DATA BASE DESCRIPTION
1991, 1994, 1996, 1999 and 2001
MUNICIPAL WATER PRICING DATABASES

The Municipal Water Pricing Databases (MUP) are designed to present some basic municipal water and wastewater pricing statistics from Canadian municipalities. The data is in SPSS (9.0.1), ASCII or Excel (95) form, but can be exported to others. The data is also coded by several spatial identifiers (S.G.C., Hydrometric Codes, and most include latitude and longitude of their municipal town hall as well). This allows consistency with both the Municipal Water Use Databases (MUD) as well as with previous water pricing data from 1983, 1986, and 1989, and also allows for other applications with the data.

Some municipality-specific data from the MUD databases (population served, average daily flows, water user groups, etc.) has been added to the spreadsheet, however the user must be cautioned to beware of possible double-counting when using residential/commercial, or multiple rate (i.e. residential flat/metered) comparisons. The 'rratio' and 'assratio' fractional ratio multiplier variables have been created to eliminate this duplication (for residential rates and assessed residential, respectively), and have been used to create non-dupe variables of many of these (end in 'nd', and usually immediately follow the parent variable).

All Canadian municipalities over 1000 population were directly contacted by the letter survey, and most non- respondents were resurveyed by telephone and/or letter. The 1996 and earlier surveys do not include any municipalities of less than 1000 population, although rates for small areas (if over 200 population) are included if they are parts of surveyed municipalities.

The data have been reviewed for accuracy, and will be summarised in an upcoming report, which will update and improve upon similar reports from 1991 and earlier. All prices are in the dollars of the survey year in question. Should you have any questions, or problems with this data, please contact:

Sustainable Water Management Division
Environment Canada
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http://www.ec.gc.ca/water/en/info/misc/e_data.htm

Canada

**Data Descriptions for Municipal
Water Pricing Databases (MUP)**

Definitions;

The definitions, and basic data parameters for each column of the database are presented below in a "Column/Name Criteria" format:

ID – to be used as a key variable when working with the database. Note that these do not necessarily match up between the databases for different survey years.

HYDROMET – Hydrometric Area - as defined by Environment Canada, Water Survey of Canada. (alpha-numeric/ hierarchical)

GEOCOD91 – 1991 Standard Geographic Code - as defined by Statistics Canada. Length: Seven digits; Province (2digit), Census Division (2digit), Census Subdivision (3digit).

MUNICIPA – Municipality - as listed by Statistics Canada. The population cut-off is at 1000 for most of the databases. (Individual municipal water/wastewater systems within municipal areas are entered if they serve more than 200 people.) Most rural areas such as, Townships or Parishes are not included. (Exception to preceding; some parts of Census Metropolitan Areas (CMA's), or Census Agglomerations (CA's) with populations in excess of 1000 are included, see note at end.) When a municipal population has fallen below 1000, the municipal name is enclosed in brackets for one survey update. In some cases old municipal names (in brackets) may follow new names to reduce confusion. In the municipal water pricing database, separate area names (in brackets) identify areas within municipalities with differing water rates. The database does not list unincorporated areas as municipalities.

UPDATED – Date Revised, most recent revision.

MUNPOP# – (# = survey year) Present Total Municipal Population - from the municipality, may not agree with the most recent census. This variable has duplication of values.

POP_ND – Present Total Municipal Population, NON-DUPE - from the municipality, may not agree with the most recent census. This variable may be totalled as required, without duplication of values.

CMA_CA – C.M.A., C.A. Codes - Census Metropolitan, or Census Agglomeration area codes, as defined by Statistic Canada.

PROV – The province or territory of Canada, with the North West Territories including Nunavut in the 1999 MUP survey database. Numeric codes are:

> 10 = Newfoundland
> 11 = Prince Edward Island
> 12 = Nova Scotia
> 13 = New Brunswick
> 24 = Quebec
> 35 = Ontario
> 46 = Manitoba
> 47 = Saskatchewan
> 48 = Alberta
> 59 = British Columbia
> 60 = Yukon
> 61 = North West Territories (& Nunavut in 1999 database)

SIZE_GRP – Size Group Code - groups are:

> 1 = (less than 1000 population)
> 2 = population 1000-1999
> 3 = population 2000-4999
> 4 = population 5000-49,999
> 5 = population 50,000-499,999, and
> 6 = population 500,000 plus.

(A few "declining" municipalities with populations less than 1000 are retained as size group "1" in the interest of consistency across survey years).

POP96 – 1996 population - from Statistics Canada Census. (only in 96 & 99 databases)

POP91 – 1991 population - as above.

POP86 – 1986 population - as above.

POP81 – 1981 Population - as above.

POP76 – 1976 Population - as above.

POP71 – 1971 Population - as above.

POP_SV_W – Population Served, Water - population in the municipality served by any water system. Does not include population external to the municipality. Does not include private individual groundwater supplies. This variable has duplication of values.

R_P_W_ND – Residential Population Served Water, Non-Dupe. Created using

above variable. This variable may be totalled as required, without duplication of values.

