
Labour Market Profile Water and Wastewater Workers

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A report prepared for the

Saskatchewan Water and Wastewater Association

by

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Executive Summary

This report summarizes research conducted for the *Saskatchewan Water and Wastewater Association* by Doug Elliott, the principal of *QED Information Systems Inc.*, a Regina-based consulting firm.

Below is a summary, in point form, of the main topics addressed in the report.

Local Government Revenues and Spending

- In 2006, local governments in Saskatchewan raised \$124 million from the sale of water and wastewater services. In the same year, they spent a total of \$217 million on water and wastewater facilities and services, both capital and operating. The fact that revenues from the sale of water and wastewater services are well below expenditures is normally the case in Saskatchewan.
- Revenues from the sale of water and wastewater services are higher on a per capita basis in Saskatchewan than in other provinces. Expressing revenues from the sale of water services as a percentage of total revenues to local governments makes it clear that these revenues are an important part of the revenue base for local governments in Saskatchewan, more important, in fact, than in other provinces.
- Spending per capita in Saskatchewan has been lower than in most other jurisdictions for the past three years. On average, local governments have spent \$211 per person in Saskatchewan compared with the national average of \$240 per person over the same three-year period

Household Spending

- Payments for water and wastewater services, according to a 2005 survey of households conducted by Statistics Canada, are \$624/household in the two major cities – Regina and Saskatoon – \$564/household in other urban centres and \$391/household in rural areas.
- Higher income households spend more on water and wastewater services. The average payment increases from \$423 among those households with incomes below \$20,000 per year to \$650 among those with incomes of \$80,000 or more.
- The average household spends about the same for water and wastewater services as they do on their pets or for household appliances in an average year. They spend significantly less than on cable/satellite television subscriptions or prescription drugs and half as much as on cigarettes or telephone services.

Sources of Drinking Water

- The vast majority of Saskatchewan residents, 86% in 2006, get their water from a municipal water source. The proportion in the province is near the average in other prairie provinces and the national average.
- Among those who have a municipal water supply, 74% reported that they drank tap water with 64% drinking “primarily” tap water and 10% a combination of tap water and bottled water. The remaining 24% reported drinking “primarily” bottled water.

- There is a significant proportion of tap water drinkers who treat the municipal water in some way before they drink it. In fact, about one half of those Saskatchewan residents who drink tap water treat it with either an in-line or stand-alone filter.
- The most common reason given for treating the water is to improve its appearance or taste, a comment that was mentioned by two thirds (67%) of respondents. The second most common reason is to remove water treatment chemicals.

Census Data on Operators

- According to the Statistics Canada Census, there were 520 Saskatchewan adults who reported that "Water and Waste Plant Operators" was their main job in 2006. This is a substantial increase from the 370 reported in 2001.
- The census data is of limited use in an analysis of the labour market for water and waste water plant operators because relatively little data is published about those who work in this occupation. In fact, the only information that is available about water and waste plant operators from the census is that:
 - virtually all are men;
 - three quarters worked throughout the previous year on a full-time basis;
 - the average income from employment in 2000 was \$38,500;
 - in 2001, two thirds (65%) were 35 to 54 years of age, 14% were 55 years of age or older and the remaining 22% under 35 years of age; and
 - in 2001, one quarter (27%) lived in Regina or Saskatoon.
- Saskatchewan has a disproportionately high number of water and wastewater plant operators. This will be partly because of the widely dispersed population in the province and partly because of the high number of part-time operators in the province.
- The majority of water and wastewater workers work in smaller communities. In April of 2007, 51% worked in smaller towns/villages, Hutterite colonies, or the North. About one in four work in a larger centre.

Survey of Operators

The bulk of the labour market research prepared for this report was obtained with a sample survey of water and wastewater workers in Saskatchewan that was conducted in the Fall of 2007.

- A total of 478 water and wastewater workers responded to the survey. If the responses are representative of the population of operators in the province, then the maximum error for the survey would be $\pm 3\frac{1}{2}\%$, nineteen out of twenty times.
- The vast majority (94%) of water and wastewater workers are men.
- Only 2% of survey respondents reported having a disability and only 1% reported being members of a visible minority group. A somewhat larger proportion (8% of respondents) reported that they were Aboriginal.

- The majority of survey respondents are clustered in the 44 to 55 year age group – 53% of survey respondents were in this relatively narrow age band. There were very few respondents (10%) under 35 years of age and very few (3%) 65 years of age or older.
- About 55% of water and wastewater workers in Saskatchewan are members of the Saskatchewan Water and Wastewater Association.
- Water and wastewater workers have levels of formal education that are somewhat higher than in the general labour force. Approximately one half of respondents had a grade 12 education, 39% had a post-secondary education, usually a certificate or diploma, and the remaining 11% had less than grade 12.
- Approximately one half (52%) of respondents were certified at level II or higher and one half (48%) at level I or for small systems. The survey shows that certification levels tend to be lower among older workers than among younger ones.
- Just under one half of water and wastewater workers were either already taking training or were “very willing” to do so.
- About four out of ten survey respondents worked in a facility in a larger community, that is, one with a population of 1,500 or more. One quarter were working in a small system water works facility. The water and wastewater workers in larger facilities are, compared with those in smaller communities or in private corporations less likely to be 55 years of age or older (10% are compared with 31% in smaller communities) and more likely to be post-secondary graduates (46% compared with 34%).
- One in ten respondents was a regional operator and two in ten had more than one job, typically a job as a water and wastewater worker and another unrelated job. The proportion of respondents who were union members was 40%.
- Four in ten respondents was either a supervisor or a manager, and 44% were operators.
- Over one half of respondents (54%) have been with their current employer for more than ten years but 51% have been a water and wastewater worker for more than ten years so a significant proportion of water and wastewater workers have moved into the profession while working for the same employer.
- Water and wastewater workers bring a good deal of experience to their work. The survey respondents, for example, have an average of 12 years of experience in the profession.
- Overall, the water and wastewater duties are not the only duties for more than one half (59%) of the respondents. In fact, these duties constitute “hardly any” of their time in 25% of the cases.
- The survey found that the majority of respondents (58%) work some form of irregular hours, typically evenings and weekends and the majority (58%) are on call either all of the time or frequently. More than three quarters spend at least some time on call. Two in three respondents reported that they were not paid for on-call or standby duty.

- Overtime was quite common among respondents – one half reported at least some paid overtime in a typical week and 28% reported at least some unpaid overtime. Taken together, approximately two thirds of operators work at least some overtime in a typical week.
- In 2007, the average hourly rate of pay among paid workers in Saskatchewan (that is, excluding the self-employed) was \$19.00 per hour. According to the survey, water and wastewater workers earn somewhat more than that – \$21.10 per hour.
- A relatively small proportion of water and wastewater workers have hourly wage rates in the \$20.00 to \$21.99 range – 14% in fact. One half (49%) have rates below \$20.00 and 37% have rates that are \$22.00 or higher. Looking only at operators, the average hourly wage rate is lower (\$19.48) and the range of rates is more restricted. Two thirds of operators have rates that are in the \$14.00 to \$21.99 range. The rates for union members, while higher, are not significantly so.
- Survey respondents were also asked if they had received a pay increase when their certification level increased. Excluding the 17% who have had no change in their certification level, 28% reported an increase and 72% reported no change.
- The majority of water and wastewater workers have a pension plan and in almost all cases it is a defined benefit plan.
- One in four respondent was either eligible to retire at the time of the survey (16%) or within the next few years. One half could conceivably retire by 2015 and one third have made retirement plans. The proportion of managers and supervisors who could retire soon was estimated to be 33%.
- A substantial majority (72%) of respondents would be interested in increasing their certification level if the employer would help cover the extra cost. A smaller but still significant proportion (39%) agreed that the lack of additional pay was a disincentive to take more training.
- The majority (68%) of respondents felt that their employer was having difficulties filling water and wastewater worker vacancies. Approximately one half agreed that their employer didn't value the work they did and didn't invest sufficient capital in the water and wastewater system where they work.
- Although a small proportion (6%) disagreed strongly, more than eight out ten respondents agreed that the Saskatchewan Water and Wastewater Association was doing a good job representing the profession.

SECTION 1 BACKGROUND, OUTLINE, DATA SOURCES

A number of recent events have attracted a good deal of public, media, and political attention and highlighted the need for an adequate supply of safe drinking water for Saskatchewan residents and, in particular, the need for proper training of water and wastewater workers. The sequence of events that lead to the preparation of this report is summarized below.

In July 2004 a report titled *The Water and Wastewater Workers Essential Skills Project* was presented to what was then called the *Saskatchewan Department of Learning*. The report found, on the basis of a small sample of water and wastewater workers, that there was evidence of a low level of essential skills, particularly among northern and Aboriginal workers. The report also recommended that additional research be undertaken in the sector.

In early 2005, Doug Elliott, the principal of *QED Information Systems Inc.*, a Regina-based consulting firm, and the publisher of *Sask Trends Monitor* was approached by the president of the *Saskatchewan Water and Wastewater Association*¹ (SWWA) and asked to examine the feasibility of conducting a labour market study of the profession in Saskatchewan.

A proposal was developed in consultation with the *Association* and was submitted to the *Sector Partnerships* program of the *Saskatchewan Department of Learning* for approval and funding. When the provincial government declined to support the proposal, the *Association* decided to proceed on their own and in the spring of 2007, SWWA contracted with *QED Information Systems Inc.* to prepare an overview of the profession and conduct a survey of operators. This report is the result of that research.

This report was prepared by Doug Elliott, the principal of *QED Information Systems Inc.* The opinions expressed in this document do not necessarily represent those of the *Saskatchewan Water and Wastewater Association*. Responsibility for the accuracy of the data and the validity of the conclusions reached remains with the author.

The report is organized into five sections including this introductory section. Section 2 contains general information about the water and wastewater services in Saskatchewan including local government finances related to the provision of services and household spending on water and wastewater services.

The only publicly available data about the labour market activities of water and wastewater operators is from Statistics Canada's census and this information is provided in Section 3.

An overview of the number of water and wastewater workers in Saskatchewan compiled by the provincial government is provided in Section 4. Section 5 contains a summary of results from the operator survey and forms the bulk of the material in this report.

¹ The *Saskatchewan Water and Wastewater Association* is an organization made up of persons involved in the operation, maintenance and troubleshooting of water and wastewater systems and their related components.

SECTION 2 WATER AND WASTEWATER SERVICES IN SASKATCHEWAN

This section has information to place the labour market analysis into context. It includes rudimentary financial data about some aspects of water and wastewater services delivered to Saskatchewan residents both from the perspective of the municipal governments that typically provide the services and from the perspective of the residents who pay for them.

For almost all of those who live in urban centres – villages, towns, and cities – the provision of water and wastewater services comes under the jurisdiction and authority of municipal governments, that is, town and city councils. In some cases, this service is provided by SaskWater, a Saskatchewan Crown Corporation. Section 2.1 examines revenues and expenditures related to water and wastewater management by these governments. This information does not describe expenditures on Reserves or expenditures by private individuals for services to farms, recreational properties, etc. Expenditures by businesses for water and wastewater services are also excluded.

Section 2.2 looks at the same information from the perspective of the homeowners, namely the annual expenditures on water and wastewater services.

Bottled water and water filters have become a phenomenon in recent years. Some limited information about the use of bottled water and in-house water filtering in Saskatchewan is presented in Section 2.3.

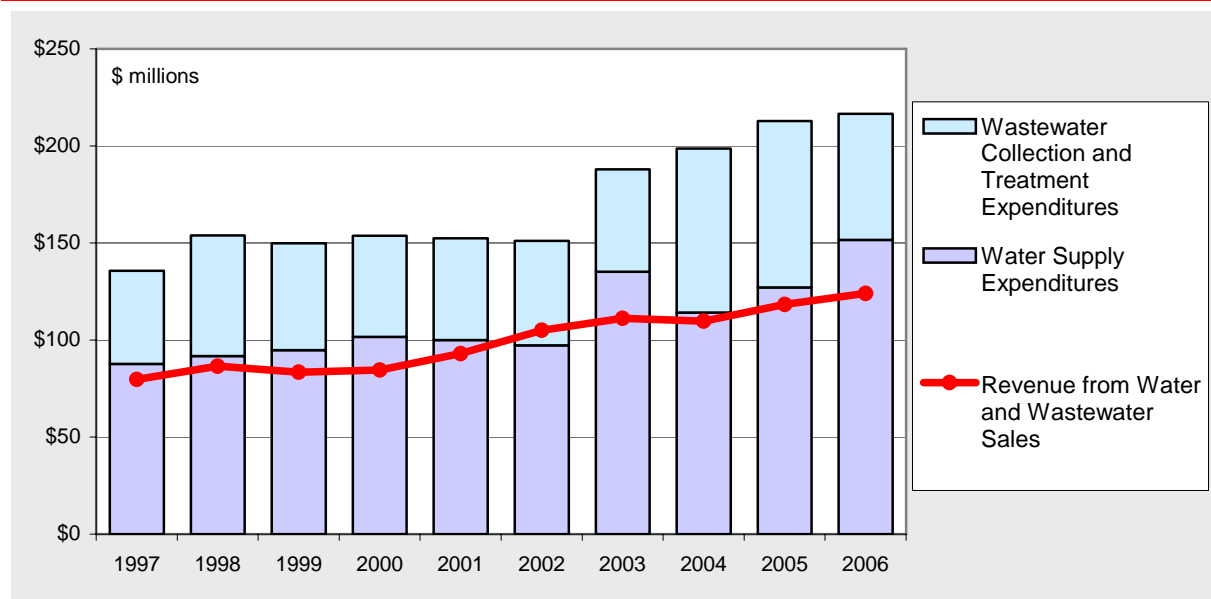
2.1 Municipal Expenditures and Revenues: Water and Wastewater Services

Statistics Canada collects and compiles information from local governments (their term for governments at a subprovincial level) describing their annual revenues and expenditures. To do this, data that is based on a variety of different accounting rules and a variety of different fiscal periods is translated into a common chart of accounts and presented on a calendar year basis. This enables valid comparisons over time and across jurisdictions.

Table 2.1 shows the gross revenues for local governments in Canada for the past ten years including revenues from the sale of water and wastewater services. Expenditures related to water and wastewater services over the same period are shown in Table 2.2. Expenditures on water and wastewater services covers operating and capital outlays for the construction, operation, and maintenance of water acquisition, treatment and distribution facilities, of sewage removal and treatment facilities including expenditures on sanitary sewers and combined sanitary-storm sewers, booster stations, reclamation of sludge areas, and on inspection, cleaning and flushing of sewers. Spending on storm drainage is considered as infrastructure spending and is not included.

In 2006, local governments in Saskatchewan raised \$124 million from the sale of water and wastewater services. (There is no breakdown between the two revenue categories in the data.²) In the same year, they spent a total of \$217 million on water and wastewater facilities and services, both capital and operating. Figure 2.1 shows that revenues have increased unevenly over the past ten years. Spending

Figure 2.1 Local Government Revenues and Expenditures Related to Water and Wastewater Services, Saskatchewan, 1997 to 2006



² Regina city, for example, collected approximately the same for wastewater services (\$21.5 million) and drainage (\$6.1 million) as for water services (\$30.5 million) in 2006.

on the other hand, was relatively constant at \$150 million per year before increasing to over \$200 million per year in 2005 and 2006. The other trend that is clear is that revenues from the sale of water and wastewater services are well below expenditures.

Table 2.1 Selected Statistics on Local Government Population and Revenues, 1997 to 2006

		Atlantic	Quebec	Ontario	Manitoba	Sask	Alberta	B.C.	Canada Total
Population in thousands	1997	2,372	7,275	11,228	1,136	1,018	2,830	3,949	29,907
	1998	2,358	7,296	11,367	1,138	1,018	2,899	3,983	30,157
	1999	2,354	7,323	11,506	1,142	1,015	2,953	4,011	30,404
	2000	2,349	7,357	11,685	1,147	1,008	3,005	4,039	30,689
	2001	2,341	7,397	11,898	1,151	1,000	3,057	4,078	31,021
	2002	2,341	7,446	12,102	1,156	996	3,116	4,115	31,373
	2003	2,343	7,494	12,260	1,162	995	3,160	4,155	31,669
	2004	2,345	7,548	12,407	1,170	994	3,205	4,202	31,974
	2005	2,344	7,598	12,541	1,178	994	3,257	4,255	32,271
	2006	2,332	7,652	12,687	1,178	985	3,376	4,311	32,624
Gross Revenues (\$ millions)	1997	\$1,881	\$9,215	\$17,057	\$1,380	\$938	\$4,445	\$4,653	\$39,830
	1998	\$1,934	\$9,586	\$20,936	\$1,387	\$957	\$4,667	\$4,593	\$44,330
	1999	\$1,969	\$9,517	\$21,461	\$1,286	\$1,000	\$4,745	\$6,418	\$46,681
	2000	\$2,012	\$9,929	\$21,053	\$1,362	\$1,030	\$5,207	\$4,831	\$45,707
	2001	\$2,064	\$9,955	\$22,541	\$1,374	\$1,109	\$5,552	\$5,016	\$47,914
	2002	\$2,165	\$10,057	\$23,935	\$1,379	\$1,132	\$5,580	\$4,983	\$49,530
	2003	\$2,307	\$10,585	\$24,904	\$1,410	\$1,188	\$5,841	\$5,228	\$51,784
	2004	\$2,412	\$11,272	\$26,184	\$1,439	\$1,217	\$6,574	\$5,468	\$54,913
	2005	\$2,535	\$11,812	\$29,036	\$1,485	\$1,278	\$7,255	\$5,914	\$59,683
	2006	\$2,610	\$11,998	\$30,337	\$1,497	\$1,321	\$7,677	\$6,078	\$61,894
Revenue from Water and Wastewater Sales (\$ millions)	1997	\$102	\$505	\$824	\$87	\$80	\$333	\$267	\$2,219
	1998	\$111	\$525	\$875	\$93	\$87	\$354	\$307	\$2,373
	1999	\$116	\$536	\$934	\$100	\$83	\$357	\$314	\$2,463
	2000	\$129	\$568	\$929	\$104	\$85	\$372	\$321	\$2,530
	2001	\$135	\$586	\$1,005	\$106	\$93	\$420	\$328	\$2,698
	2002	\$144	\$570	\$1,105	\$109	\$105	\$440	\$348	\$2,847
	2003	\$152	\$589	\$1,138	\$116	\$111	\$323	\$371	\$2,828
	2004	\$161	\$609	\$1,208	\$112	\$110	\$334	\$394	\$2,962
	2005	\$167	\$635	\$1,320	\$117	\$118	\$353	\$414	\$3,154
	2006	\$172	\$643	\$1,392	\$121	\$124	\$376	\$437	\$3,297

Source: Statistics Canada CANSIM Table 385-0024

Table 2.2 Selected Statistics on Local Government Expenditures, 1997 to 2006

		Atlantic	Quebec	Ontario	Manitoba	Sask	Alberta	B.C.	Canada Total
Total expenditures in millions	1997	\$1,963	\$9,371	\$17,234	\$1,316	\$983	\$4,022	\$4,851	\$40,006
	1998	\$1,955	\$9,247	\$19,465	\$1,294	\$987	\$4,103	\$4,937	\$42,248
	1999	\$1,940	\$9,242	\$20,596	\$1,225	\$1,024	\$4,258	\$4,829	\$43,396
	2000	\$2,020	\$9,327	\$21,474	\$1,216	\$1,068	\$4,629	\$4,897	\$44,912
	2001	\$2,110	\$10,002	\$21,932	\$1,259	\$1,101	\$4,983	\$5,040	\$46,724
	2002	\$2,164	\$9,941	\$23,430	\$1,327	\$1,135	\$5,058	\$5,325	\$48,669
	2003	\$2,314	\$12,024	\$25,118	\$1,360	\$1,252	\$5,467	\$5,699	\$53,546
	2004	\$2,472	\$11,647	\$26,561	\$1,461	\$1,377	\$5,856	\$6,220	\$55,980
	2005	\$2,720	\$12,888	\$28,515	\$1,574	\$1,436	\$6,392	\$6,701	\$60,541
	2006	\$2,724	\$13,186	\$29,359	\$1,757	\$1,486	\$6,989	\$7,067	\$62,894
Expenditures on water supply in millions	1997	\$182	\$533	\$937	\$91	\$88	\$266	\$398	\$2,526
	1998	\$134	\$552	\$934	\$88	\$92	\$320	\$423	\$2,575
	1999	\$115	\$552	\$942	\$115	\$95	\$254	\$420	\$2,527
	2000	\$186	\$534	\$1,048	\$95	\$102	\$253	\$386	\$2,636
	2001	\$163	\$467	\$1,081	\$94	\$100	\$273	\$431	\$2,644
	2002	\$181	\$519	\$1,210	\$114	\$97	\$299	\$467	\$2,927
	2003	\$236	\$658	\$1,472	\$109	\$135	\$326	\$525	\$3,503
	2004	\$200	\$708	\$1,683	\$114	\$114	\$350	\$530	\$3,744
	2005	\$232	\$853	\$1,751	\$148	\$127	\$423	\$728	\$4,303
	2006	\$267	\$889	\$1,791	\$206	\$152	\$472	\$836	\$4,659
Expenditures on sewage collection and service in millions	1997	\$103	\$583	\$916	\$34	\$48	\$193	\$495	\$2,394
	1998	\$111	\$495	\$713	\$36	\$62	\$215	\$474	\$2,127
	1999	\$94	\$535	\$760	\$44	\$55	\$232	\$415	\$2,163
	2000	\$101	\$377	\$1,118	\$41	\$52	\$214	\$357	\$2,279
	2001	\$116	\$586	\$1,035	\$45	\$52	\$286	\$348	\$2,488
	2002	\$143	\$509	\$1,011	\$46	\$54	\$272	\$432	\$2,489
	2003	\$157	\$665	\$1,071	\$48	\$53	\$283	\$472	\$2,773
	2004	\$209	\$667	\$1,303	\$77	\$85	\$336	\$405	\$3,110
	2005	\$245	\$747	\$1,513	\$74	\$86	\$434	\$511	\$3,638
	2006	\$159	\$706	\$1,584	\$176	\$65	\$498	\$562	\$3,782

Source: Statistics Canada CANSIM Table 385-0024

A variety of statistics and ratios can be derived from the figures in Table 2.1. Two of these statistics – revenues per capita and revenues as a percentage of the total – are shown in Table 2.3.

