



UNIVERSITI PUTRA MALAYSIA

***ASSESSMENT OF WILLINGNESS TO PAY FOR DRINKING WATER
QUALITY IMPROVEMENT AND SUPPLY SERVICES AMONG
HOUSEHOLDS IN DAMATURU, NIGERIA***

SULEIMAN ALHAJI DAUDA

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By

SULEIMAN ALHAJI DAUDA

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
Fulfilment of the Requirement for the Degree of Master of Science**

January 2013

DEDICATION

**This work is dedicated to my Mother
Hajiya Aishatu Bint Liman Baitul Mal**



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Abstract of the thesis Submitted to the Senate of Universiti Putra Malaysia in Fulfilment
of the Requirement for the Degree of Master of Science

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January 2013

Chairman: Mohd Rusli Bin Yacob, Phd

Faculty: Economics and Management

Water is a fundamental need; all ecosystems including human being depend largely on availability of water, both in high quality and sustainable supply. Improved quality drinking water has the ability to improve our standard of living, reduces mortality rates and morbidity associated with water borne diseases. Damaturu have witnessed unprecedented increase in population due to its new status when made the capital of Yobe State in 1991. Provision of safe drinking water thus, became inadequate and a matter of serious concern, this led to prevalence of water borne diseases like diarrhea and other gastro intestinal disorder. Yobe State has embarked on the construction of “Yobe regional water supply project” which promises 100% access to portable water to Damaturu. The general objective of the study is to determine households’ willingness to pay for an improved quality drinking water. Choice experiment approach was used, and four attributes of drinking water quality were identified namely; tap water quality

(TWQ), Tap water supply (TWS) tap water pressure (TWP) and Price. Random sample of 300 respondents were surveyed in- person. Conditional logit model (CLM), mixed logit model (MLM) and latent class logit model (LCM) were analyzed and interpreted. Discussion was made on the estimates obtained from the three models to find out households' marginal willingness to pay and to assess household demand preferences on heterogeneous tap water attributes. TWQ3 is the most consistently valued among other attributes, in simple and interaction CLM mean WTP stood at 220% and 126%. While, in simple and interaction MLM mean WTP stood at 682% and 572%, but the mean WTP for LCM class1 and 2 unconditional stood at 190% and 126% conditional LCM for class1 and 2 is 152% and 120% respectively. TWS and TWP were equally valued. Respondents with higher level of education indicate high willingness to pay. Identifying the mix of attributes and their prices based on respondents' drinking water demand preferences, would help policy makers to know and provides households with a preferred and affordable drinking water which would, facilitates effective tariff structure for cost recovery and sustainability.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

**PENILAIAN KE ATAS KESEDIAAN MEMBAYAR PENINGKATAN KUALITI
DAN PERKHIDMATAN BEKALAN AIR MINUMAN DIKALANGAN
PENDUDUK DAMATURU, NIGERIA**

Oleh

SULEIMAN ALHAJI DAUDA

Januari 2013

Pengerusi: Mohd Rusli Yacob, Phd

Fakulti: Ekonomi dan Pengurusan

Air adalah keperluan asas manusia, kewujudan manusia dan kewujudan ekosistem lain banyak bergantung kepada air yang sedia ada, dengan kualiti yang tinggi dan pembekalan yang berkekalan. Penambahbaikan kualiti air minuman dilihat mempunyai keupayaan untuk meningkatkan taraf hidup kita, mengurangkan kadar kematian dan morbiditi yang dikaitkan dengan penyakit bawaan air. Damaturu telah menyaksikan peningkatan yang luar biasa dalam populasi berikutan status barunya semasa berada di ibu kota Negeri Yobe pada tahun 1991. Peruntukan bagi air minuman yang bersih itu, telah menjadi tidak mencukupi dan perkara yang membimbangkan yang mana telah membawa kepada penularan penyakit bawaan air seperti cirit-birit dan lain-lain gangguan gastro usus. Negeri Yobe telah melaksanakan satu pembinaan

" projek bekalan air wilayah Yobe " yang menjanjikan akses 100% kepada air mudah alih untuk Damaturu. Objektif umum kajian ini adalah untuk menentukan kesanggupan membayar isi rumah untuk kualiti air minuman. Pendekatan Pilihan Eksperimen (CE)

telah digunakan, dan empat sifat-sifat kualiti air minuman telah dikenal pasti iaitu; kualiti air paip (TWQ), bekalan air paip (TWS) tekanan air paip (TWP) dan harga. Sampel rawak terdiri daripada 300 responden telah dikaji selidik secara peribadi. Model logit Bersyarat (CLM), model logit bercampur (MLM) dan model logit kelas terpendam (GSTK) telah dianalisis dan ditafsirkan. Perbincangan telah dibuat ke atas anggaran yang diperolehi daripada tiga model untuk mengetahui marginal kesanggupan membayar isi rumah dan untuk menilai keutamaan permintaan isi rumah ke atas heteroginiti sifat-sifat air paip. TWQ3 adalah nilai yang paling konsisten di antara sifat-sifat lain dalam CLM yang ringkas dan interaksi purata WTP berada pada paras 220% dan 126%. Sementara itu, dalam MLM mudah dan interaksi purata WTP berada pada paras 682% dan 572%, tetapi purata WTP LCM class1 dan 2 tidak bersyarat berada pada paras 190% dan 126%, LCM bersyarat bagi class1 dan 2 adalah 152% dan 120% masing-masing. TWS dan TWP adalah sama penting. Responden yang mempunyai tahap pendidikan yang lebih tinggi menunjukkan kesanggupan yang tinggi untuk membayar. Dengan mengenal pasti gabungan sifat dan harga berdasarkan keutamaan permintaan air responden dapat membantu penggubal polisi untuk mengetahui dan menyediakan isi rumah dengan air minuman yang di gemari dan berpatutan yang mana akan memudahkan struktur tarif yang efektif untuk kso pemulihan dan kelestarian.

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I certify that a Thesis Examination Committee has met on (21st January 2013) to conduct the final examination of (Suleiman, Alhaji Dauda) on his thesis entitled " **Assessment of Willingness to Pay For Drinking Water Quality Improvement and Supply Services among Households in Damaturu, Nigeria**" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the (Master of Science).

Members of the Examinations committee were as follows:

Khalid Abd. Rahim, PhD

Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Chairman)

Mad Nasir Shamsudin, PhD

Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Internal Examiner)

Shaufique Fahmi bin Ahmad Sidique, PhD

Senior Lecturer
Faculty of Economics and Management
Universiti Putra Malaysia
(Internal Examiner)

Abu Hassan Md Isah, PhD

Professor
Faculty of Economics and Business
Universiti Malaysia Sarawak
(External Examiner)

SEOW HENG FONG, PhD

Professor and Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

This thesis submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

Mohd Rusli Bin Yacob, PhD

Senior Lecturer

Faculty of Economics and Management

Universiti Putra Malaysia

(Chairman)

Alias Bin Radam, PhD

Associate Professor

Faculty of Economics and Management

Universiti Putra Malaysia

(Member)

BUJANG BIN KIM HUAT, PhD

Professor and Dean

School of Graduate Studies

Universiti Putra Malaysia

Date:

DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously and is not concurrently, submitted for any degree at Universiti Putra Malaysia or other institutions.

SULEIMAN ALHAJI DAUDA

Date: 21st January, 2013

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