POP_SV_S – Population Served, Sewers - population in the municipality served by any sewer system. Does not include population external to the municipality . (In Northern Canada, includes municipal pumpouts.). This variable has duplication of values.

R_P_S_ND – Residential Population Served Sewers, Non-Dupe. Created using above variable. This variable may be totalled as required, without duplication of values.

PP_SV_ST – Population Served, Sewage Treatment - population in the municipality served by any type of sewage treatment. Does not include population external to the municipality. Does not include private individual septic tanks, and/or tile fields. This variable has duplication of values.

RP_ST_ND – Residential Population Served Sewage Treatment, Non-Dupe. Created using above variable. This variable may be totalled as required, without duplication of values.

ADF_WTR – Average Daily Flow (A.D.F.) Water - in the municipality from all sources, in cubic metres per day. Does not include water provided to other municipalities. This variable has duplication of values.

ADFW_ND – Average Daily Flow (A.D.F.) Water, Non-Dupe, in cubic metres per day. Created using above variable. This variable may be totalled as required, without duplication of values.

MDF_WTR — Maximum Daily Flow (M.D.F.) Water - non additive value of the flow on the maximum day. In cubic metres. In the case of a municipality supplying water to other areas, this is the total for all areas. The actual day will also vary for different municipalities. Non-additive for these two reasons. New in 1996 survey. This variable has duplication of values. (variable in 1996 database only)

ADF_TSEW – Average Daily Flow (A.D.F.) treated Sewage - includes only the sewage from the municipality. In cubic metres per day. Includes only the volume of sewage which receives treatment. Due to the difficulties of sewage metering, and a general lack of volume detail on the part of some municipalities, this value has been estimated in some cases. This variable has duplication of values.

ADFTS_ND – Average Daily Flow (A.D.F.) treated sewage, Non-Dupe - in cubic metres per day. Created using above variable. This variable may be totalled as required, without duplication of values.

RES_METR – Degree of domestic water metering, as a fractional percentage of the population served. Where blank, there is no response or no municipal water system. This variable has duplication of values.

R_MET_ND – Residential (domestic) Population with water metering, Non-Dupe. Created using above variable. This variable may be totalled as required, without duplication of values.

RES_RATE – Residential or Domestic Rate type - FLAT, Declining Block Rate (DBR), Constant Unit Charge (CUC), Increasing Block Rate (IBR) or Complex (COMP). All others are blank; due to non-response, not applicable (assessment or no water system) or are commercial rates.

OFRESRAT – Of " " Residential Rates - This is the number of residential rates in the municipality. It was created in order to create the rratio and assratio, and can be of use otherwise.

RRATIO – Residential Ratio - is technically the sum of the fractions of the populations served with the various residential rate structures in each responding municipality. These may not total one for some responding municipalities - those where an assessment-based pricing structure exists as one of several pricing methods. Division between multiple residential rate structures was done using the percent metered for volume-based and flat, or was divided evenly otherwise. Assessed were assumed to be non-metered (where possible) for such calculations. This variable can be multiplied by the population or flow variables in order to eliminate the duplication found in those variables, as applied to municipal rate structures (will not include assessed populations or flows - please use the assratio variable for determining those). Note that this rratio variable has already been applied to most population and flow variables in the databases. The resulting variables end with 'nd' (for non-dupe) and usually immediately follow the parent variables. This variable does not apply to commercial rate structures, and one cannot be created for such since the metering, numbers of customers and populations served for those are not part of these databases.

VOL_MET – Is the fraction of the residential population or flow... that is charged with a volume-based rate and are metered. (variable not in 1991 database)

VOL_NMET – Is the fraction of the residential population or flow... that is charged with a volume-based rate and are not metered. This is a small fraction, and is needed for technical reasons, although volume-based rates may theoretically not meter every household. The percent of the populations that are metered do not necessarily equal the populations that are charged with volume-based rate-structures (CUC, DBR,IBR or COMP) as a result. (variable not in 1991 database)

FLAT_MET – Is the fraction of the residential population or flow... that is charged with a flat rate and are metered. This is a small fraction, and is needed for technical reasons, although flat rates may theoretically have metering for some households in order to monitor flows for other reasons, or during a change-over to volume-based rates. The percent of the populations that are not metered do not necessarily equal the populations that are charged with flat rate-structures as a result. (variable not in 1991 database)

FLT_NMET – Is the fraction of the residential population or flow... that is charged with a flat rate and are not metered. The vast majority of flat rate-charged residential population are not metered, as metering is not needed to charge flat rates. (variable not in 1991 database)

DOMESTIC – Water Use, Domestic - a municipal estimate of the total A.D.F. used for domestic purposes. In cubic metres per day. This variable has duplication of values.

DOM_ND – Water Use, Domestic, Non-Dupe - a municipal estimate of the total A.D.F. used for domestic purposes. In cubic metres per day. This variable may be totalled as required, without duplication of values.

COM_INST – Water Use, Commercial & Institutional - a municipal estimate of the total A.D.F. used for commercial or institutional purposes. In cubic metres per day. This variable has duplication of values.