Adjusted for population differences, revenues from the sale of water and wastewater services are higher on a per capita basis in Saskatchewan than in other provinces. In 2006, each Saskatchewan resident paid an average of \$126 to local governments for the provision of water and wastewater services compared with the national average of \$101 per person. This is the highest in Canada (see Figure 2.2).

On average, revenues per capita have grown by an average of 5.4% per year over the ten years shown in the table. This is well above the rate of inflation which averaged 2.0% per year over the same period.

Saskatchewan has not always had the highest revenue per capita. Prior to 2003, local governments in Alberta collected, via water bills, proportionately more revenues per capita than in Saskatchewan. This changed in 2003 when revenues dropped from \$440 million to \$323 million as a result of larger grants from the provincial government. This highlights the artificial nature of revenues from the sale of water and wastewater services. As with many other revenue sources for governments, they are only partly related to the cost of delivering the services.

Expressing revenues from the sale of water services as a percentage of total revenues to local governments makes it clear that these revenues are an important part of the revenue base for local governments in Saskatchewan, more important, in fact, than in other provinces. In 2006, these sales accounted for 9.4% of total revenues in Saskatchewan

Figure 2.2 Revenues from Water and Wastewater Sales per Capita, 2006

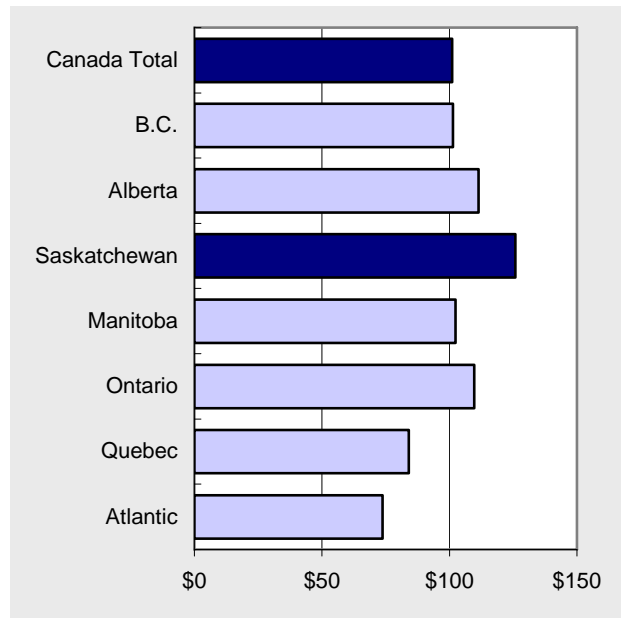


Figure 2.3 Revenues from Water and Wastewater Sales as a Percentage of Total Revenues, 2006

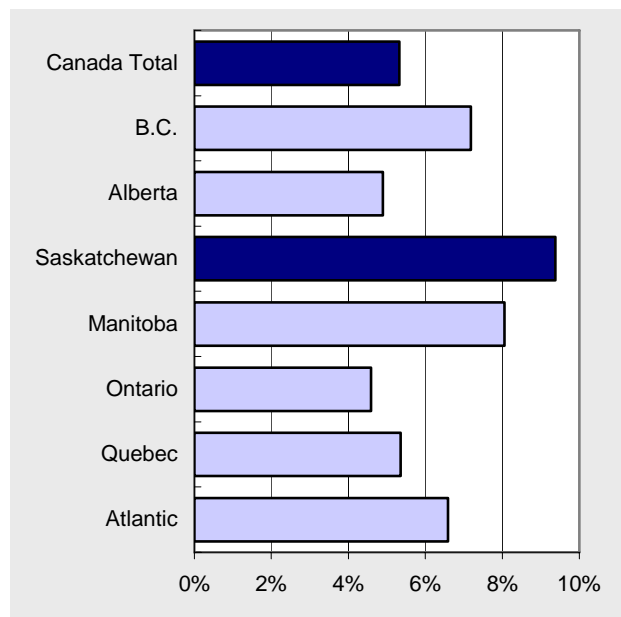


Table 2.3 Selected Statistics on Local Government Revenues, 1997 to 2006

		Atlantic	Quebec	Ontario	Manitoba	Sask	Alberta	B.C.	Canada Total
Water and wastewater sales as percentage of revenues	1997	5.4%	5.5%	4.8%	6.3%	8.5%	7.5%	5.7%	5.6%
	1998	5.7%	5.5%	4.2%	6.7%	9.1%	7.6%	6.7%	5.4%
	1999	5.9%	5.6%	4.4%	7.7%	8.4%	7.5%	4.9%	5.3%
	2000	6.4%	5.7%	4.4%	7.7%	8.2%	7.1%	6.6%	5.5%
	2001	6.6%	5.9%	4.5%	7.7%	8.4%	7.6%	6.5%	5.6%
	2002	6.6%	5.7%	4.6%	7.9%	9.3%	7.9%	7.0%	5.7%
	2003	6.6%	5.6%	4.6%	8.2%	9.4%	5.5%	7.1%	5.5%
	2004	6.7%	5.4%	4.6%	7.8%	9.0%	5.1%	7.2%	5.4%
	2005	6.6%	5.4%	4.5%	7.9%	9.3%	4.9%	7.0%	5.3%
	2006	6.6%	5.4%	4.6%	8.1%	9.4%	4.9%	7.2%	5.3%
Per capita revenues from sale of water	1997	\$43	\$69	\$73	\$76	\$78	\$118	\$68	\$74
	1998	\$47	\$72	\$77	\$82	\$85	\$122	\$77	\$79
	1999	\$49	\$73	\$81	\$87	\$82	\$121	\$78	\$81
	2000	\$55	\$77	\$80	\$91	\$84	\$124	\$79	\$82
	2001	\$58	\$79	\$84	\$92	\$93	\$137	\$80	\$87
	2002	\$61	\$77	\$91	\$95	\$105	\$141	\$85	\$91
	2003	\$65	\$79	\$93	\$100	\$112	\$102	\$89	\$89
	2004	\$69	\$81	\$97	\$96	\$110	\$104	\$94	\$93
	2005	\$71	\$84	\$105	\$99	\$119	\$108	\$97	\$98
	2006	\$74	\$84	\$110	\$102	\$126	\$111	\$101	\$101

compared with the national average of 5.3% and is the highest among the provinces (see Figure 2.3).

The proportion of local government revenues derived from the sale of water services has, over the course of the ten years, always been higher in Saskatchewan than in other provinces.

Figure 2.4 Per Capita Revenues from the Sale of Water Services by Local Governments, Prairie Provinces

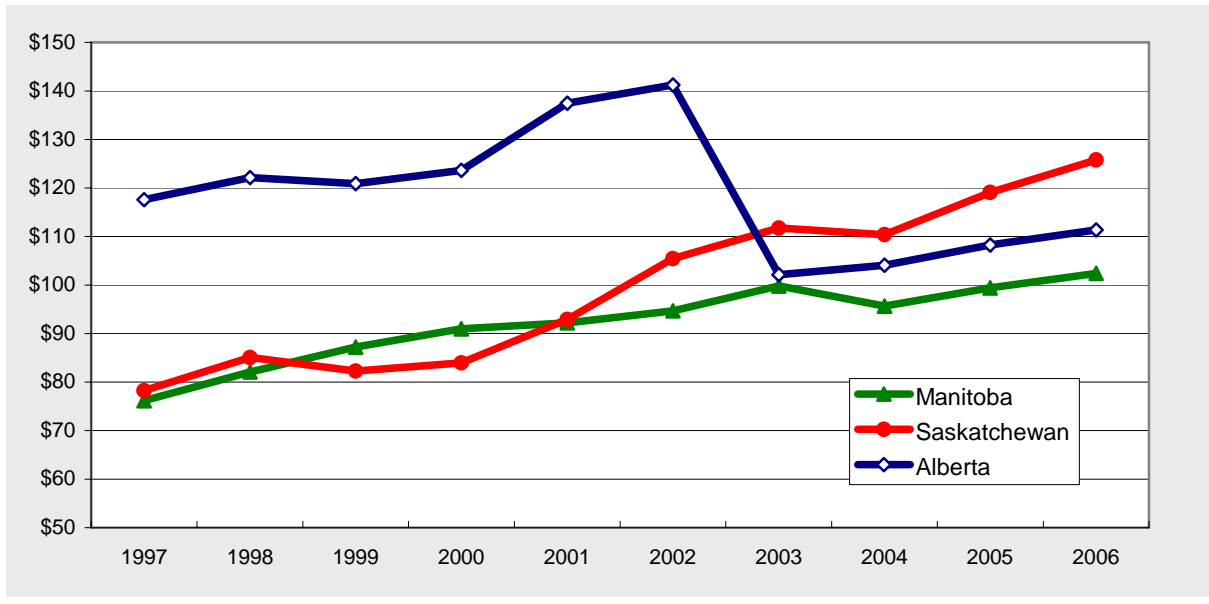
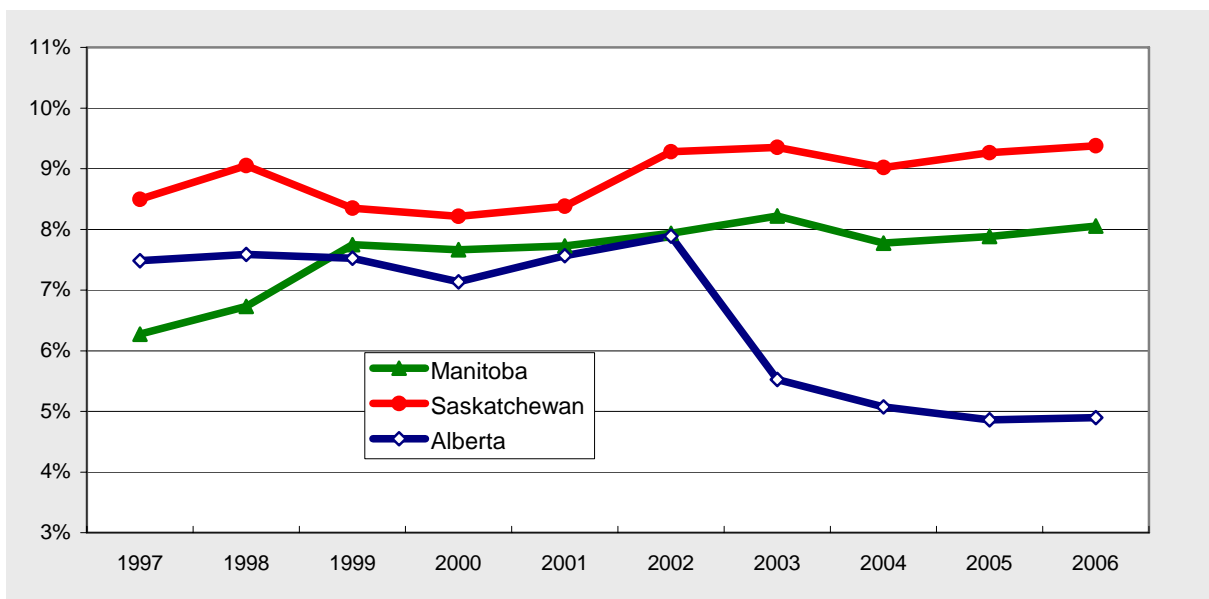


Figure 2.5 Revenues from Water Sales as a Percentage of Total Revenues, Prairie Provinces



While revenues from the sale of water services may be artificial and determined by government policy, there should be no such variation on the expenditure side. Here, one would expect capital and operating expenditures to be affected only by the nature of the resource and economies of scale. Because access to water and the need for treatment of water and wastewater will be different from province to province, the amount and kind of treatment for water and wastewater might be different as well. This can be examined using the expenditure data in Table 2.2. Calculated values based on these figures are shown in Table 2.4.

The inclusion of capital spending along with operating spending means that expenditures on water and wastewater services are, in any given year, subject to a good deal of volatility. In Manitoba, for example, spending on wastewater services went from \$74 million in 2005 to \$176 million in 2006. Figures 2.6 and 2.7 use three-year averages to reduce some of the volatility from the annual figures.

Spending per capita in Saskatchewan has been lower than in most other jurisdictions for the past three years as Figure 2.6 shows. On average, local governments have spent \$211 per person in Saskatchewan compared with the national average of \$240 per person over the same three-year period.

As a percentage of total spending by local governments, however, Saskatchewan is above the national average. Figure 2.6 shows that spending on water and wastewater services in the province has, over the past three years, averaged 15% of local government spending compared with the national average of 13%.

Figure 2.6 Spending per Capita on Water and Wastewater Supply and Services, Three Year Average, 2004 to 2006

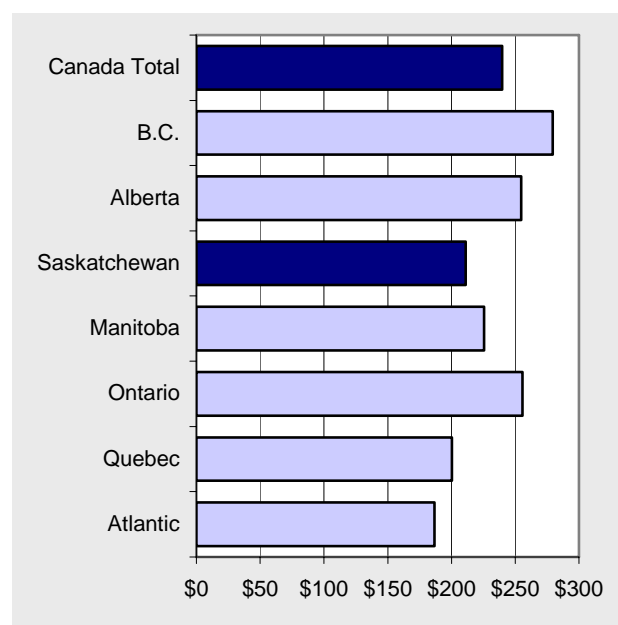


Figure 2.7 Spending on Water and Wastewater Supply and Services as a Percentage of Total Local Government Spending, Three Year Average, 2004 to 2006

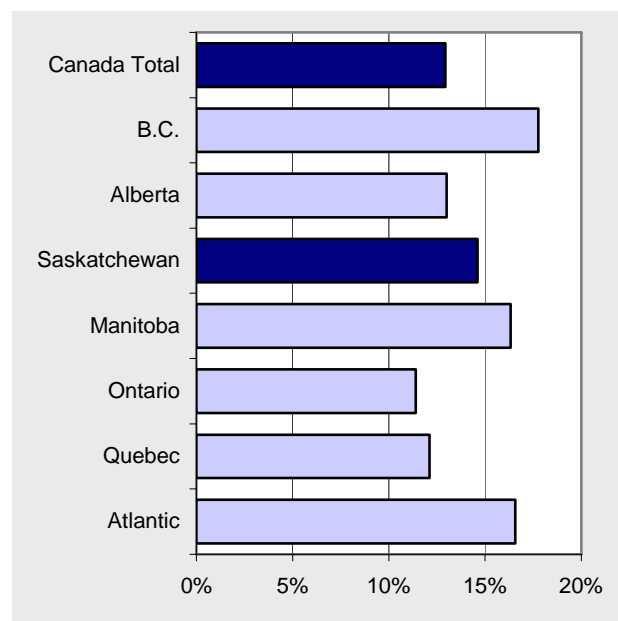


Table 2.4 Selected Statistics on Local Government Expenditures, 1997 to 2006

		Atlantic	Quebec	Ontario	Manitoba	Sask	Alberta	B.C.	Canada
Spending on water supply and services per capita	1997	\$77	\$73	\$83	\$80	\$86	\$94	\$101	\$84
	1998	\$57	\$76	\$82	\$77	\$90	\$111	\$106	\$85
	1999	\$49	\$75	\$82	\$101	\$93	\$86	\$105	\$83
	2000	\$79	\$73	\$90	\$83	\$101	\$84	\$96	\$86
	2001	\$70	\$63	\$91	\$82	\$100	\$89	\$106	\$85
	2002	\$77	\$70	\$100	\$99	\$98	\$96	\$113	\$93
	2003	\$101	\$88	\$120	\$94	\$136	\$103	\$126	\$111
	2004	\$85	\$94	\$136	\$97	\$115	\$109	\$126	\$117
	2005	\$99	\$112	\$140	\$126	\$128	\$130	\$171	\$133
	2006	\$114	\$116	\$141	\$175	\$154	\$140	\$194	\$143
Spending on wastewater supply and services per capita	1997	\$44	\$80	\$82	\$30	\$47	\$68	\$125	\$80
	1998	\$47	\$68	\$63	\$32	\$61	\$74	\$119	\$71
	1999	\$40	\$73	\$66	\$38	\$54	\$78	\$104	\$71
	2000	\$43	\$51	\$96	\$36	\$52	\$71	\$88	\$74
	2001	\$50	\$79	\$87	\$39	\$52	\$94	\$85	\$80
	2002	\$61	\$68	\$84	\$40	\$54	\$87	\$105	\$79
	2003	\$67	\$89	\$87	\$41	\$53	\$90	\$114	\$88
	2004	\$89	\$88	\$105	\$66	\$85	\$105	\$96	\$97
	2005	\$104	\$98	\$121	\$63	\$86	\$133	\$120	\$113
	2006	\$68	\$92	\$125	\$149	\$66	\$147	\$130	\$116
Water and wastewater spending per capita	1997	\$120	\$153	\$165	\$111	\$133	\$162	\$226	\$165
	1998	\$104	\$144	\$145	\$109	\$151	\$185	\$225	\$156
	1999	\$89	\$148	\$148	\$139	\$148	\$165	\$208	\$154
	2000	\$122	\$124	\$185	\$119	\$153	\$155	\$184	\$160
	2001	\$119	\$142	\$178	\$120	\$152	\$183	\$191	\$165
	2002	\$139	\$138	\$184	\$139	\$152	\$183	\$218	\$173
	2003	\$168	\$177	\$207	\$135	\$189	\$193	\$240	\$198
	2004	\$175	\$182	\$241	\$163	\$200	\$214	\$223	\$214
	2005	\$203	\$211	\$260	\$189	\$214	\$263	\$291	\$246
	2006	\$183	\$209	\$266	\$325	\$220	\$287	\$324	\$259
Water and wastewater spending as % of total expenditures	1997	15%	12%	11%	10%	14%	11%	18%	12%
	1998	13%	11%	8%	10%	16%	13%	18%	11%
	1999	11%	12%	8%	13%	15%	11%	17%	11%
	2000	14%	10%	10%	11%	14%	10%	15%	11%
	2001	13%	11%	10%	11%	14%	11%	15%	11%
	2002	15%	10%	9%	12%	13%	11%	17%	11%
	2003	17%	11%	10%	12%	15%	11%	17%	12%
	2004	17%	12%	11%	13%	14%	12%	15%	12%
	2005	18%	12%	11%	14%	15%	13%	18%	13%
	2006	16%	12%	11%	22%	15%	14%	20%	13%

The final figure, shows that degree to which revenues from the sale of water and wastewater services cover capital and operating expenditures. In Saskatchewan, the two figures are out of balance by approximately \$100 per person. That is, local governments in the province tend to raise much less through their utility accounts than they spend on water and wastewater supply and services.

This imbalance of revenues and expenditures is, as Figure 2.8 shows, common in Canada. And in fact, most local governments operate with a more significant loss than those in Saskatchewan. On a per capita basis, the national average is a \$143 deficit per person per year compared with \$93 deficit in Saskatchewan.

Figure 2.8 Per Capita Revenues less Expenditures, Water and Wastewater Services, Three Year Average Ending in 2006

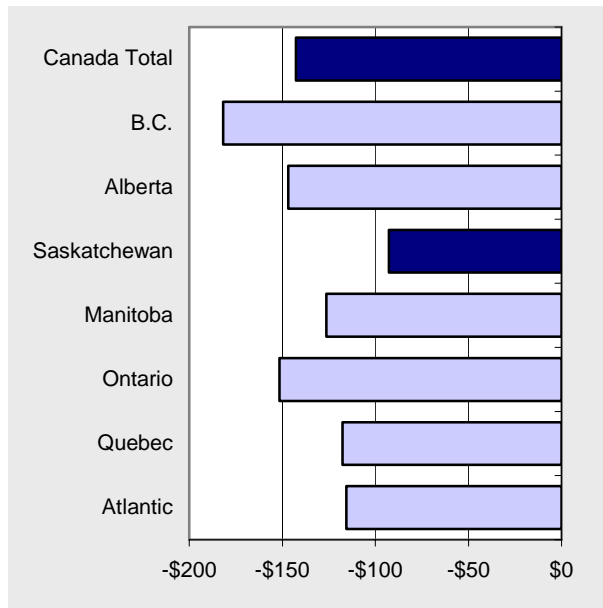
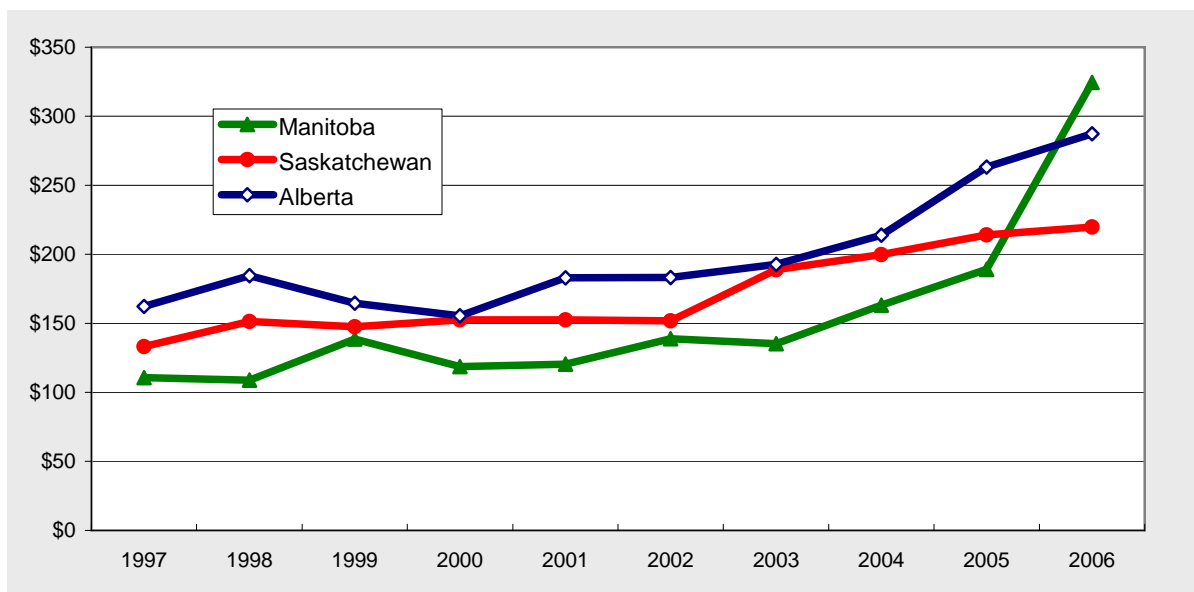


Figure 2.9 shows that spending on water and wastewater services in the prairie provinces has, until the past two years, been following the same general trend line. In 2005 and 2006 spending in Alberta has been increasing more quickly than in Saskatchewan. The spike in Manitoba spending in 2006 raised spending above the level in Saskatchewan for the first time.

