201-250	3
JD 251-350	5
JD 351-450	3
JD 451-600	3
JD 601-750	3
JD 751-1000	1
JD 1001-2000	0
JD 2001-3000	0
JD 3001-4000	2
JD 4001-5000	0
More than JD 5001	2

98. Did you buy bottled water during the crisis?

Yes	94	Ask 99
No	307	Go to 101

ASK: If bottled water bought:

99. In your estimate, how much did you pay in total for bottled water during the crisis?

JD 20 or less	51
JD 21-50	22
JD 51-100	15
JD 101-200	2
JD 201-300	2
JD 301-500	1
JD 501-700	1
JD 701-1000	0
More than JD 1000	0

ASK: If bottled water bought:

100. Are you still using bottled water even after the crisis?

Yes	38
No	56

101. Did you continue to use WAJ water during the crisis?	Yes	393	
	No	8	
102. Did you do anything to treat WAJ water during the crisis?	Boil	53	Ask 103
	Filter	54	Ask 103
	Other	6	Ask 103
	Nothing	292	Go to 104
ASK: If treated water:			
103. Are you still doing that?	Yes	59	
	No	50	
104. Do you think the crisis is over?	Yes	261	
	No	69	
	Don't know	71	
105. Do you think the crisis will happen again?	Yes	152	
	No	161	
	Don't know	88	
106A. Do you think that the crisis would have happened if a private operator was in charge?	Yes	99	
	No	178	
	Don't know	124	
106B. Does the crisis justify the take-over of water management by a private operator?	Yes	138	
	No	155	
	Don't know	108	
107. Did the crisis have any serious effects on your business?	Yes	164	
	No	237	
D1. Years in business:	Less than 1 year	0	
	1 year	8	
	2 years	22	
	3 years	31	
	4-5 years	73	
	6-7 years	75	
	8-9 years	45	
	10 years or more	147	

D2. Size of business in terms of number of employees:

Less than 10	319
10-15	38
16-20	18
21-25	3
26-30	3
31-40	4
41-50	4
51-70	5
71-90	2
91-110	0
111-130	0
131-150	0
More than 150	5

D3. If applicable, turnover per year:

Less than JD 50,000	137
JD 50,000-100,000	6
JD 100,001-150,000	0
JD 150,001-200,000	0
JD 200,001-300,000	0
JD 300,001-400,000	1
JD 400,001-600,000	0
JD 600,001-800,000	0
JD 800,001-1,000,000	0
JD 1,000,001-1,500,000	0
JD 1,500,001-2,000,000	1
JD 2,000,001-3,000,000	0
More than JD 3 million	5
Refused to answer	216
Not applicable	35

Al Rawabi	5
Al Rawnaq	3
Al Sahel	1
Al Sina'a	8
Al Snobar	1
Al Sweifieh	11
Bilal	1
Zibdeh	1
Al Basha'er	2
Al Hay Al Sharqi	2
Al Rahmanieh	1
Al Fadeeleh	5
Al Kamalieh	3
Maysaloun	1
Um Summaq	2
Tla'a Al Shamali	8
Al Salam	6
Al Salheen	3
Barakeh	5
Tla'a Al Sharqi	7
Khilda	0
Al Baladieh	3
Al Jama'a	1
Al Rasheed	3
Al Zaitouneh	1
Al Sideeq	1
Qatana	3
Theibeh	1
Al Mourouj	1
Al Muwahideen	1
Iskan Abu Nseir	0
Zboud/Seil Hisban	1
Na'our	5
Al 'Abdalieh	1
Eirmeidan	1
Al Khashafieh	1
Sahab	3
Al Faisalieh	1
Al Muwaqar	1
Tneib	1
Al Lubban	1
Um El 'Amad	1
Al Qastal	6
Al Jizeh/Al Talbieh	7
Al Samek	2
Marj Al Hamam	2
Iskan Al Thubat	2

D4. Sub-area

Hamranieh	1
Thra'a	3
Hilal	1
Al Akhdar	6
Um Uthina	6
Diyar	1
Radwan	4
Jabal Amman	17
Abdoun	1
Shmeisani	15
Al Madineh Al Riyadieh	2
Jabal Al Hussein	24
Jabal el Weibdeh	18
Al Shaheed	3
Tabarbour	2
Al Rihan	1
Al 'Awdeh	9
Jabal Al Ashrafieh	6
Yarmouk	1
Jweideh	1
Al Raqem	1
Al Qweismeh	12
Al Ma'adi	4
Al Maghaba	3
al Nahariah	7
Hiteen	2
Jawa/Khreibet El Souk	2
Yadoudeh	2
Al Bnayat	1
Al Husseinieh	1
Al Yasmeen	1
Al Mqabalein	3
Al Rawdah	2
Jabal Al Natheef	5
Al Zhouh	7
Jabal Al Jofeh	1
Al Rjoum	6
Al 'Adlieh	2
Al Qala'a	8
Al Mudaraj	5
Al Maqar	2
Al Muhajireen	2
Wadi El Srouh	9
Al Jurun	1
Al Qusour	1
Al Hashimi	5
Al Nuzha	6
Raghadan	1
Al Zahra'a	12
Al Msheirfeh	1
Al Matar	6
Hamzeh	13
Abu 'Alanda	1
Al Ameer Hassan	1
Al Amira Alia	1
Al Rabweh	1
Al Manara	1

D5. Area

Bader	11
Zahran	29
Al 'Abdali	59
Tareq	5
Yarmouk	17
Qweismeh	30
Jawa	4
Um Qseir	6
Ras El Ein	14
Al Madineh	35
Basman	14
Marka	33
Al Nasser	12
Wadi El Seir	34
Bader Al Jadideh	2
Sweileh	14
Tla'a Al 'Ali	31
Jubeiha	12
Shafa Badran	3
Abu Nseir	0
Na'our	6
Sahab	6
Al Muwaqar	2
Al Jizeh	18
Marj Al Hamam	4

D6. Type of establishment:

Retail shop	93
Office/Company management	84
Skilled labour	30
Farm/Country house	20
Nursery garden	3
Hotel	14
Coffee shop/Restaurant	34
Factory	22
Beauty salon	10
Clinic	11
Mosque	6
Fitness center	5
Car wash/Petrol station	7
Bank	5
Warehouse	4
Directorate	4
Brick factory	5
Stone cutting factory	1
Community college/School	7
Educational institute	3
Housing	3
Community center	4
Health center	4
Hospital	1
Laboratory	1
Public park	2
Bakery	3
Nursery school	2
Slaughterhouse	1
Workshop	5
Other	7

D7. Sector:

Commercial	343
Industrial	28
Institutional	30