

The provision of drinking water in First Nations communities and Ontario municipalities: Insight into the emergence of water sharing arrangements*

Data Dictionary

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Executive Summary

This data dictionary provides variable names, descriptions and data sources for the data set used in the following publication:

Deaton, B. James and B. Lipka. 2021. The provision of drinking water in First Nations communities and Ontario municipalities: Insight into the emergence of water sharing arrangements. *Ecological Economics*, 189(107147). <https://doi.org/10.1016/j.ecolecon.2021.107147>

This data set documents water supply in First Nations communities and municipalities across the Canadian province of Ontario in the years 2009-10, and characterizes those communities in terms of geography and demographics. A brief summary of this data set and its sources is provided here. For more detailed information on the data collection process, data limitations, and other additional details please see Section V of the above cited publication.

Water system information for First Nations communities was collected from the Neegan Burnside (2011) *Survey of First Nation Water and Wastewater Systems*. Water system information for municipalities was collected from the 2009/10 *Chief Drinking Water Inspector's Report (CDWIR)* for Ontario (Stager, 2011). Due to a lack of detail in the 2009/10 CDWIR, municipal water system data – specifically, details regarding interlocal water exchanges – were supplemented using additional documents gathered from each municipality in our data set. These documents included: MOE inspection reports, annual water system reports, and Quality Management System Operational Plans.¹ For some municipalities (approximately 10% of municipalities) a knowledgeable contact was used to confirm the water system information needed.

Community characteristics were collected from FedNor (2017), the Canadian Census (Statistics Canada, 2019a/2019b), and Natural Resources Canada (Natural Resources Canada, 2018). Communities were classified as being within or outside of northern Ontario based on FedNor's classification of northern communities. 2006 Census Community Profiles were used to gather community population densities (at the census subdivision level) and regional median incomes (at the census division level). Proximity to the closest neighbouring community (census subdivision) with water infrastructure was calculated for each community in our data set using 2006 census boundary files and GIS software. Community elevations were calculated using 2006 census boundary files, Natural Resources Canada's CanVec database, and GIS software.

¹ Hundreds of these documents were gathered, and they are not individually listed or cited in this document. However, they have been archived by the authors, and can be accessed upon request.

Data Dictionary

Variable Name	Variable Description	Source
<i>Dist</i>	This variable captures the distance from each community (census subdivision) in the data set to its closest neighbouring census subdivision with water infrastructure. These distances are measured as the distance from community boundary to neighbour's centroid (in kilometers).	Neegan Burnside (2011) Stager (2011) StatsCan (2019a)
<i>Elev</i>	This variable captures the elevation of each community (census subdivision) in our data set relative to mean sea level. It is measured at the community centroid in 10s of meters.	NRC (2018) StatsCan (2019a)
<i>FN</i>	This variable identifies the communities (census subdivisions) in our data set that are First Nations communities. Coding: =1 if the community is a First Nations community, =0 otherwise.	StatsCan (2019b)
<i>Inc</i>	This variable captures the 2005 regional (census division) median income for each community (census subdivision) in our data set, as reported by the 2006 Canadian census. This regional median income is measured in \$1000s.	StatsCan (2019b)
<i>lnDist</i>	This variable captures the natural log of <i>Dist</i> , defined above.	Neegan Burnside (2011) Stager (2011) StatsCan (2019a)
<i>lnInc</i>	This variable captures the natural log of <i>Inc</i> , defined above.	StatsCan (2019b)
<i>lnPD</i>	This variable captures the natural log of <i>PD</i> , defined below.	StatsCan (2019b)
<i>North</i>	This variable identifies communities (census subdivisions) in our data set that are located in northern Ontario census divisions as defined by FedNor (the government of Canada's economic development organization for Northern Ontario). Coding: =1 if community is located in FedNor classified northern census division, =0 otherwise.	FedNor (2017)
<i>PD</i>	This variable captures the population density of each community (census subdivision) in our data set, in 100s of persons per square kilometer, as reported in the 2006 Canadian census.	StatsCan (2019b)
<i>WSA</i>	This variable identifies communities (census subdivisions) in our data set that receive at least some portion of their water supply through some form of a water sharing arrangement (WSA). Coding: =1 if community receives some or all of their water supply through a WSA, =0 otherwise.	Neegan Burnside (2011) Stager (2011)

Data Sources

FedNor. 2017. FedNor – Northern Ontario. [website]. <https://www.ic.gc.ca/eic/site/FedNor-FedNor.nsf/eng/fn03338.html> (accessed 22 June 2020).

Natural Resources Canada (NRC). 2018. Download Directory and Documentation – Access to Geospatial Data Files [website]. <https://www.nrcan.gc.ca/science-and-data/science-and-research/earth-sciences/geography/topographic-information/download-directory-documentation/17215> (accessed 22 June 2020).

Neegan Burnside. 2011. National Assessment of First Nations Water and Wastewater Systems. Ontario Regional Roll-Up Report FINAL. <http://publications.gc.ca/site/eng/9.812627/publication.html> (accessed 29 April 2019).

Stager, J. 2011. Annual Report 2009-10 – Chief Drinking Water Inspector of Ontario. ISSN: 1718-5629. Toronto ON, Queens Printer for Ontario.

Statistics Canada (StatsCan). 2019a. 2006 Census – Boundary Files. [website]. <https://www12.statcan.gc.ca/census-recensement/2011/geo/bound-limit/bound-limit-2006-eng.cfm> (accessed 22 June 2020).

Statistics Canada (StatsCan). 2019b. Census Profile – Comprehensive download files for selected geographic level: CSV or TAB [website]. <https://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/details/download-telecharger/comprehensive/comp-csv-tab-dwnld-tlchrgr.cfm?Lang=E#tabs2006> (accessed 22 June 2020).