Figure 2.9 Per Capita Spending on Water and Wastewater Services, Prairie Provinces



2.2 Household Spending on Municipal Water and Wastewater Services

Information about revenues and expenditures by local governments in Section 2.1 is supplemented in this section with information from the resident's point of view. This information on spending patterns is derived from a survey conducted annually by Statistics Canada – the *Survey of Household Spending* or SHS. The SHS is a relatively large survey that tracks household spending for a variety of goods and services. The sample size is relatively large (1,400 households in Saskatchewan) but it excludes the on Reserve population. The most recent data is for the calendar year 2005.

The comparison with information from the SHS and the municipal governments is instructive. According to the SHS, households spent \$131 million for the provision of water and wastewater services in 2005. Data in the previous section indicates \$118 million was received by municipal governments. Given the differences between the two data sources and the average person's lack of knowledge about their water bill, this is about as close as one might expect.

Table 2.5 shows selected information from the SHS. One of the interesting findings is that relatively few households in Canada pay (directly) for water and sewer services. Those who do not may be charged indirectly if they are renters in an apartment building. The proportion of households that pay for water and sewer ranges from a low of 8% in Quebec to a high of 67% in Saskatchewan and Manitoba. With the exception of Quebec, which is clearly a special case, water and sewer service payments tend to be higher in provinces with a higher degree of home ownership and where single detached dwellings are more common types of dwelling.

Among those who pay, the average annual bill in 2005 was \$363 or about \$30/month. The

Figure 2.10 Proportion of Households that Reported Spending on Water and Sewer Services, 2005

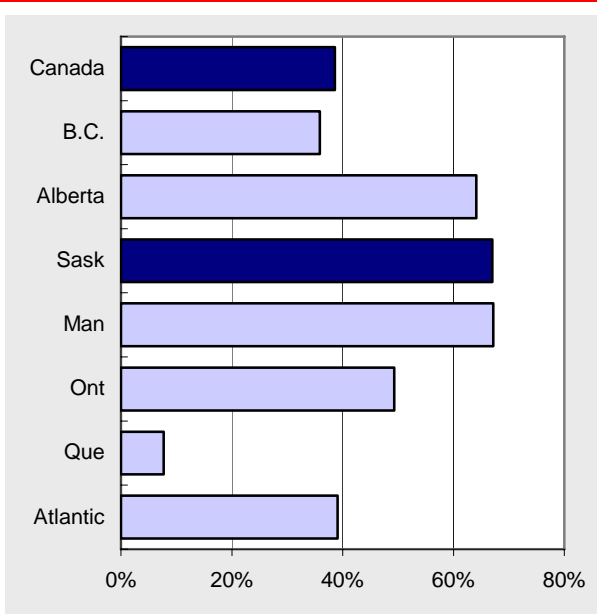
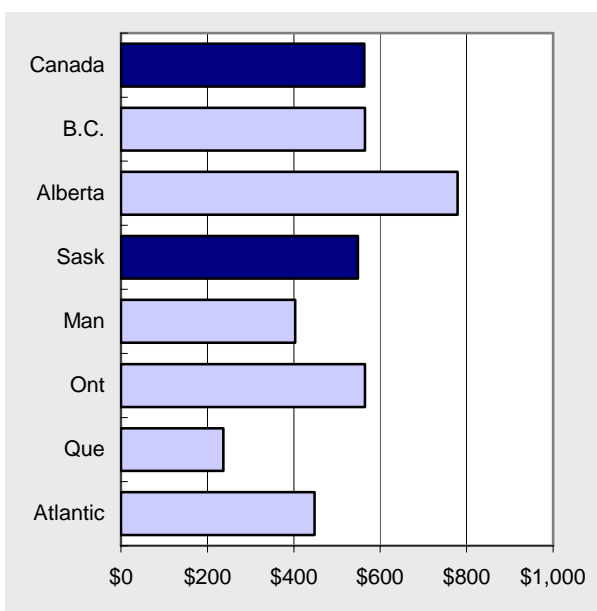


Figure 2.11 Average Annual Payment for Households that Reported Spending on Water and Sewer Services, 2005



average payment is much higher in Alberta (\$779) and much lower in Quebec (\$237). Saskatchewan is near the average for provinces outside of Quebec.

Table 2.6 shows how average payments differ according to the nature of the household and those who live in them.

One of the findings that is not surprising is that the type of dwelling does affect the proportion of households who pay directly for water and sewer services. Four out of five single detached homes pay for water and sewer services compared with 7% of those in apartments. The amount of the annual payment, is however, nearly the same.

Payments by those who live in the two major cities – Regina and Saskatoon – are typically higher (at \$624/household) than those who live in other urban centres (\$564/household) or rural areas (\$391/household).

The main difference is, however, income related. The average payment increases from \$423 among those households with incomes below \$20,000 per year to \$650 among those with incomes of \$80,000 or more. There will be two reasons for this. Firstly, those in higher incomes will tend to live in urban centres and in larger single-detached homes so the consumption of water will be higher. Secondly, with higher incomes there will be less of a tendency for their to be financial concerns about water consumption.

The final figure from the SHS (Figure 2.12) shows a representative sample of expenditures for the average Saskatchewan household.

The figures indicate, for example, that the average household spends about the same for water and wastewater services as they do on their pets or for household appliances in an average year. They spend significantly less than on cable/satellite television subscriptions or prescription drugs and half as much as on cigarettes or telephone services.

Table 2.5 Household Spending on Water and Sewer Services, 2005

	Atlantic	Quebec	Ontario	Manitoba	Sask	Alberta	B.C.	Canada Total
Number of households	890,990	3,103,650	4,434,023	419,848	355,594	1,174,474	1,590,617	12,181,717
Aggregate payments for water and sewer services (\$ millions)	\$132	\$56	\$1,235	\$114	\$131	\$586	\$322	\$2,649
Percent of household that pay for water and sewer services	39%	8%	49%	67%	67%	64%	36%	39%
Average amount per household (including those who pay zero)	\$148	\$18	\$278	\$271	\$367	\$499	\$203	\$217
Average amount per household (excluding those who pay zero)	\$448	\$237	\$564	\$403	\$548	\$779	\$565	\$363

Figure 2.12 Average Spending per Saskatchewan Household in 2005, Selected Items

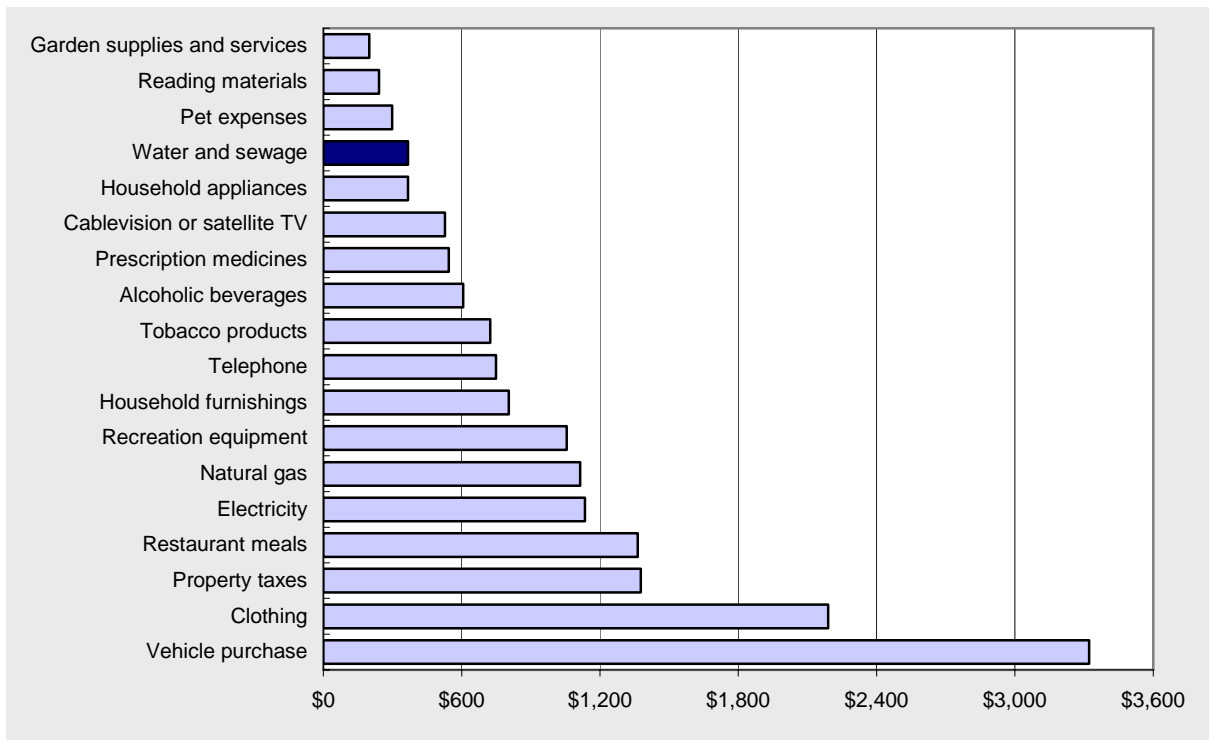


Table 2.6 Household Spending on Water and Sewer Services, 2005

		Households	Aggregate Spending (\$ millions)	Percent who pay directly	Average amount paid by those who pay directly
Average over all households		355,600	\$130.5	67%	\$548
Location	Regina/Saskatoon	160,500	\$68.9	69%	\$624
	Other urban	94,700	\$37.9	71%	\$564
	Rural	100,400	\$23.7	60%	\$391
Type of dwelling	Single detached	277,300	\$121.4	80%	\$549
	Apartments	49,800	\$1.9	7%	\$566
	All others	28,600	\$7.2	48%	\$526
Household Income	Less than \$20,000	57,300	\$8.6	35%	\$423
	\$20,000 to \$39,999	76,000	\$22.3	62%	\$476
	\$40,000 to \$59,999	75,200	\$26.2	69%	\$503
	\$60,000 to \$79,999	56,700	\$23.6	75%	\$553
	\$80,000 plus	89,900	\$49.3	84%	\$651

2.3 Bottled Water

There is a good deal of controversy about the use of bottled water in Canada. Observers disagree on the ethics and environmental impact of bottle water consumption and whether or not consumers are making an appropriate decision on the basis of good information. There is little doubt, however, that:

- consumer spending on bottled water has grown exponentially in the past few years;
- concern about the quality of municipal water supplies is part of the reason;
- that major corporations such as Coca Cola and PepsiCo have become involved in the bottled water market.

There are no hard data on spending by Saskatchewan residents on bottled water for drinking but there has been a recent study by Statistics Canada on its use³. The information from that study is summarized in this section. The survey covered all households in Canada except those located on Reserves with a sample size of 36,431 households nationally. A selection of the available statistics from this survey are shown in Table 2.7.

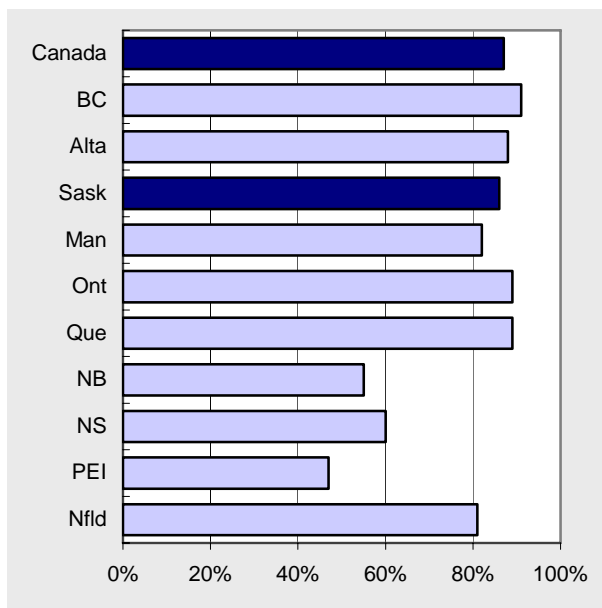
Main Source for Drinking Water

The vast majority of Saskatchewan residents, 86% in 2006, get their water from a municipal water source. The remaining 14% will largely be those in rural areas with their own water supply system. The proportion in the province is near the average in other prairie provinces and the national average. Only in the Maritime Provinces is the provision of water by other than the municipal governments less than 80%.

Among those who have a municipal water supply, only three quarters (74%) reported that they drank tap water at all – 64% “primarily” tap water and 10% a combination of tap water and bottled water. The remaining 24% reported drinking “primarily” bottled water. In other words, among the households served by municipal water services, three quarters of the residents feel comfortable drinking tap water. The proportion who report drinking tap water some or all of the time is lower in Regina (80%) than it is in Saskatoon (90%).

The 64% of Saskatchewan households that drink primarily tap water is high relative to the national average of 58% and well above the 55% proportion in Manitoba.

Figure 2.13 Municipal Water Supply is the Main Source of Drinking Water, 2006



³ Households and the Environment, 11-526-XIE

Table 2.7 Drinking Water Statistics, Canada and the Prairie Provinces, 2006

		Manitoba	Saskatchewan	Alberta	Canada
Source of water	Municipal	82%	86%	88%	87%
	Other	18%	14%	12%	13%
Source of drinking water for those with municipal water supply	Primarily tap water	55%	64%	62%	58%
	Primarily bottled water	29%	24%	26%	29%
	Both tap and bottled water	14%	10%	12%	13%
	Total*	100%	100%	100%	100%
In house treatment of drinking water for those who drink tap water	Treat water before drinking	58%	46%	48%	48%
	Do not treat water before drinking	42%	54%	52%	52%
	Total*	100%	100%	100%	100%
Reason for treating drinking water (% of those who treat municipal tap water before drinking it)**	To improve appearance, taste, or colour	70%	67%	61%	59%
	To remove water treatment chemicals	45%	46%	44%	50%
	To remove metals or minerals	31%	32%	34%	36%
	To remove possible bacterial contamination	38%	30%	33%	40%

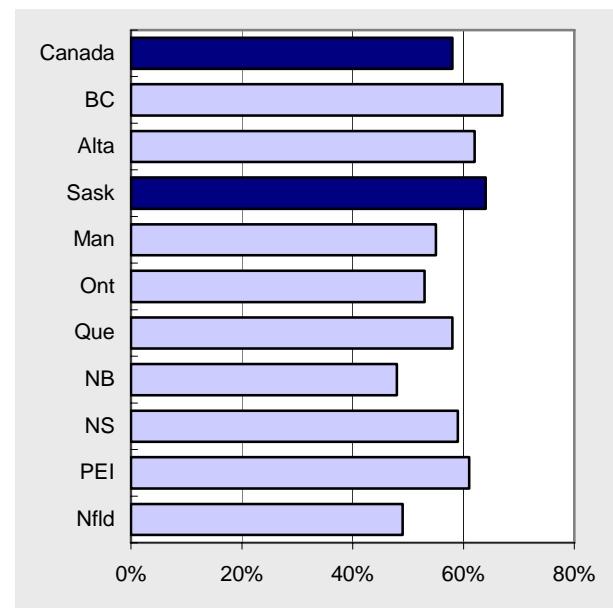
* total of above rows may not be 100% because of rounding errors

** multiple response allowed

There is, however, a significant proportion of tap water drinkers who treat the municipal water in some way before they drink it. In fact, about one half of those Saskatchewan residents who drink tap water treat it with either an in-line or stand-alone filter. The proportion is higher in Regina (54%) than in Saskatoon (37%) or the province as a whole (46%).

There are many reasons why Saskatchewan residents choose to treat tap water before drinking it. According to the survey, the most common reason is to improve its appearance or taste, a comment that was mentioned by two thirds (67%) of respondents. The second most common reason is to remove water treatment chemicals. Approximately one third treat water in-house in order to remove metals or minerals or to remove possible bacterial

Figure 2.14 Percentage of Households with a Municipal Water Supply that Drink Primarily Tap Water, 2006



contamination. The proportion who treat the tap water to improve appearance, taste, or colour is particularly high (74%) in Regina.

The reasons why Saskatchewan residents treat water, and in fact, the proportion who treat water in-house are generally the same as other Canadians.

To put all of these proportions into context, one can combine the various questions for Saskatchewan residents who get their water from a municipal system. Figure 2.15 shows that 40% are satisfied with their drinking water in the sense that they drink primarily untreated tap water. The remaining 60% are split between the 25% who drink primarily bottled water and the 35% who filter tap water before they drink it.

The provincial government has also surveyed Saskatchewan consumers for the Saskatchewan Ministry of the Environment. In the 2006-07 annual report, they report that in May 2007 68% of Saskatchewan residents were willing to pay more to improve their drinking water and 83% are confident in the safety of their drinking water.

SECTION 3 WATER AND WASTEWATER WORKERS: CENSUS INFORMATION

The Statistics Canada Census is the only publicly available information about the labour market characteristics of water and wastewater workers in Saskatchewan. Other surveys do not have a sufficient sample size or do not collect occupation-level data. This section contains a summary of information that is available from the 2001 and 2006 census⁴.

In all labour market reports produced by Statistics Canada including the census, the occupational classification systems used are the *Standard Occupational Classification System* (SOC) and the *North American Occupational Classification System* (NOC). There are only minor variations between the SOC and the NOC.

The NOC is a 4-digit classification scheme. At the four-digit level, it describes occupational groups at nearly the job level with 520 different codes. There are three NOC codes relevant to water and waste water workers.

Water and Waste Plant Operators (NOC = 9424, SOC = J134) are defined as follows.

Water plant operators monitor and operate computerized control systems and related equipment in water filtration and treatment plants to regulate the treatment and distribution of water. Waste plant operators monitor and operate computerized control systems and related equipment in wastewater, sewage treatment and liquid waste plants to regulate the treatment and disposal of sewage and wastes. They are employed by municipal governments, industries and institutions.

To work in this occupation, completion of secondary school is usually required and college, high school or industry training courses in water treatment pollution control and certification in water distribution or treatment (Levels I, II or III) is required.

Unskilled labour in water and waste water treatment plans would be classified along with other labourers as Labourers in Chemical Products Processing and Utilities (NOC = 9613, SOC=J313). Supervisors would also be classified with other chemical plant and utility supervisors as Supervisors, Petroleum, Gas, and Chemical Processing and Utilities (NOC = 9212, SOC = J012).

According to the Statistics Canada Census, there were 520 Saskatchewan adults who reported that "Water and Waste Plant Operators" was their "main job" in 2006 (see Table 3.1). This is a substantial increase from the 370 reported in 2001. There were 480 Supervisors, Petroleum, Gas, and Chemical Processing and Utilities but it is unknown how many of these would have been supervisors in water and

⁴ Not all of the information from the 2006 census had been released when this report was prepared. In particular, data on earnings by occupation was not available.

waste water treatment plants. It is also unknown how many of the 275 labourers in chemical products processing and utilities would be working in water and waste water treatment plants.

The census data is of limited use in an analysis of the labour market for water and waste water plant operators because relatively little data is published about those who work in this occupation. In fact, the only information that is available about water and waste plant operators from the census is that:

- virtually all (95%) are men;
- 74% worked throughout the previous year on a full-time basis;
- among the 280 who worked on a full-time basis throughout 2000, the average income from employment was \$38,500;
- in 2001, two thirds (65%) were 35 to 54 years of age, 14% were 55 years of age or older and the remaining 22% under 35 years of age; and
- in 2001, one quarter (27%) lived in Regina or Saskatoon.

Information for supervisors and labourers from the census is not useful because it is combined with those who work in chemical product plants. The census data has apparently missed many of those who work in the sector or classified them into other occupation groups. The Saskatchewan Ministry of Environment estimates that there are over 500 facilities and over 1,000 operators in Saskatchewan.

One of the advantages of census data is that interprovincial comparisons can be made. Table 3.2 shows the number of water and wastewater plant operators across Canada in 2006 compared with the population.

The figures show that Saskatchewan has a disproportionately high number of water and wastewater plant operators. This will be partly because of the widely dispersed population in the province and partly because of the high number of part-time operators in the province.