INDUSTRI – Water Use, Industrial - a municipal estimate of the total A.D.F. used for industrial purposes. In cubic metres per day. This variable has duplication of values.

OTHR_USE – Water Use, Other - a municipal estimate of the total A.D.F. used for other purposes. In cubic metres per day. Includes system losses, and unaccounted. In 1994, 1991 and earlier surveys, includes all flows from municipalities that were unable to estimate the preceding user classes. Note, this value is believed to be often under-reported. This variable has duplication of values.

GRND_POP – Groundwater Only - the population in the municipality, which is served exclusively by municipal groundwater (wells) system(s). Does not include private individual wells. This variable has duplication of values.

COMB_POP – Combined Surface & Groundwater - as above, but includes some surface (lake, river, etc.) supply also feeding into the municipal system. (All remaining serviced population is thus serviced exclusively by surface sources.). See also Note 2 at end. This variable has duplication of values.

GRND_ADF – Groundwater Only, A.D.F. The Average Daily Flow for the "Groundwater Only" criteria above. This variable has duplication of values.

COMB_ADF – Combined Surface and Groundwater, A.D.F. As above. This variable has duplication of values.

R_C – Rate indicator - Residential (R), Commercial (C), Non Respondent (N.R.), or No Water System.

RATE_TYP – Rate type - FLAT, Declining Block Rate (DBR), Constant Unit Charge (CUC), Increasing Block Rate (IBR), Complex (COMP), Non Respondent (N.R.), or Not Applicable (N.A.).

ASSESS – Assessment/No Water Used. An indicator if the rate is based solely on municipal property assessments, or if there is no municipal system. Pricing data for systems serving less than 200 population was generally not entered.

CUC – Constant Unit Price - Price for one cubic metre.

BLOCK1 – First Block Price - Price for one cubic metre at the first (i.e. lowest use) priced block.

LASTBLOK – Last Block Price - as above.

NUM_BLO – Number of Blocks - Excludes any flat rate/minimum (i.e. non unit priced) block.

UPPER1 – Upper Limit, First Block - In cubic metres per month.

LOWLAST – Lower Limit, Last Block - as above.

MIN_METR – Minimum Monthly Meter/Sewer Charge - Any flat rate/minimum block charge. Includes (if applicable) a 3/4 inch residential meter charge, or a 1 inch commercial meter charge. Includes "flat sewer charge", see FLAT_SEW.

VOL_MIN – Volume Included in Minimum Charge - In cubic metres per month.

SEW_PCNT – % Sewer Charge - The percentage of all monthly price information derived from a sewer surcharge component. For example 33% means that one-third of the Derived Residential Charges (see below) were used to pay for sewage. In the cases of block rate sewer charges, the lowest block rate was used.

FLAT_SEW – Flat Sewer Charge - The monthly price of any flat sewer charges (or "minimum sewer charge"). Note: this value is also included in the "minimum monthly meter/sewer charge", see MIN_METR.

BOD – B.O.D. Criteria - A "Y"es/blank response as to whether the municipality has any type of regular charge based on direct effluent monitoring. These charges usually apply to one (or a few) specific industrial users, and can be very complex, with B.O.D. being only one component.

R10_TOT, R10_AVG, R10_MAR ... to **R35_MAR** – Derived Residential Charges - Series of derived residential charges (total, average, and marginal) at 10, 25 and 35 cubic meters per month including all minimum charges.

C10_TOT, C10_AVG, C10_MAR ... to **C100_MAR** – Derived Commercial Charges - Series of derived commercial charges, at 10, 35 and 100 cubic meters per month.

LATITUDE and **LONGITUDE** – Latitude and Longitude for each municipality.

Source is usually "Gazetteer of Canada", thus representing the 'town hall' of the municipality. (variables not in 1991 database)

SORT – A variable used to sort the database that was included in the original.

LAT_DD and **LON_DD** – Latitude and Longitude for each municipality, in decimal degrees. Otherwise, as Latitude and Longitude above. Note that the LON_DD for 1994 are not very accurate for the west coast as the single minutes decimal for longitude values greater that 99 deg 59 min were cut off in the original database. (variables not in 1991 database)

R25_WTR – The derived residential monthly price for 25 cubic meters of water, excluding sewer charges. This assumes that all of any flat sewer charge and the % Sewer of all remaining flat or volume charges are sewer charges.

R25_SEW – The derived residential monthly price for 25 cubic meters of sewer service, excluding water charges. Assumes as above. R25_SEW and R25_WTR add to get R25_TOT.

ASSRATIO – The Residential Assessment Ratio (complements rratio) - as for rratio, but for assessment pricing municipalities or portions thereof. This can be multiplied by the various original (not the ...'nd' variables) to get duplication free population or flow totals for municipalities with assessment-based pricing. When used with flows, the usages (domestic...) are often not fully detailed, and so inaccurate numbers may result with such usage - problem does not apply to the overall municipal ADF totals. A small portion of municipalities appear to be at least slightly metered, although most if not all assessments are flat charges.