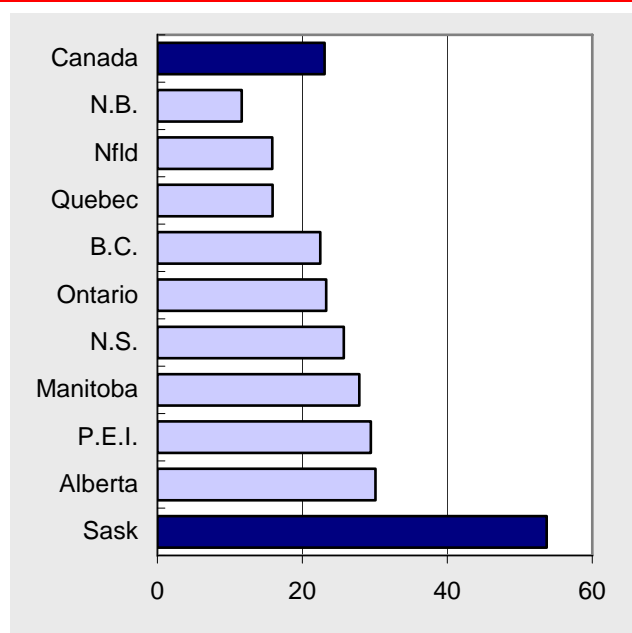
Table 3.1 Census Data for Saskatchewan, Selected Occupations

NOC	SOC	Job Title	Number in 2001	Number in 2006
9212	J012	Supervisors, Petroleum, Gas, and Chemical Processing and Utilities	475	480
9424	J134	Water and Waste Water Plant Operators	370	520
9613	J313	Labourers in Chemical Products, Processing, and Utilities	180	275

Table 3.2 Number of Water and Waste Water Plant Operators in Canada, 2006

	Operators	Operators per 100,000 population
Nfld	80	16
P.E.I.	40	29
N.S.	235	26
N.B.	85	12
Quebec	1,200	16
Ontario	2,830	23
Manitoba	320	28
Saskatchewan	520	54
Alberta	990	30
B.C.	925	22
Canada	7,285	23

Figure 3.1 Water and Wastewater Plant Operators per 100,000 Population, by Province, 2006



SECTION 4 WATER AND WASTEWATER OPERATORS IN SASKATCHEWAN

The Saskatchewan Ministry of Environment is responsible for the quality of the water in Saskatchewan generally and drinking water in particular. The Ministry maintains a website (www.SASKH2O.ca) that lists the facilities in Saskatchewan that have certified operators.

This information on the listing as of April 2007 was used to develop a description of certified operators in Saskatchewan, their level of certification, and the location⁵. The data is summarized in this section.

Although there were 1,191 persons listed on the site, 112 were duplicates in the sense that the operator was listed as being certified for two different facilities. That leaves a total of 1,079 operators whose certification level is documented in Table 4.1.

The majority of operators are certified at some level for water treatment and distribution – 78% and 68% respectively. Less than one half are certified in either wastewater collection or treatment. The figure also show that Level I is the most common certification level.

The database can also be used to look at the geographic distribution of water and wastewater workers in the province. Table 4.2 shows a breakdown by the community in which the facility is located. Note that the water and wastewater worker may or may not live in that community.

The figures show that the majority of water and wastewater workers work in smaller communities. In April of 2007, 51% worked in smaller towns/villages, Hutterite colonies, or the North. About one in four work in a larger centre.

Table 4.1 Level and Type of Certification for Water and Wastewater Workers in Saskatchewan, as of April 2007

	Small systems	Level I	Level II	Level III	Level IV	Total
Water distribution	197	356	169	5	2	729
Water treatment	195	338	226	48	33	840
Wastewater collection	99	276	63	2	1	441
Wastewater treatment	101	305	39	4	7	456

Source: www.saskh20.ca

⁵ Although the listing could theoretically be used to describe the number of water and wastewater treatment facilities in the province, the data was not of sufficient quality to do so.

Table 4.2 Location and Type of Facility for Water and Wastewater Workers in Saskatchewan, April 2007

		Number	Percent of total
Cities	Saskatoon	90	8%
	Regina (including Buffalo Pound)	68	6%
	Prince Albert	24	2%
	Moose Jaw	17	2%
	North Battleford/Battleford	22	2%
	Yorkton	19	2%
	Estevan	10	1%
	Melville	10	1%
	Lloydminster	9	1%
	Melfort	9	1%
	Weyburn	9	1%
	Swift Current	6	1%
	Subtotal	293	27%
Towns and villages		505	47%
North		36	3%
Hutterite colonies		9	1%
Parks, campgrounds		92	9%
Private corporations	Uranium mines	43	4%
	Potash mines	28	3%
	Other	21	2%
Other/unknown		52	5%
Total		1,079	100%

Source: www.SASKH2O.ca

SECTION 5 RESULTS FROM THE SURVEY OF OPERATORS

The bulk of the labour market research prepared for this report was obtained with a sample survey of water and wastewater workers in Saskatchewan. The results of that survey are summarized in this section. A copy of the survey questionnaire is included as Appendix A.

A database of potential respondents was compiled from the SWWA membership listing and the April 15th version of the operating listing on the H2O website maintained by the Saskatchewan Ministry of Environment. The two lists were merged to yield a listing of over 1,300 potential survey respondents. Home or work addresses were obtained for all but 100 of these (see Table 5.1).

Support was solicited by mail from organizations with an interest in the survey and the survey results. Letters were mailed to these organizations offering them a copy of the survey questionnaire and asking for their support if they were approached about the survey. The organizations were:

- the Saskatchewan Ministry of Environment and Resource Management;
- the Saskatchewan branch of the Canadian Union of Public Employees;
- the Saskatchewan regional office of the Department of Indian Affairs and Northern Development; and
- the Saskatchewan Urban Municipalities Association.

The surveys were mailed over a one week period from August 19th to the 25th in 2006. A deadline of September 7th was specified but valid questionnaires were accepted up to October 18th.

The overall response rate of 41% was less than what was expected given that operators were being surveyed about a subject that they should find important and interesting and the fact that the survey would probably have taken less than ten minutes to complete.

Nonetheless the survey can be considered as statistically reliable as long as those who did not answer the survey would generally have responded in the same way as the 478 who did so. If the responses are representative of the population of operators in the province, then the maximum error for the survey would be $\pm 3\frac{1}{2}\%$, nineteen out of twenty times. Other information about operators suggests that respondents were generally representative of water and wastewater workers in Saskatchewan.

Table 5.1 Basic Survey Counts

	Counts
SWWA members not on H2O site	228
SWWA members on H2O site	492
Non-members on H2O site	584
Subtotal	1,307
unable to obtain addresses	-100
Total mailed	1,207
Returned as undeliverable, moved, refused to accept, etc.	-39
Potential respondents	1,168
Actual respondents	478
Response rate (478 ÷ 1,168)	40.9%

5.1 Age, Gender, and Other Demographic Characteristics

This section looks at some of the basic demographic characteristics of the survey respondents and by extension, water and wastewater workers in Saskatchewan.

Gender

The vast majority – 94% according to the survey results – of water and wastewater workers are men (see Table 5.2). While this is not a surprise, it should be of some concern to the industry and the association because the profession is effectively drawing workers from only one half of the Saskatchewan population.

The small number of women means that no breakdown of other survey questions by gender was undertaken because the results would be statistically unreliable.

Other Diversity Measures

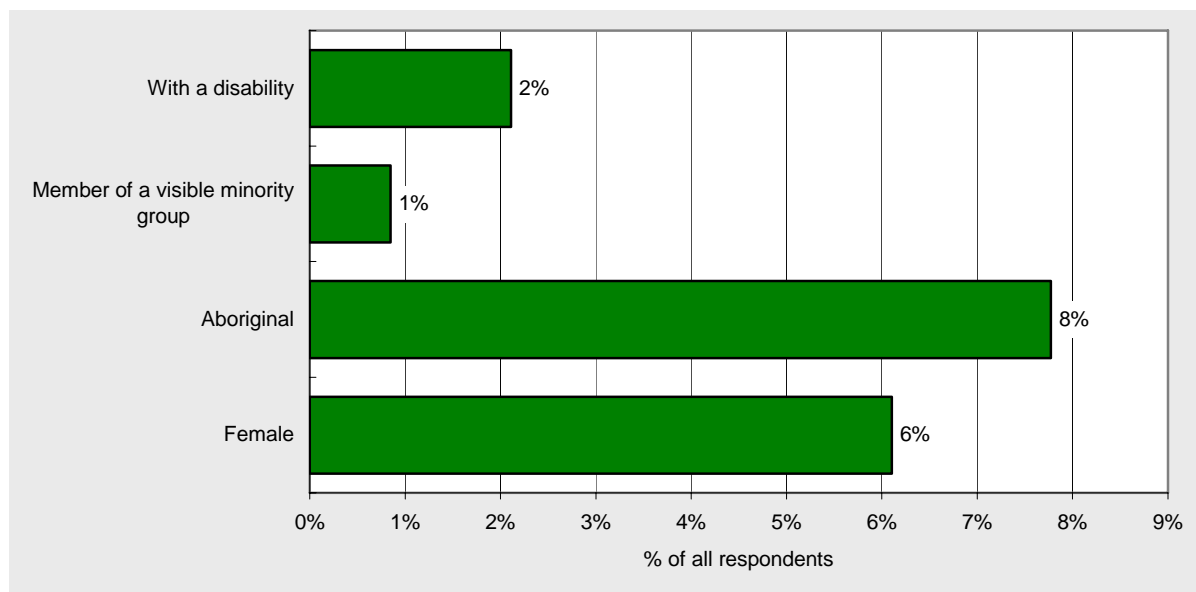
As with gender, there is a low proportion of persons who reported being members of other diversity groups. In particular, only 2% of survey respondents

Table 5.2 Gender and Diversity Measures for Water and Wastewater Workers

		Count*	Percent
Gender	Male	446	94%
	Female	29	6%
Total		475	100%
Aboriginal identity	Yes	37	8%
	No	439	92%
Total		476	100%
Member of visible minority group	Yes	4	1%
	No	468	99%
Total		472	100%
Reporting a Disability	Yes	10	2%
	No	464	98%
Total		474	100%

* In this and other tables in this report, the difference between 478 and the total number represents the respondents who left the question blank. The percentages are always calculated on the basis of only those who answered the question.

Figure 5.1 Diversity Measures for Water and Wastewater Workers



reported having a disability and only 1% reported being members of a visible minority group.

A somewhat larger proportion (8% of respondents) reported that they were Aboriginal. This may be an understatement of the true number because facilities on Reserves were generally under-represented among those who responded to the survey⁶.

Age Group

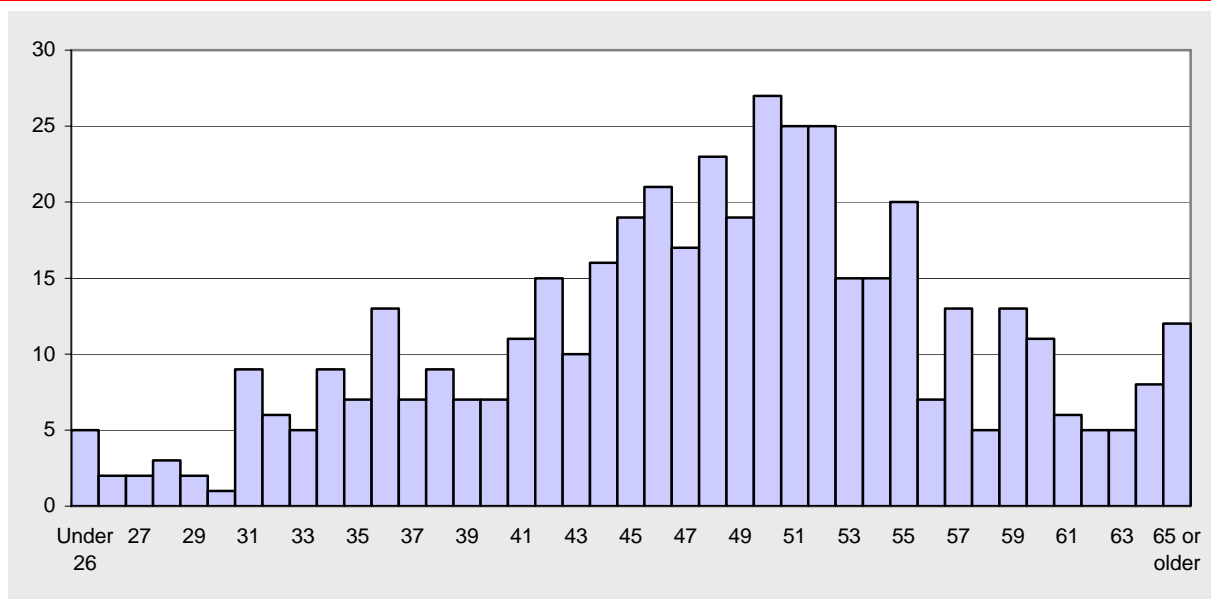
Age is an important indicator in any labour market analysis for a number of reasons. The first reason is that age is often a determinant of attitudes and opinions and so it is usually an indicator of a worker's attitude and approach to their job. Secondly, age is an indicator of how the supply of water and wastewater workers might change in the future because of retirements and turnover.

The majority of survey respondents are clustered in the 44 to 55 year age group – 53% of survey respondents were in this relatively narrow age band of twelve years. The median age is 49 years; that is one half of water and wastewater workers are younger than 49 and one half are older than 49. There were very few respondents (10%) under 35 years of age and very few (3%) 65 years of age or older.

Table 5.3 Age Group for Water and Wastewater Workers

	Frequency	Percent
Under 35	44	10%
35 to 44	102	22%
45 to 54	206	45%
55 to 64	93	20%
65 plus	12	3%
Total	457	100%

Figure 5.2 Individual Ages for Water and Wastewater Workers



⁶ Part of the reason is that relatively few First Nation facilities are listed on the SASKH2O website and relatively few are members of SWWA.

Figure 5.3 compares the age of water and wastewater workers with the general employed population in Saskatchewan in 2006⁷. One would not necessarily expect that water and wastewater workers have the same ages as the general labour force population with all of the students working in retail establishments and restaurants or the number of seniors who are still farming. Still, the concentration in the 45 to 54 age group and the almost complete absence of workers under 30 years of age is striking. This has important implications for the profession in terms of education and training, certification, and retirements.

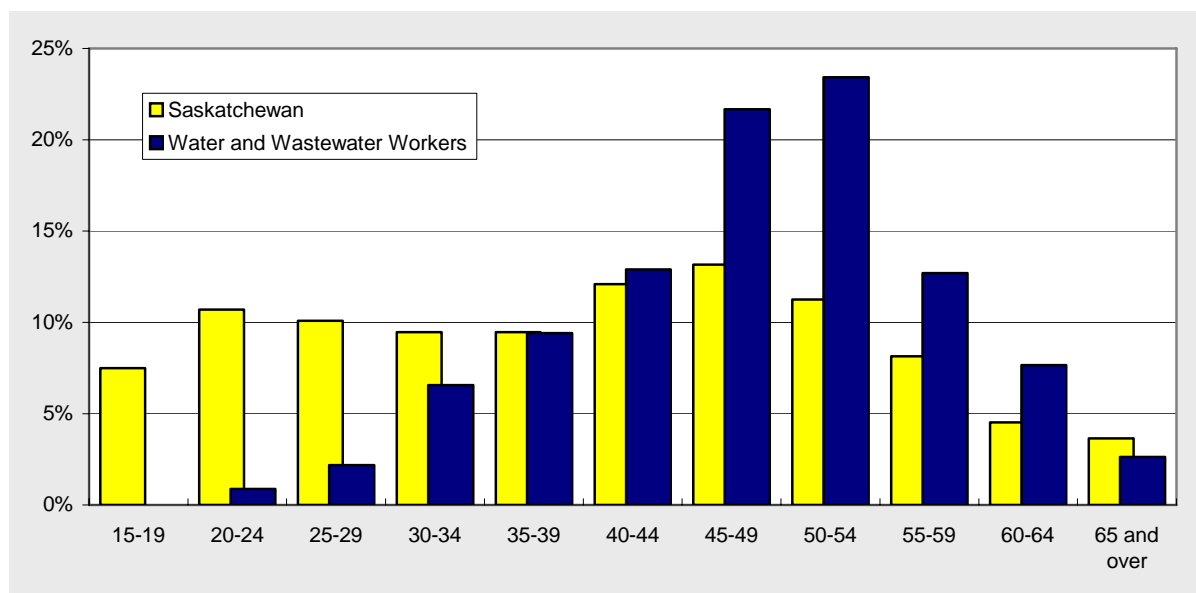
A survey of Alberta water and wastewater operators found a slightly higher proportion under 35 years of age (16% compared with 10% in Saskatchewan) and a slightly lower proportion over 45 year of age (51% compared with 68% in Saskatchewan).

In the balance of the report, other respondent characteristics are examined across three age groups – the 32% who are under 45 years of age, the 45% who are 45 to 54 years of age, and the remaining 23% who are 55 years of age or older.

Migration

Interprovincial migration can only be measured indirectly using a survey of current water and wastewater workers in Saskatchewan. In the survey, respondents were asked if they were born in Saskatchewan. This can be compared with the general adult population of the province to see if, indirectly, water and wastewater workers are more or less likely to be interprovincial in-migrants. (If

Figure 5.3 Age of Water and Wastewater Worker Compared with Age of All Employed Persons in Saskatchewan, 2006



⁷ Source: Saskatchewan Labour Force Survey

there was a good deal of interprovincial migration, one would expect that the proportion born in Saskatchewan would be less than the provincial average and *vice versa* if the proportion was above the provincial average.)

According to the 2001 Statistics Canada census, approximately 80% of Saskatchewan residents were born in the province. The proportion would be lower among seniors and higher among children so that the proportion of those in the working age group is probably not dramatically different.

Table 5.4 Water and Wastewater Workers Born in Saskatchewan

	Frequency	Percent
Yes	407	85%
No	70	15%
Total	477	100%

As Table 5.4 shows, the proportion of water and wastewater workers who were born in Saskatchewan is higher (85%). This shows that in-migration of workers is less common than in other professions and suggests that the same might be true for out-migration. As Figure 5.4 shows, the proportion who were born in Saskatchewan is somewhat higher among younger respondents and somewhat lower among older respondents.

Members of the Saskatchewan Water and Wastewater Association

Although it is difficult to determine precisely, it appears that about 55% of water and wastewater workers in Saskatchewan are members of the Saskatchewan Water and Wastewater Association (see Table 5.1).

Among respondents to the survey, four out of five (80%) indicated that they were SWWA members. This means that SWWA members were much more likely than non-members to complete the survey. The survey was sponsored by SWWA so non-members may have felt that they didn't need to respond but it probably will also be true that SWWA members are more likely to be interested in the profession than non-members.

As Figure 5.5 shows, younger respondents were more likely to be members than older ones. Among those under 55 years of age and older, for example, only 70% of respondents were members. Looked at another way, 44% of SWWA members are 45 to 54 years of age.

Figure 5.4 Percentage of Water and Wastewater Workers Born in Saskatchewan, by Age Group

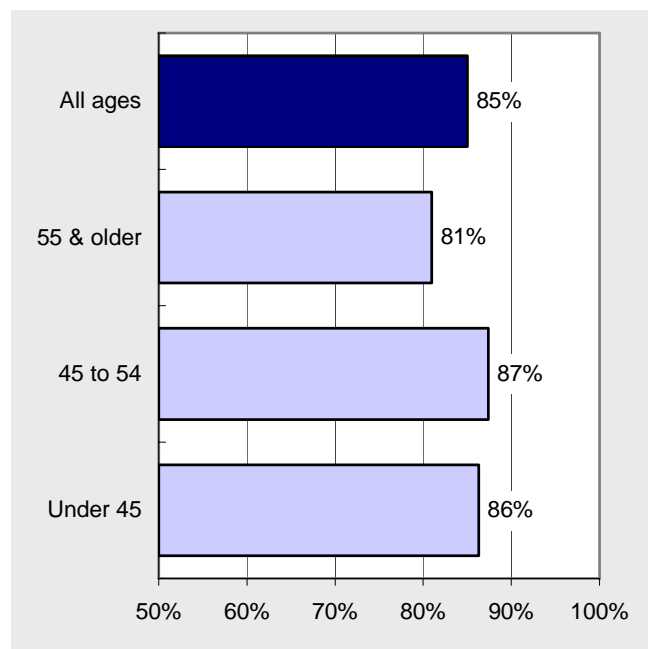


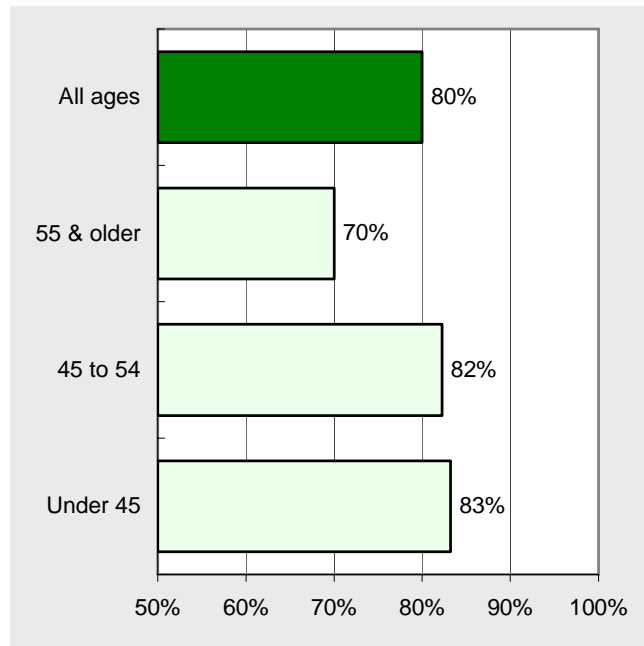
Table 5.5 Association Membership for Water and Wastewater Workers

	Frequency	Percent
Members	367	80%
Not members	93	20%
Total	460	100%

In the balance of the survey, responses will be broken down by membership in the association.

This is done to enable the SWWA executive to understand the extent to which their membership is representative of the profession as a whole.

Figure 5.5 Proportion of Respondents who were Members of the SWWA, by Age Group



5.2 Education and Certification

This section looks at the certification level of the respondents as well as their formal levels of education, whether or not it is related to the profession. The survey also included questions on current training and willingness to take future training.

Table 5.6 shows that approximately one half of respondents had a grade 12 education, 39% had a post-secondary education, usually a certificate or diploma, and the remaining 11% had less than grade 12.

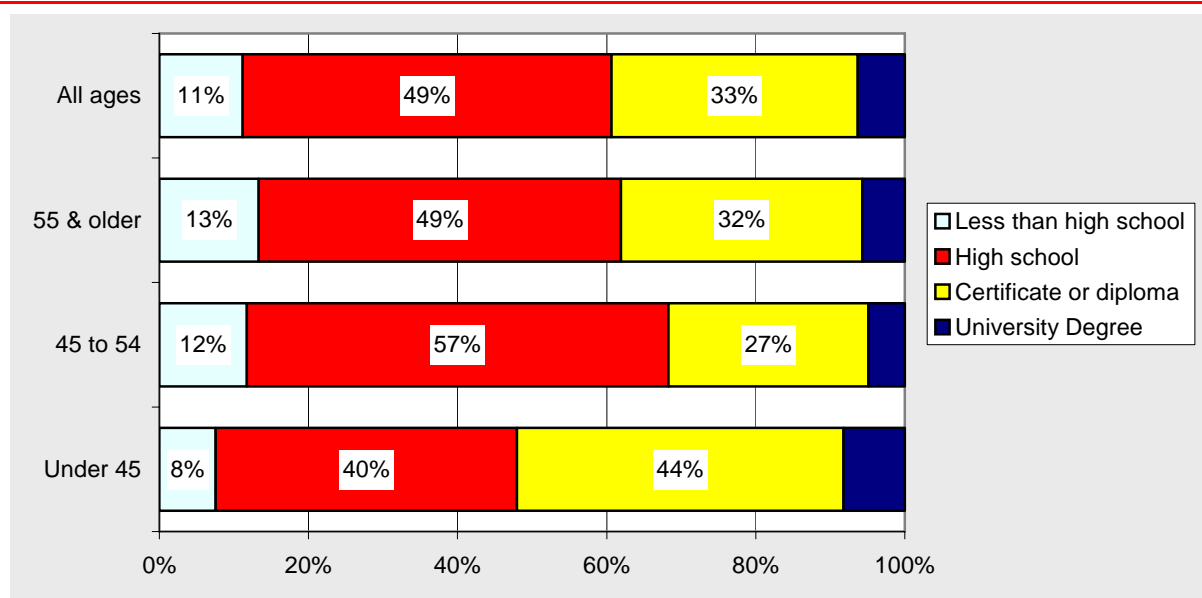
Among the 6% of respondents who were currently going to school, eight out of ten were attending a post-secondary institution and seven out of ten were already post-secondary graduates. This will mean that the education levels of those who are already post-secondary graduates will increase but there will be little effect on the proportion who have grade 12 or less.

Among the employed population in Saskatchewan, the 2007 annual average showed that 33% had a post-secondary certificate or diploma, 17% a university degree, and 34% a grade 12 education. The remaining 17% had less than grade 12. This shows that water and wastewater workers have levels of

Table 5.6 Completed Levels of Education for Water and Wastewater Workers

		Frequency	Percent
Completed education	Less than grade 12	53	11%
	Grade 12 only	235	49%
	Post-secondary certificate or diploma	157	33%
	University degree	30	6%
	Total	475	100%
Currently attending school	Yes	26	6%
	No	444	94%
	total	470	100%

Figure 5.6 Completed Levels of Education for Water and Wastewater Workers by Age Group



formal education that are somewhat higher than in the general labour force.

Of course, the levels of education are related to age although perhaps not as much as one might have expected. Figure 5.6 shows that those who are 55 and older, for example, are more likely to have a post-secondary education than those who are 45 to 54. Those who are under 45 years of age are much more likely to be post-secondary graduates but only slightly more likely to have a university degree. An examination of those who were attending school, either on a full-time or part-time basis, when the survey was conducted shows that they were slightly more likely to be in the younger age group; 9% of those under 45 years of age, for example, were going to school compared with 6% of those 45 to 54 years of age.

SWWA members were somewhat more likely than non-members to have a grade 12 education – 52% compared with 39%. That is, they were less likely than non-members to have less than grade 12 and less likely than non-members to be post-secondary graduates.

Certification

Operators can be certified at five levels in one or more of four separate fields making certification a complex variable for analysis. Table 5.7 shows the level of certification among survey respondents. Certification across the four different fields was combined into a single indicator by taking the highest level among the four fields. With this measure approximately one half (52%) of respondents were certified at level II or higher and one half (48%) at level I or for small systems. A comparison of the data in Table 5.7 with the information in Table 4.1 suggests that survey respondents were generally representative of water and wastewater workers in the province.

The highest level of certification is compared with age in Figure 5.8, with the level of completed formal education in Figure 5.9, and with membership in SWWA in Figure 5.10.

Not surprisingly, the figures from the survey show that certification levels tend to be lower among older water and wastewater workers than among younger ones. Just under one quarter of respondents 55 years of age and older are certified for small systems and only 10% are Level II or higher. Those in the middle age group (45 to 54) are the most likely to have Level III or IV certification.

Table 5.7 Certification Type and Level for Water and Wastewater Workers

	Percent of respondents					Total
	None	Small System	Level I	Level II	Level III or IV	
Water distribution	16%	13%	36%	30%	4%	100%
Water treatment	21%	12%	31%	27%	10%	100%
Wastewater collection	36%	8%	38%	15%	2%	100%
Wastewater treatment	36%	8%	40%	10%	6%	100%
Highest level	3%	12%	33%	35%	17%	100%

It is also no surprise that those with higher levels of certification are the most likely to have higher levels of completed formal education. For example, among those with a university degree, 40% are certified as Level III or IV compared with only 12% of those with a high school diploma. At the other end of the scale, 28% of those with less than grade 12 are certified as small system operators.

Figure 5.10 shows that members of SWWA are, in general, more likely to be certified as Level I and Level II and less likely than non-members to have the highest or lowest levels of certification.

Figure 5.7 Level of Certification, Water and Wastewater Workers

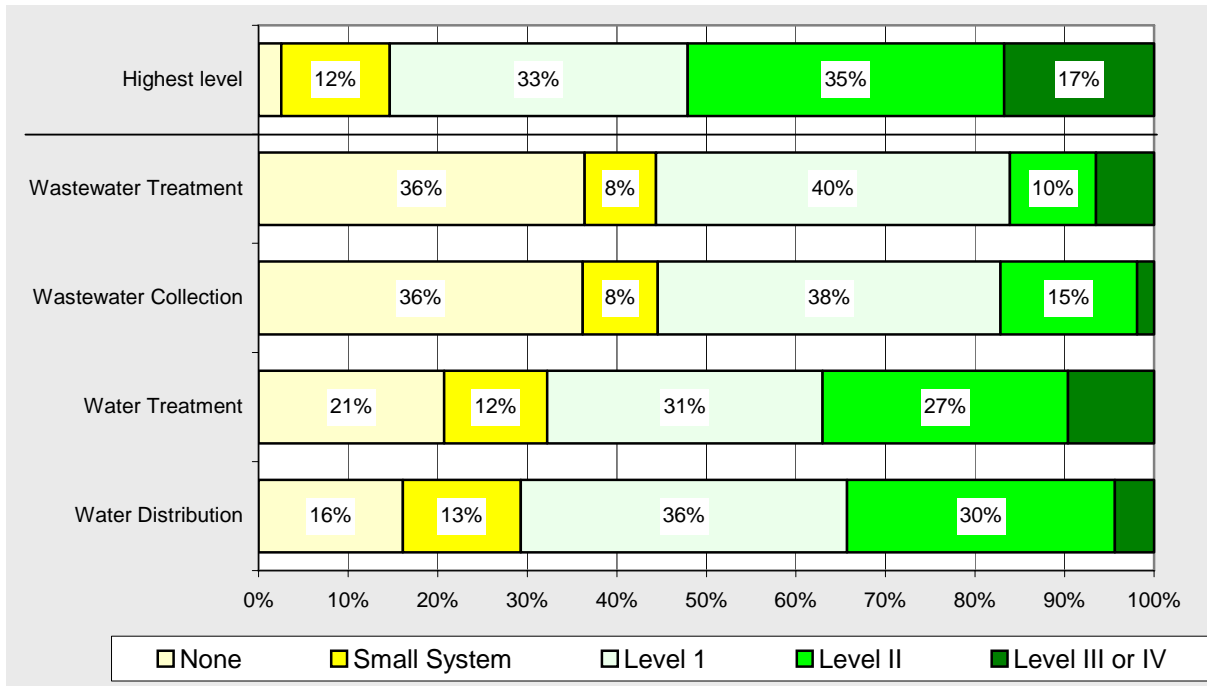


Figure 5.8 Highest Level of Certification, Water and Wastewater Workers, by Age Group

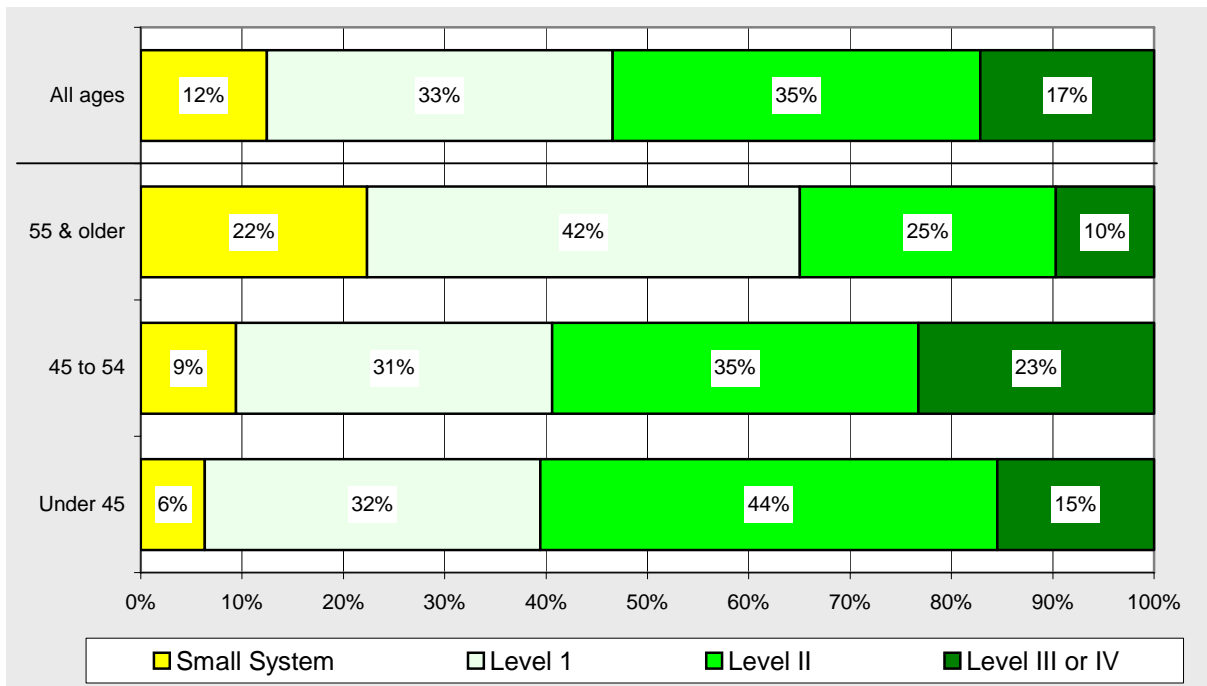


Figure 5.9 Highest Level of Certification, Water and Wastewater Workers, by Highest Level of Completed Education

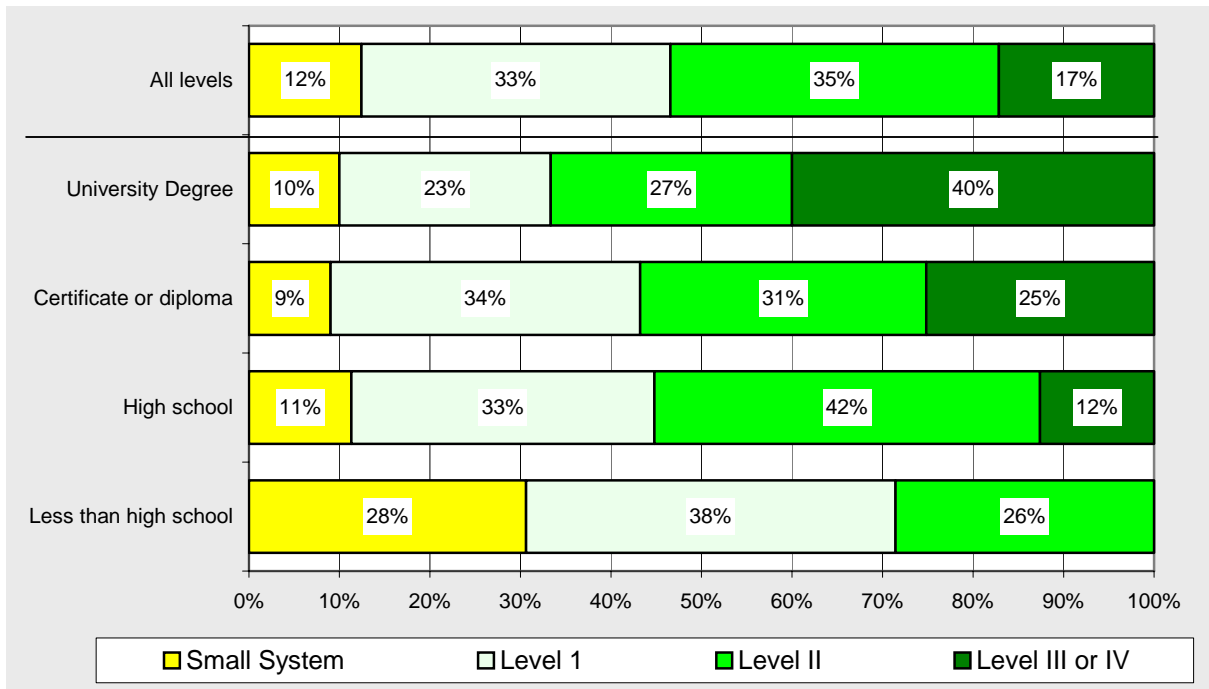
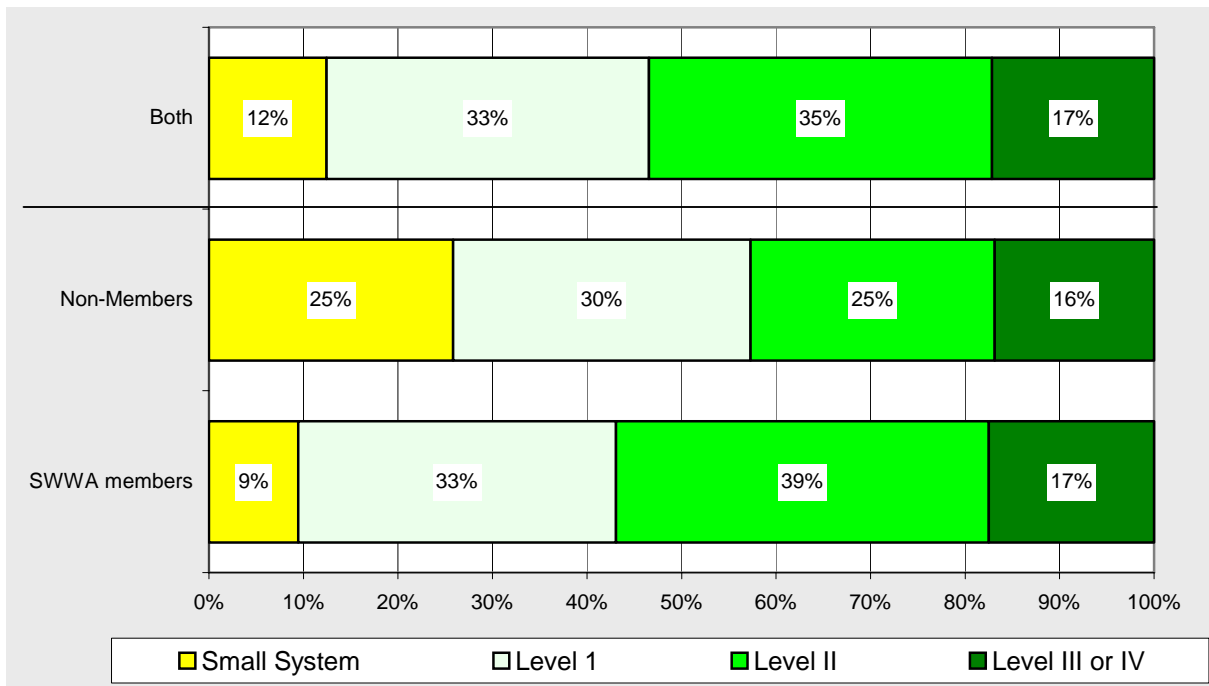


Figure 5.10 Highest Level of Certification, Water and Wastewater Workers, by Membership in SWWA



Survey respondents were asked if they were willing to take additional training⁸. Table 5.8 shows that just under one half were either already taking training or were “very willing” to do so. Only 4% said that they were definitely not interested.

Responses to this question were compared with a number of other variables such as age, current level of certification, and level of formal education. The proportion who are either currently taking training or very willing to do so was 44% overall. It was noticeably higher among those under 45 years of age (57%) and those who already have a post-secondary certificate or diploma (52%).

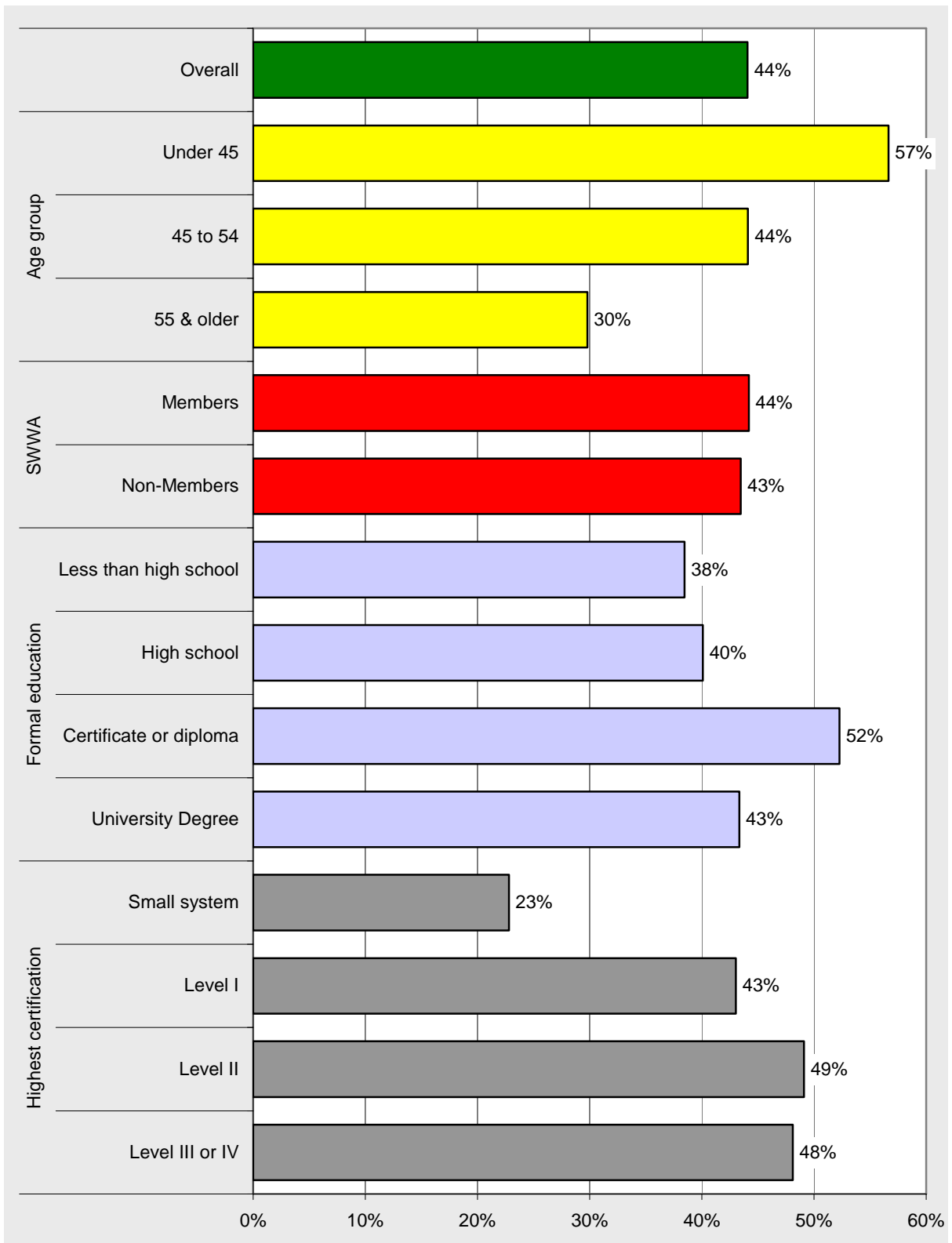
It was noticeably lower among those 55 years of age and older (30%) and those with a small systems certification (23%).

Table 5.8 Willingness to Take Additional Training, Water and Wastewater Workers in Saskatchewan

	Frequency	Percent
Yes, currently taking training	36	8%
Yes, very willing	172	36%
Yes, depending	177	38%
Maybe, probably not	49	10%
Definitely not	19	4%
Don't know	19	4%
All respondents	472	100%

⁸ The actual wording of the question was “Are you willing to take additional training to increase your level of certification?”.

Figure 5.11 Proportion of Respondents who are Either Currently Taking Training or “Very Willing” To Do So, by Selected Characteristics



5.3 Facility Type

Two questions on the survey were asked about the nature of the facility where the respondent worked, namely the type of community and the classification level of the facility.

About four out of ten respondents worked in a facility in a larger community, that is, one with a population of 1,500 or more. Table 5.9 also shows that one quarter were working in a small system water works facility⁹.

Responses about the location of the facility were classified into three groups for analysis – large communities (40% of respondents in communities with a population of 1,500 or more), small towns or villages (48% with a population under 1,500), with the remaining 12% working on Reserves, in Hutterite colonies, or for private corporations.

The larger communities attract a disproportionately higher number of younger water and wastewater workers (48% of those under 55 years of age), and with a post-secondary education. Virtually all (95%) of those with a Level III or IV certification, in fact, work in these facilities.

Looked at another way, the water and wastewater workers in larger facilities are, compared with those in smaller communities or in private corporations:

- less likely to be 55 years of age or older (10% are compared with 31% in smaller communities);
- more likely to be post-secondary graduates (46% compared with 34%);
- more likely to have a Level III or IV certification (40% compared with 1%).

Table 5.9 Type and Location of Facility

		Frequency	Percent
Location	Regina or Saskatoon	67	14%
	Other large city*	46	10%
	Town 1,500 pop or more	76	16%
	Town/Village 500 to 1500	86	18%
	Small town village	141	30%
	Reserve	10	2%
	Hutterite Colony	4	1%
	Private Corporation	37	8%
	Other	3	1%
Total		470	100%
Type**	Small system water works	125	26%
	Small system wastewater	84	18%
	Water distribution	344	72%
	Water treatment	330	69%
	Wastewater collection	282	59%
	Wastewater treatment	288	60%

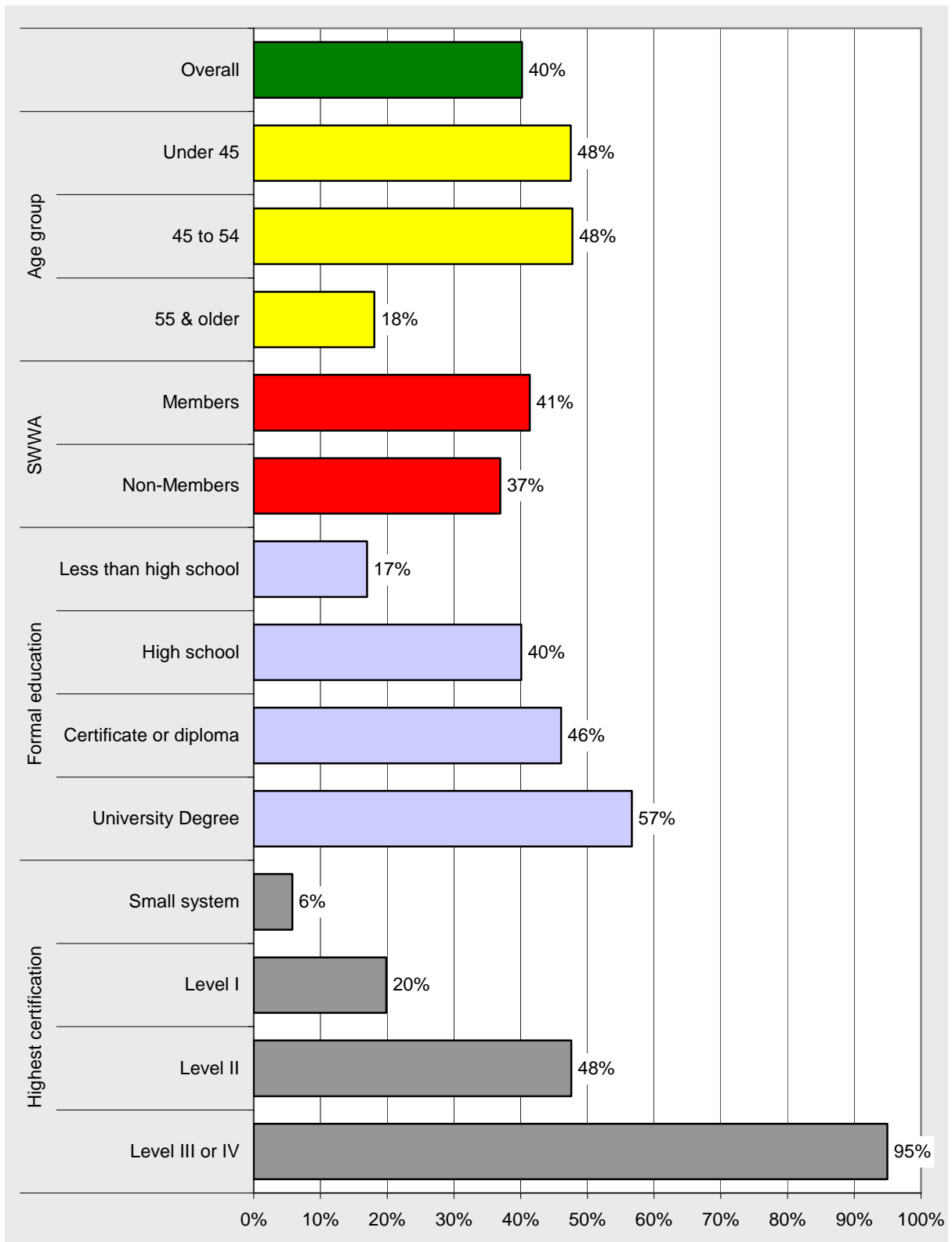
* Prince Albert, Moose Jaw, Yorkton, Swift Current, North Battleford, Estevan

** totals exceed 100% because of multiple responses

⁹

A comparison with Table 4.2 suggests that the survey respondents were generally representative of water and wastewater workers in the province. For example, 14% of respondents were from Regina or Saskatoon compared with 14% of certified operators. Further, 10% were from another large community compared with 13% of certified operators and 8% of respondents worked in private corporations compared with 9% of certified operators.

Figure 5.12 Percentage of Water and Wastewater Workers who Work in Large Communities (population 1,500 or more), by Selected Characteristics



5.4 Position Characteristics

A variety of questions in the survey were designed to describe the positions in which water and wastewater workers were working. These included the number of different positions held by the operators, the hours of work, tenure, and occupation. These characteristics are examined in this section and compared with the characteristics of the operators described in Sections 5.1 and 5.2 and the type of facility in Section 5.3.

Table 5.10 shows that almost all of the survey respondents were working in Saskatchewan, in a permanent position and not temporarily filling in for a higher position. One in ten was a regional operator and two in ten had more than one job, typically a job as a water and wastewater worker and another unrelated job. The proportion of respondents who were union members was 40%.

Four in ten respondents was either a supervisor or a manager, and 44% were operators.

Of these characteristics, the ones that were deemed to be the most relevant for subsequent analysis were union membership and occupational group. For the purposes of the analysis, the occupations were collapsed into three categories – manager/supervisor, operator, and “other”.

Table 5.10 Characteristics of Positions

		Frequency	Percent
Employment status	Currently working in Sask	465	98%
	Currently working outside Sask	2	0%
	Not working	9	2%
Total		476	100%
Multiple job holder	Single water and wastewater workers job	368	79%
	Two water and wastewater worker jobs	43	9%
	Water and wastewater worker job and other unrelated job	57	12%
Total		468	100%
Temporary performance of higher duties	Yes	30	7%
	No	395	93%
Total		425	100%
Class of worker	Permanent	438	92%
	Temporary, term, contract	22	5%
	Casual	14	3%
Total		474	100%
Union member	Yes	191	40%
	No	284	60%
Total		475	100%
Regional operator	Yes	47	10%
	No	401	90%
Total		448	100%
Job category	Executive or manager	34	7%
	Supervisor or Foreman/woman	149	32%
	Operator	206	44%
	Assistant, Relief, or Training Operator	27	6%
	Other	56	12%
Total		472	100%

Some observations about the position characteristics as they relate to the characteristics of the operators and the type of facility are made below in point form.

- The relatively few water and wastewater workers who were not employed at the time of the survey tended to have higher levels of education and certification – 22% for example were certified at Level III or IV.
- Multiple job holders were more common among those whose main job was in a small town – 74% of those with two water and wastewater jobs, for example, worked in a small town for their “main” job.
- The 21% of water and wastewater workers who have more than one job is much higher than in the province as a whole where, according to the Labour Force Survey, 8% of those who work have more than one job.
- Non-permanent positions were more common among those who were not members of SWWA. For example, 82% of those in permanent positions were SWWA members compared with 68% of these in temporary or term positions.
- Most but not all regional operators had a main job in a small town but 20% worked in a larger community.
- Union members were more likely to have higher certification levels and much more likely, of course, to work in larger communities (see Figure 5.13). In the larger towns and cities, almost three quarters (72%) of respondents were union members compared with 12% among those in smaller towns/villages.
- Managers/supervisors, compared with operators, tended to be slightly older with higher levels of certification (see Figure 5.14). They tend to have the same level of formal education, however, and are somewhat more likely to be SWWA members.

Figure 5.13 Percentage of Respondents who were Union Members, by Level of Certification and Location of Facility

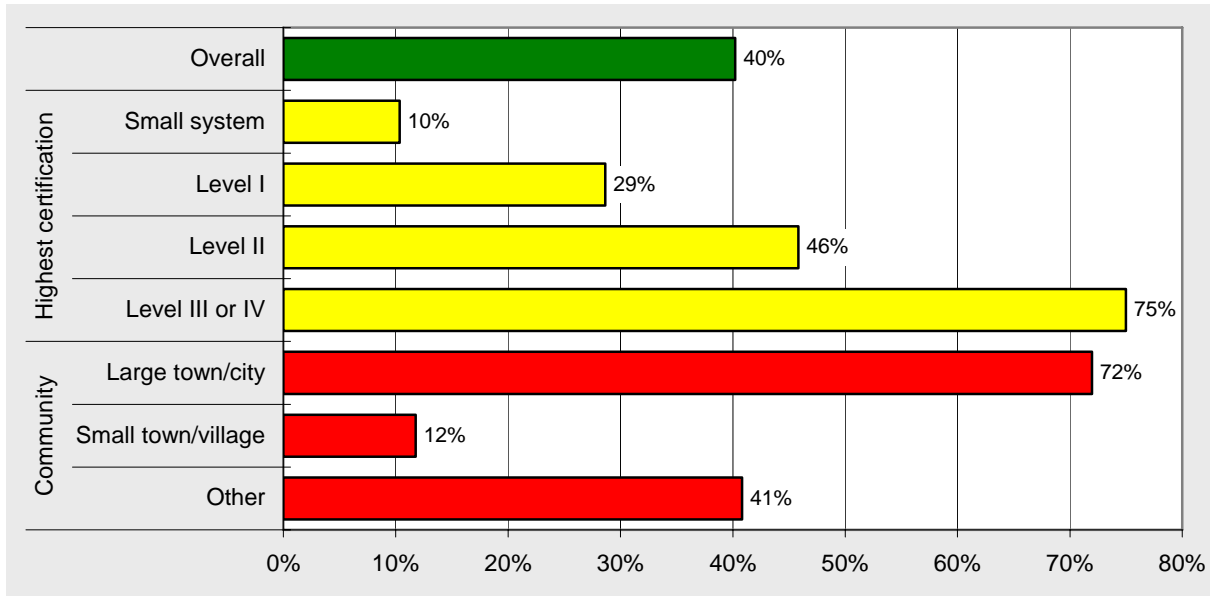
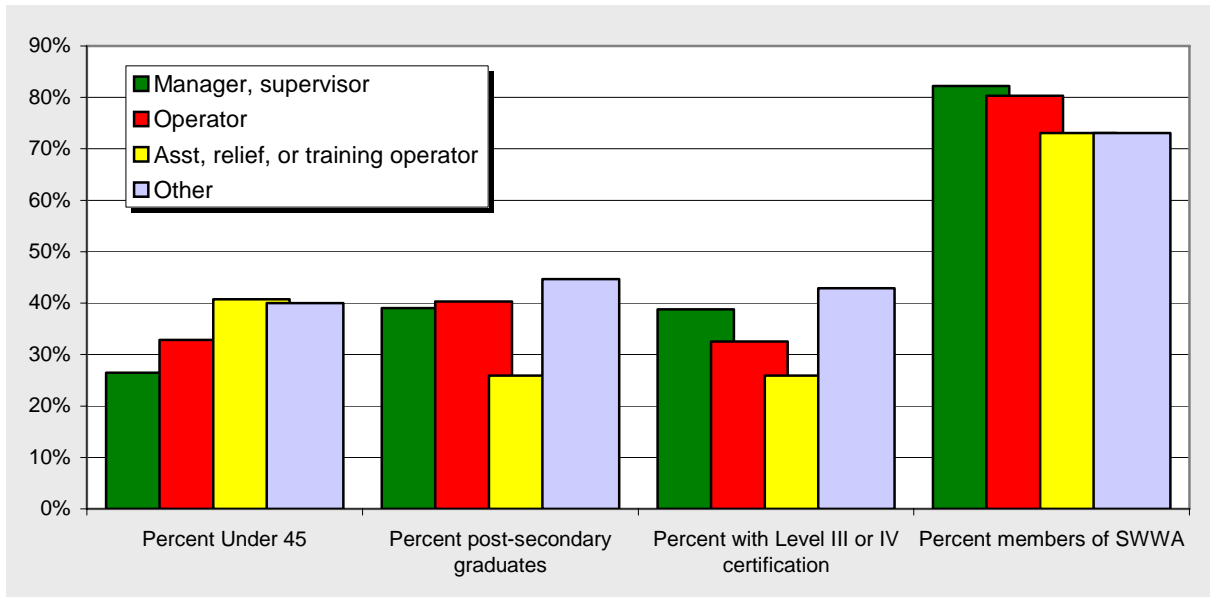


Figure 5.14 Selected Characteristics by Occupation



Tenure and Experience

Survey respondents were asked to report how long they had been in their current position, with their current employer, and in the profession, that is, working as a water and wastewater worker. The results are shown in Table 5.11.

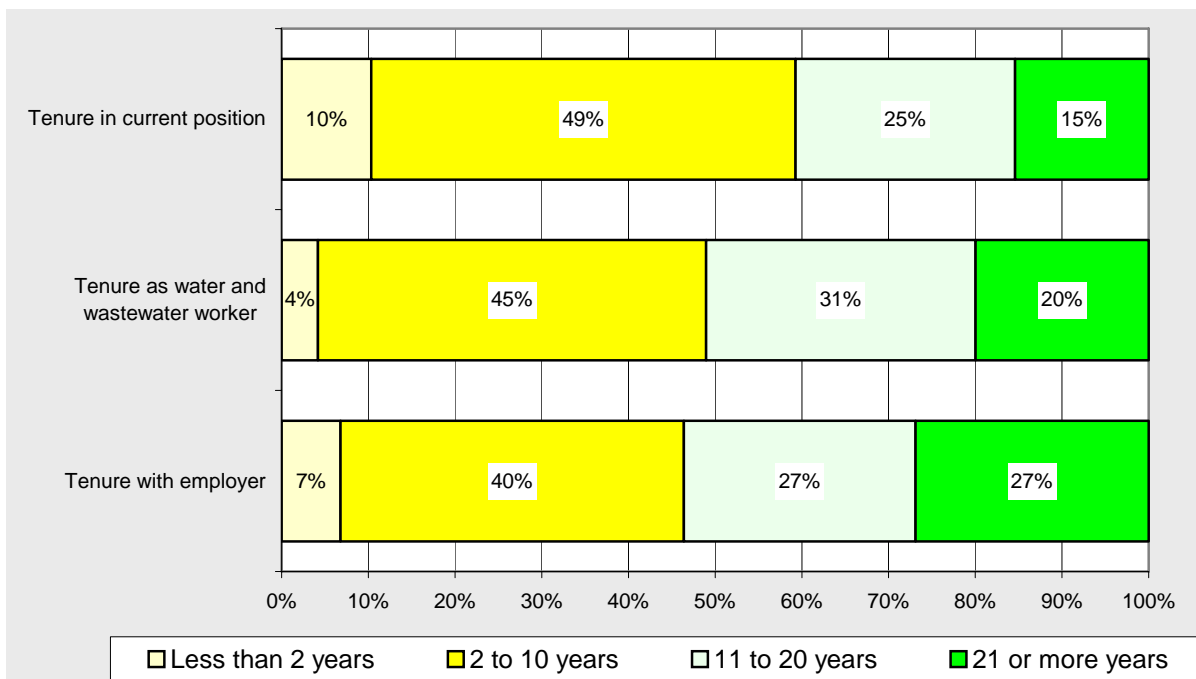
Generally speaking, survey respondent's have been with their current employer longer than they have been in the profession. For example, 54% have been with their current employer for more than ten years but 51% have been a water and wastewater worker for more than ten years. That suggest that a significant proportion of water and wastewater worker have moved into the profession while working for the same employer.

In the Saskatchewan labour market, 17% have been with their current employer for 21 or more years compared with 27% of water and wastewater workers.

Table 5.11 Tenure and Experience

		Frequency	Percent
Tenure in current position	Less than 2 years	49	10%
	2 to 10 years	232	49%
	11 to 20 years	120	25%
	21 or more years	73	15%
Total		474	100%
Tenure with employer	Less than 2 years	32	7%
	2 to 10 years	187	40%
	11 to 20 years	126	27%
	21 or more years	127	27%
Total		472	100%
Tenure as water and wastewater worker	Less than 2 years	20	4%
	2 to 10 years	213	45%
	11 to 20 years	148	31%
	21 or more years	95	20%
Total		476	100%

Figure 5.15 Tenure (occupation and profession) of Water and Wastewater Workers



Not surprisingly, a lower proportion (40% of respondents) have been in their current position for more than ten years because people tend to switch jobs more often than they switch employers.

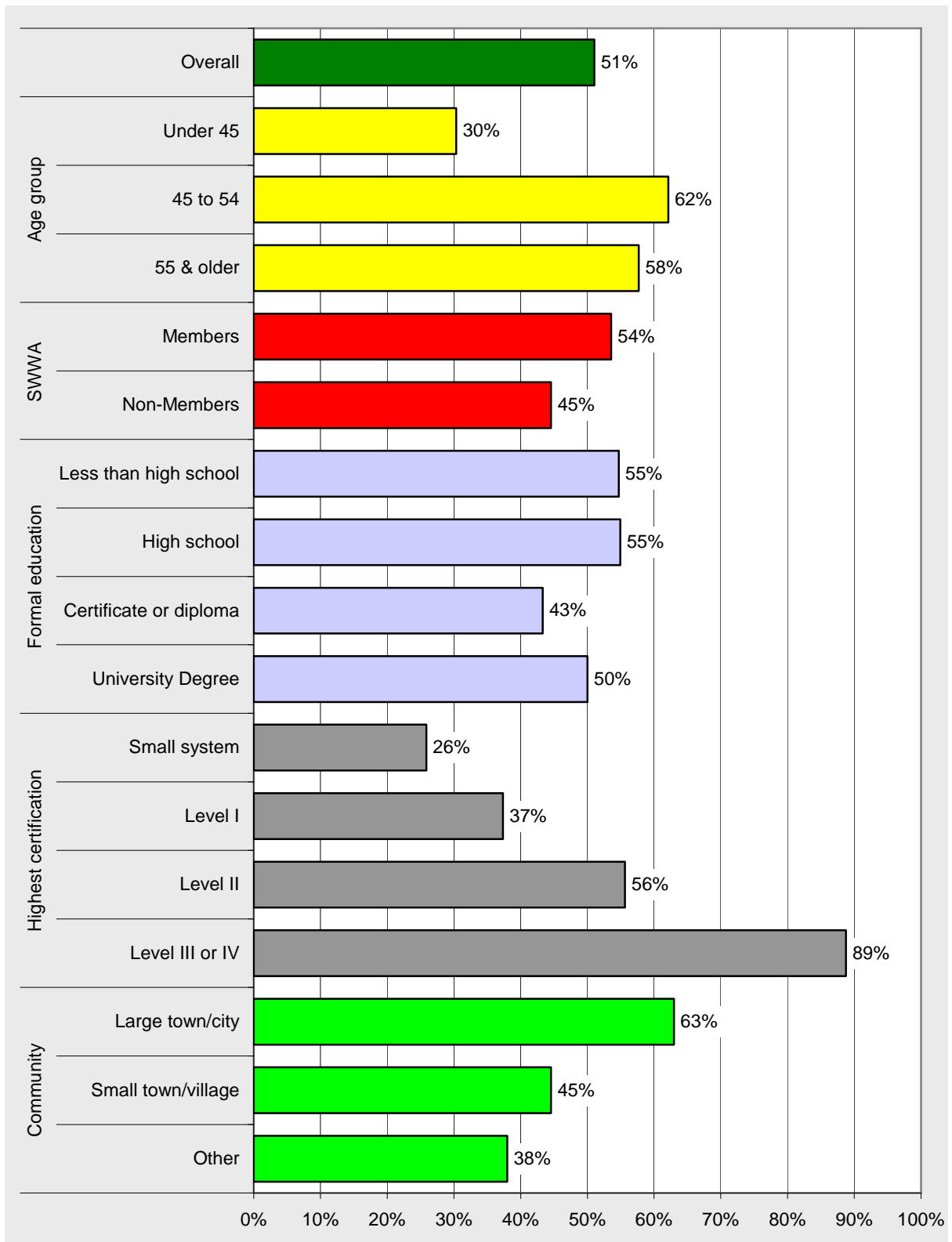
The figures show that water and wastewater workers bring a good deal of experience to their work. The survey respondents, for example, have an average of 12 years of experience in the profession.

Of course tenure is related to a number of other respondent characteristics including age. Figure 5.15 shows that those who have been in the profession for more than ten years are, compared with their less experienced counterparts:

- more likely to be members of the SWWA;
- more likely to have higher levels of certification although not to have higher levels of completed education; and
- more likely to work in a large town or city.

The Alberta survey of water and wastewater workers found that 21% of operators in that province have been in the water and wastewater field for 21 or more years and 39% have been in the field for less than ten years. This compares with 20% in Saskatchewan and 49% respectively in Saskatchewan.

Figure 5.16 Percent of Respondents with Ten or More Years of Experience as a Water/Wastewater Worker, by Selected Characteristics



5.5 Hours of Work

Survey respondents were asked a variety of questions about the number of hours that they work, their work schedules, and whether or not they were paid for overtime and standby duties. Table 5.12 shows the responses to this series of questions.

The definition of “full-time” that is used by Statistics Canada is 30 or more hours per week. With this definition, 85% of water and wastewater workers work full-time. The majority, in fact, work forty hours per week.

In smaller communities, the water and wastewater duties do not require a full-time employee. The town, village, or Reserve has the option of either hiring a part-time operator or having a full-time employee do this water and wastewater work with other duties.

The survey suggests that the second option is the one used most often. Overall, the water and wastewater duties are not the only duties for more than one half (59%) of the respondents. In fact, these duties constitute “hardly any” of their time in 25% of the cases.

The supply and treatment of water, however, is a 24-hour operation so those in smaller communities are necessarily on call or standby when they are not working and operators in larger centres work shift work and other irregular hours.

The survey found that the majority of respondents (58%) work some form of irregular hours, typically evenings and weekends and the majority (58%) are on call either all of the time or frequently. More than three quarters spend at least some time

Table 5.12 Hours of Work

		Frequency	Percent
Hours of work	Part time (less than 10 hours/week)	36	8%
	Part time (10 to 19 hours/week)	19	4%
	Part time (20 to 29 hours/week)	14	3%
	Full Time (30 to 39 hours/week)	78	17%
	Full Time (40 hours/week)	276	59%
	Full time (unknown hours)	48	10%
Total		471	100%
Time spent on water/wastewater duties	All or most	190	41%
	Some	155	34%
	Hardly any	113	25%
Total		458	100%
Irregular hours	Yes, shift work	37	8%
	Yes, evenings, weekends	155	33%
	Both	81	17%
	No	200	42%
Total		473	100%
On call time	Yes, all of the time	207	44%
	Frequently	65	14%
	Occasionally	96	20%
	No	107	23%
Total		475	100%
Paid for on-call or standby duty	Yes	139	30%
	Partly	44	9%
	No	285	61%
Total		468	100%
Unpaid overtime per week in a typical week	No	346	72%
	Yes	132	28%
Total		478	100%
Paid overtime per week in a typical week	No	248	52%
	Yes	230	48%
Total		478	100%

on call. One in three respondents reported that they were paid for on-call or standby duty.

Overtime was quite common among respondents – one half reported at least some paid overtime in a typical week and 28% reported at least some unpaid overtime. Taken together, approximately two thirds of operators work at least some overtime in a typical week.

Responses to the questions on hours of work were compared with other operator characteristics. A number of observations were made.

- Those who work part-time were more likely to be older, certified as small systems operators, and work in smaller towns and village (see Figure 5.18). In the general labour market in Saskatchewan, 20% work part-time compared with 15% of water and wastewater workers.
- The only group of water and wastewater workers where more than one half spend all or most of their time on water and wastewater workers duties were those working in large towns and cities and with a Level III or IV certification (see Figure 5.19).
- Union members were less likely to work unpaid overtime but 13% reported doing so compared with 38% of non-union members. Union members were also less likely to report that they were required to be on call and, if they were, to not be paid for on-call duty.

Figure 5.17 Selected Indicators for Hours of Work

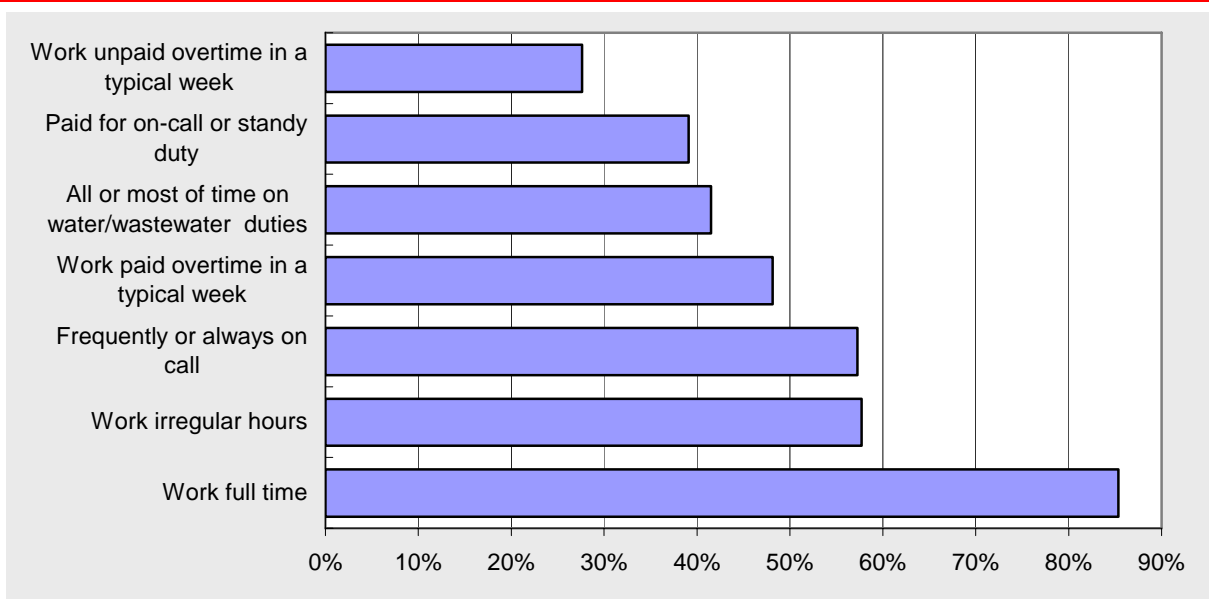


Figure 5.18 Percentage of Respondents who Work Full Time (usual weekly hours more than 30) by Selected Characteristics

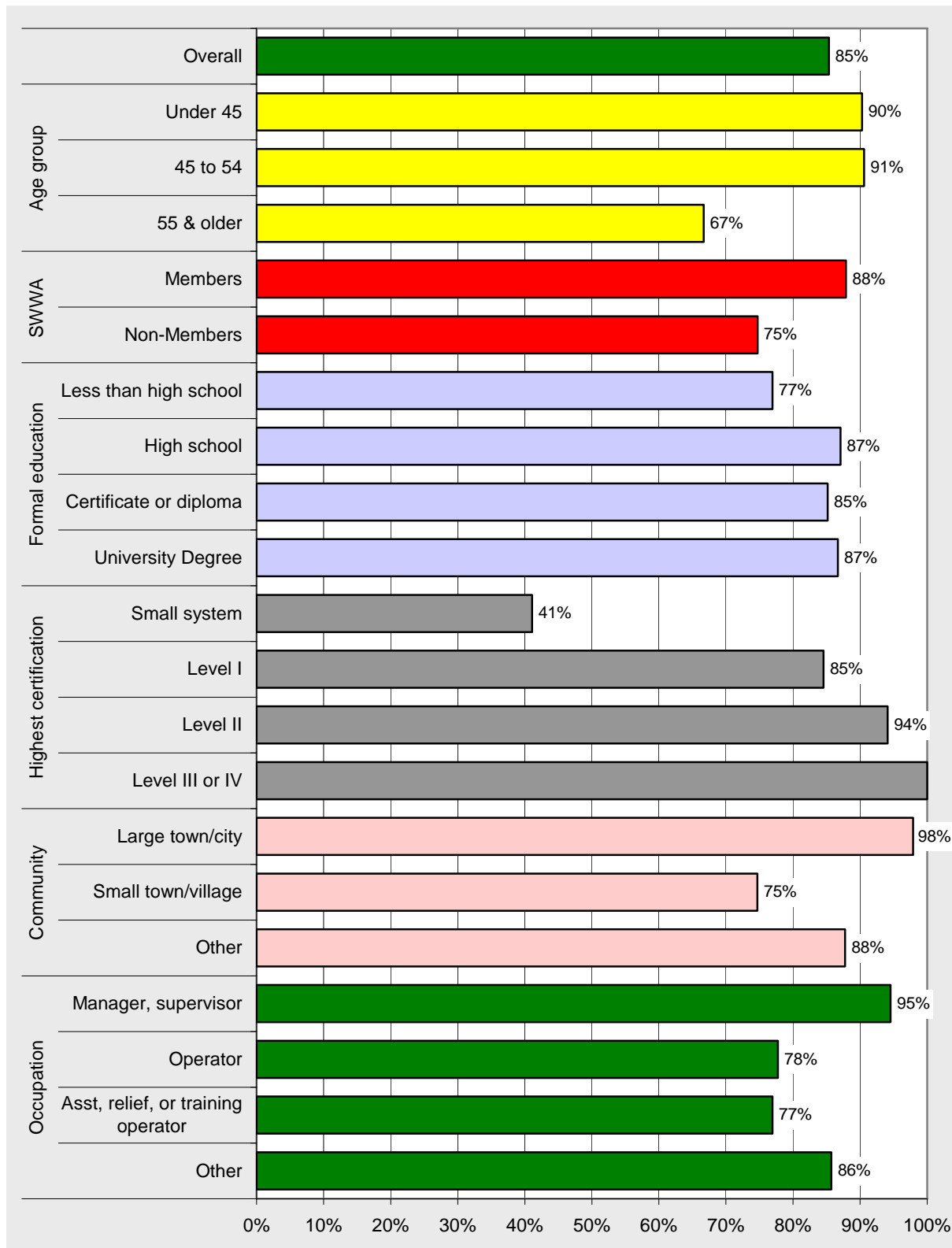
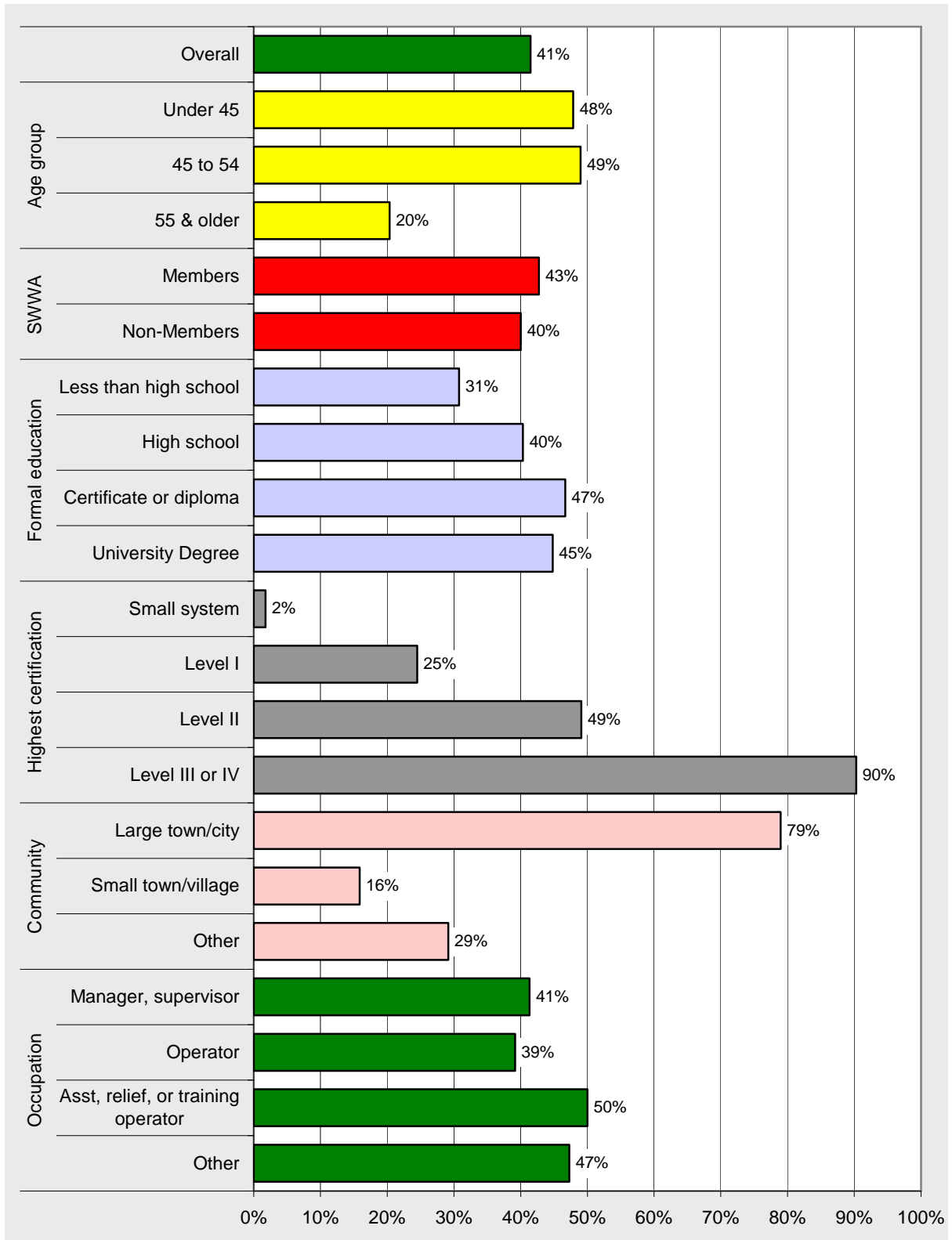


Figure 5.19 Percentage of Respondents who Report Spending “All or Most” of their Time on Water and Wastewater Duties, by Selected Characteristics



5.6 Pay Rates

In 2007, the average hourly rate of pay among paid workers in Saskatchewan (that is, excluding the self-employed) was \$19.00 per hour. According to the survey, water and wastewater workers earn somewhat more than that – \$21.10 per hour – although almost 100 respondents or one in five did not answer this question.

The average hides a good deal of variation among water and wastewater workers. As Figure 5.20 shows, a relatively small proportion of water and wastewater workers have hourly wage rates in the \$20.00 to \$21.99 range – 14% in fact. One half (49%) have rates below \$20.00 and 37% have rates that are \$22.00 or higher.

If one looks only at operators, the average hourly wage rate is lower (\$19.48) and the range of rates is more restricted. Figure 5.21 shows that the two thirds of operators have rates that are in the \$14.00 to \$21.99 range.

Most of the differences in wage rates that are evident in Table 5.13 and Figure 5.22 are not surprising. Averages tend to be lower among those:

- with lower levels of completed education and/or certification;
- working in smaller towns and villages;
- working part time who spend less than “all or most” of their time on water and wastewater duties;
- who are not union members; and
- who have been in the profession for a shorter period of time.

One surprise in the data is that the rates for union members, while higher, are not significantly so. The differential is 11% whereas in the general Saskatchewan labour force, the rates for union members tend to be 30% higher than for non-union members.

Table 5.13 Hourly Pay Rates

		Average	Percent with rate less than \$15/hour
Overall		\$21.10	13%
Age group	Under 45	\$21.12	11%
	45 to 54	\$21.40	13%
	55 or older	\$20.66	17%
Maximum certification	Small system	\$15.39	40%
	Level I	\$18.92	20%
	Level II	\$21.09	8%
	Level III or IV	\$27.20	0%
Community type	Large town or city	\$23.14	5%
	Small town or village	\$17.44	23%
	Other	\$27.68	5%
Job category	Manager, supervisor	\$23.19	10%
	Operator	\$19.48	16%
	Asst, relief, or training operator	\$17.66	24%
	Other	\$21.44	6%
Time spent on water/wastewater duties	All or most	\$22.80	6%
	Some	\$19.18	18%
	Hardly any	\$19.70	22%
Union member	Yes	\$22.33	5%
	No	\$20.09	19%
Tenure with employer	Less than 2 years	\$18.87	17%
	Two to 10 years	\$19.26	20%
	11 to 20 years	\$21.57	8%
	21 or more years	\$23.89	7%
Tenure as water and wastewater worker	Less than 2 years	\$16.92	19%
	Two to 10 years	\$19.74	19%
	11 to 20 years	\$21.73	8%
	21 or more years	\$23.98	5%

Figure 5.20 Distribution of Hourly Wage Rates Reported, All Water and Wastewater Workers

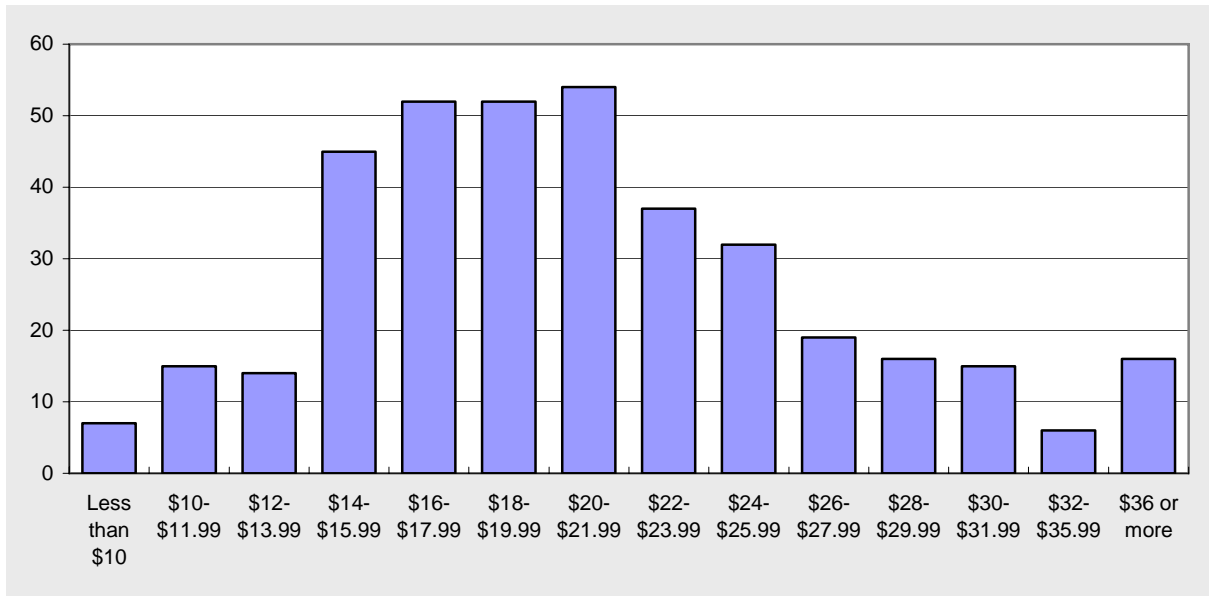


Figure 5.21 Distribution of Hourly Wage Rates, Operators Only

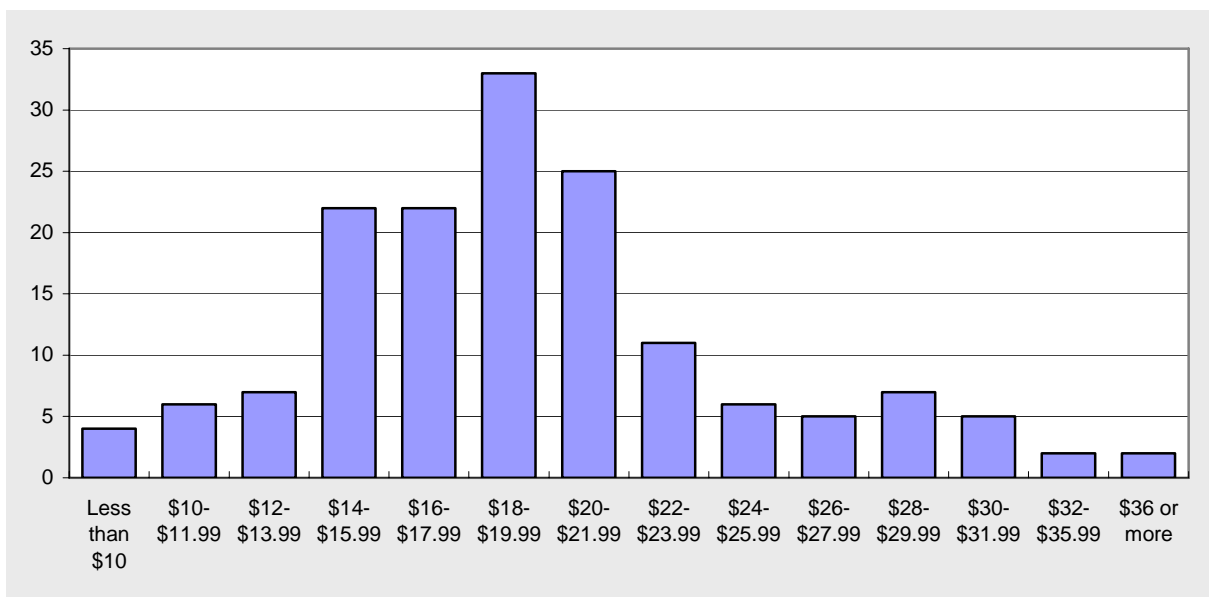
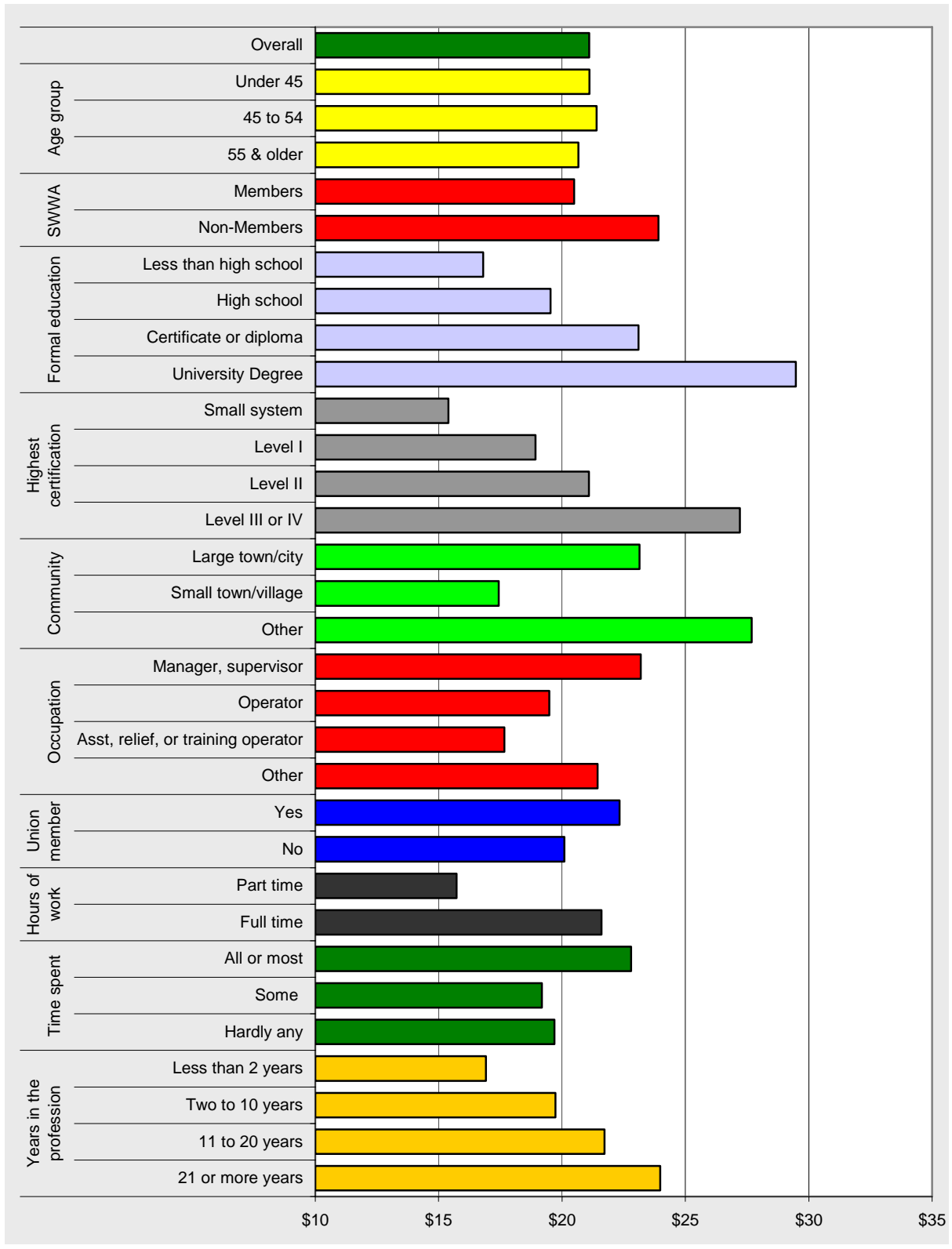


Figure 5.22 Average Hourly Wage Rates by Selected Characteristics



The other observation that will be of interest to the association is that SWWA members tend to have lower levels of pay than non-members.

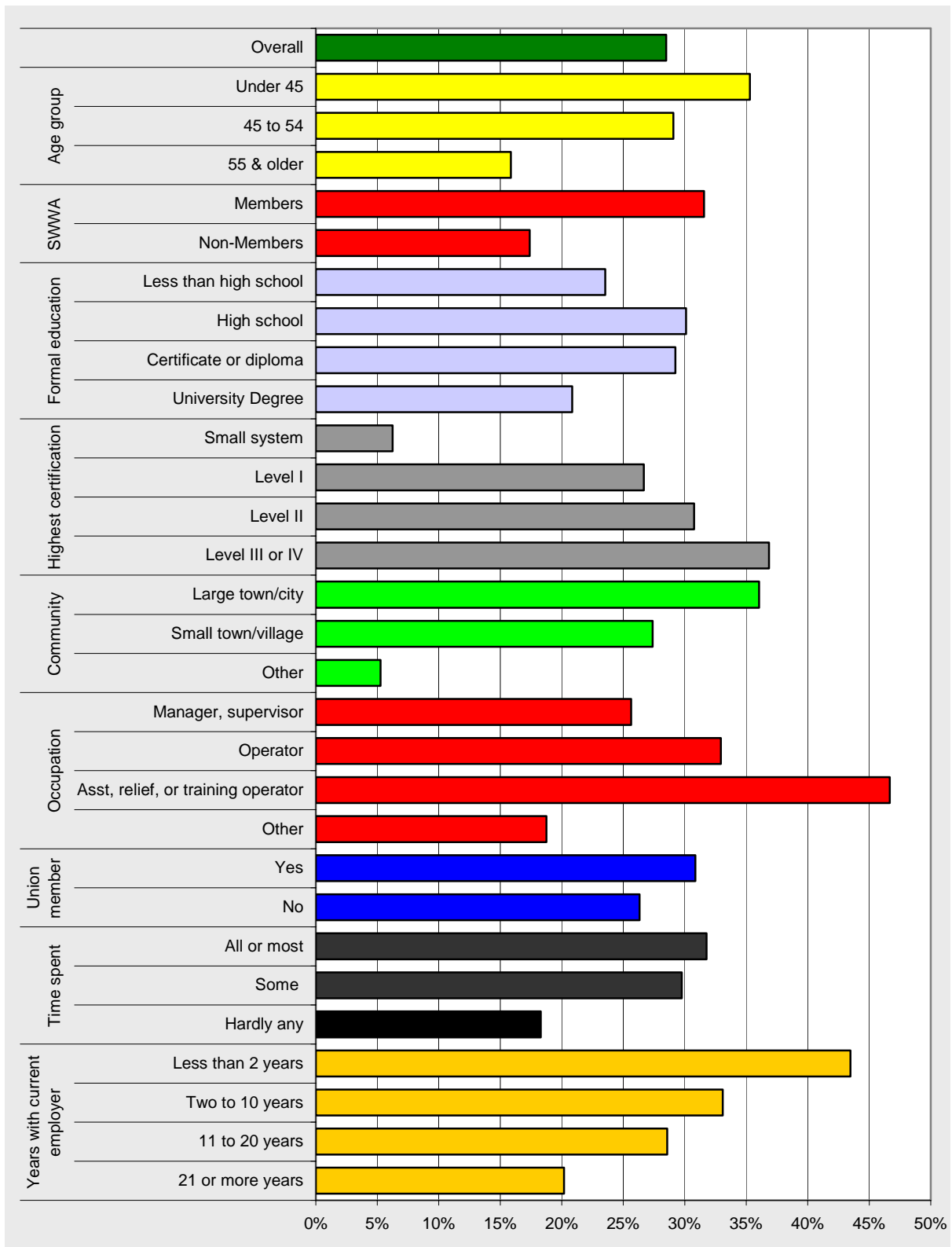
Survey respondents were also asked if they had received a pay increase when their certification level increased. Excluding the 17% who have had no change in their certification level, 28% reported an increase and 72% reported no change.

Respondents who were more likely to have had a pay increase are those in higher certification levels, in larger communities, who have been with their current employer for shorter periods, and who spend all or most of their time on water and wastewater duties. In no case, however, did the percentage receiving an increase exceed 50%.

Table 5.14 Pay Rate Increase After Increase in Certification

	Frequency	Percent
Yes	110	24%
No	276	59%
No change in certification	79	17%
All respondents	465	100%

Figure 5.23 Proportion of Respondents Reporting a Pay Increase with an Increase in Certification by Selected Characteristics



5.7 Retirements and Pensions

Respondents to the survey were asked what kind of pension plan they had, when they were eligible to retire (without an early retirement penalty) and if they had made any plans to retire.

Table 5.15 shows the responses to this question. The majority of water and wastewater workers have a pension plan and in almost all cases it is a defined benefit plan.

One in four respondent was either eligible to retire at the time of the survey (16%) or within the next few years. One half could conceivably retire by 2015. One third have made retirement plans.

Figure 5.24 shows that the majority of those without a pension plan are working in small towns and villages and with a lower level of certification.

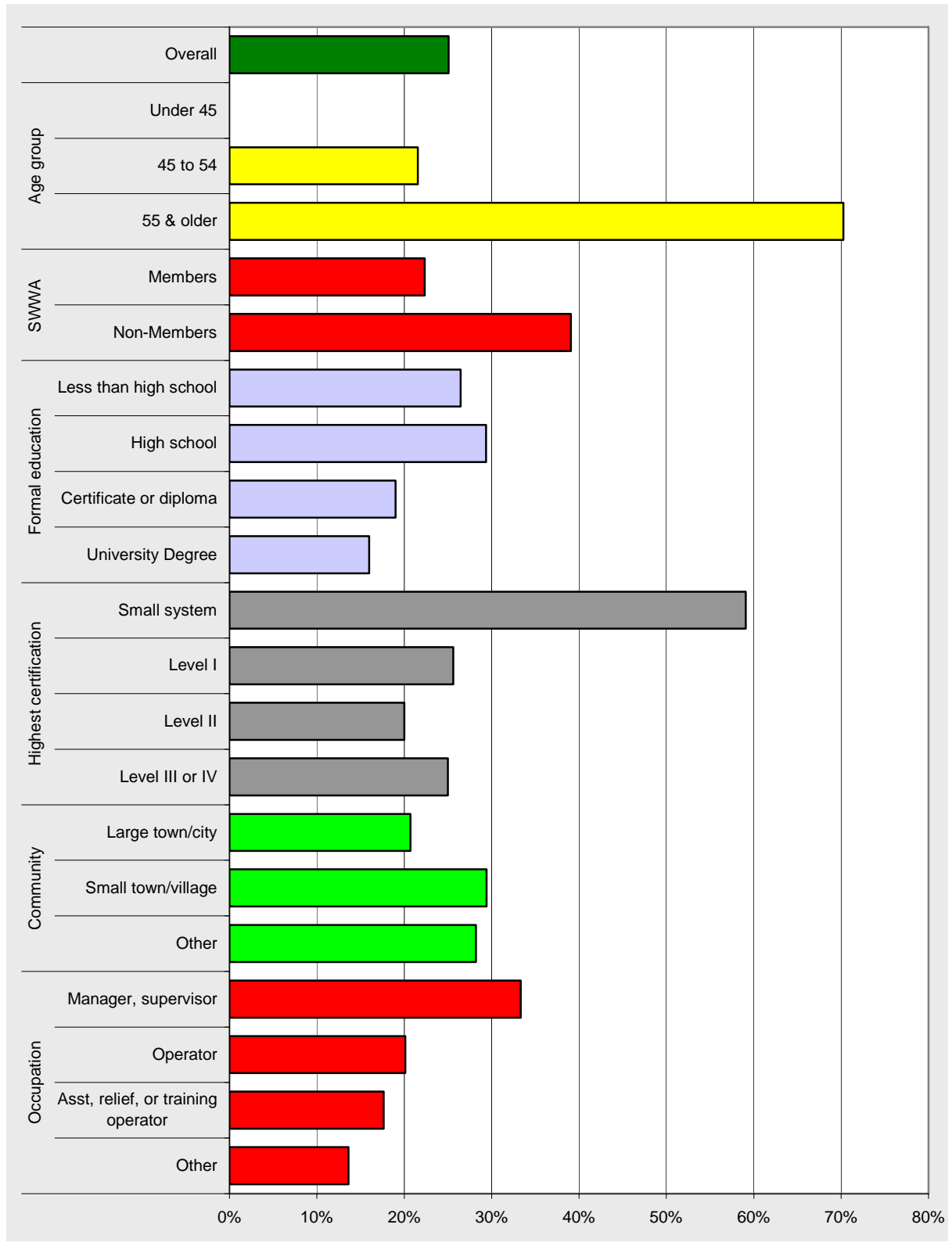
Compared with an overall average of 25%, the proportion of water and wastewater workers who are eligible to retire by 2009 is much higher (70%) among those 55 years of age and older. They tend to work in smaller communities and have only a small systems certification. The proportion of managers and supervisors who could retire soon is 33%.

Table 5.15 Pensions and Retirement Plans

		Frequency	Percent of total
Pension plan*	Defined benefit	355	79%
	Money purchase	20	4%
	Not a member	73	16%
Total		448	100%
Retirement eligibility	Already eligible	60	16%
	2007 to 2009	32	9%
	2010 to 2012	44	12%
	2013 to 2015	53	14%
	2016 or later	178	49%
Total		367	100%
Retirement plans	No plans	264	63%
	2007 to 2009	32	8%
	2010 to 2012	36	9%
	2013 to 2015	30	7%
	2016 or later	59	14%
Total		421	100%

* Defined benefit plans are of the type where pensions are based on years of service and the salary at retirement. Defined contribution plans simply set aside funds for the purchase of an annuity at retirement.

Figure 5.24 Proportion of Respondents who are Eligible to Retire by 2009 by Selected Characteristics



5.8 Attitudes and Opinions

Near the end of the survey, respondents were asked a number of questions that were more qualitative than quantitative and where their opinion was required. The responses to these questions are shown in Table 5.15.

Four of the questions dealt with training issues. Here we find that the majority (72%) of respondents would be interested in increasing their certification level if the employer would help cover the extra cost. A smaller but still significant proportion (39%) agreed that the lack of additional pay was a disincentive to take more training. Although slightly higher among younger respondents, the proportion who would be interested in extra training if the cost was covered was uniform across different categories of respondents.

Three of the questions dealt with employers and the perceptions that respondents had about them. Figure 5.26 shows that the majority (68%) of respondents felt that their employer was having difficulties filling water and wastewater worker vacancies. Approximately one half agreed that their employer didn't value the work they did and didn't invest sufficient capital in the water and wastewater system where they worked.

Figure 5.25 Opinion Questions About Training

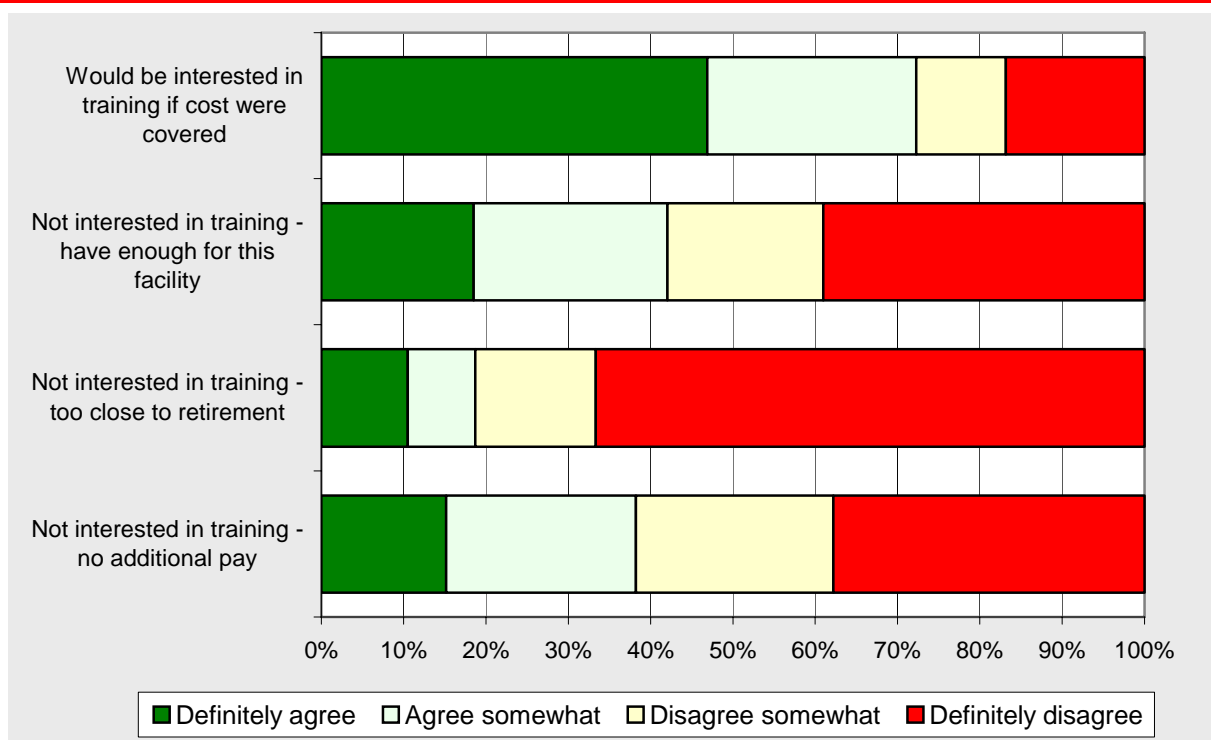
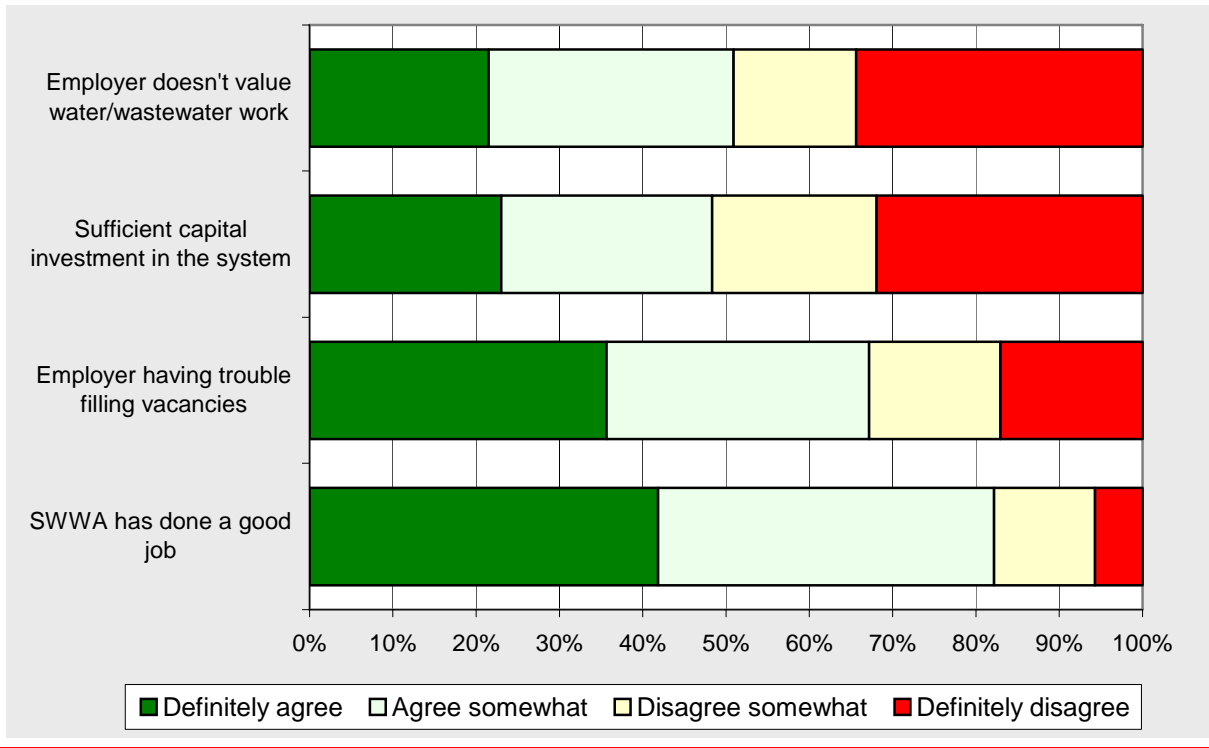


Table 5.16 Opinion Questions

		Frequency	Percent of total
My employer doesn't value the work that water and wastewater workers do.	Definitely agree	95	21%
	Agree somewhat	130	29%
	Disagree somewhat	65	15%
	Definitely disagree	152	34%
Total		442	100%
I am not interested in training because there is no additional pay or benefits,	Definitely agree	67	15%
	Agree somewhat	102	23%
	Disagree somewhat	106	24%
	Definitely disagree	167	38%
Total		442	100%
I am too close to retirement to consider getting extra training.	Definitely agree	46	11%
	Agree somewhat	36	8%
	Disagree somewhat	64	15%
	Definitely disagree	292	67%
Total		438	100%
My level of certification is sufficient for this facility so I don't need extra training.	Definitely agree	86	19%
	Agree somewhat	109	23%
	Disagree somewhat	88	19%
	Definitely disagree	181	39%
Total		464	100%
There is sufficient capital investment to operate and maintain the water and wastewater systems.	Definitely agree	98	23%
	Agree somewhat	108	25%
	Disagree somewhat	84	20%
	Definitely disagree	136	32%
Total		426	100%
The Saskatchewan Water and Wastewater Association has done a good job representing the profession.	Definitely agree	169	42%
	Agree somewhat	163	40%
	Disagree somewhat	49	12%
	Definitely disagree	23	6%
Total		404	100%
My employer is having trouble filling vacancies for water and wastewater workers.	Definitely agree	138	36%
	Agree somewhat	122	32%
	Disagree somewhat	61	16%
	Definitely disagree	66	17%
Total		387	100%
I would be interested in moving to a higher certification level if my employer helped with the training cost were covered.	Definitely agree	181	47%
	Agree somewhat	98	25%
	Disagree somewhat	42	11%
	Definitely disagree	65	17%
Total		386	100%

Figure 5.26 Opinions about Employers and the Saskatchewan Water and Wastewater Association



The lack of appreciation was relatively uniform across respondent groups but was somewhat higher among those working in larger centres (58%) than in smaller ones (46%)¹⁰. Respondents from larger centres were also more likely to report that their employer was having difficulty filling vacancies.

The last opinion question asked respondents if they felt that the Saskatchewan Water and Wastewater Association was doing a good job representing the profession. Although a small proportion (6%) disagreed strongly, more than eight out ten respondents agreed with the statement, 42% strongly.

¹⁰ In the 2005 survey of Alberta operators, 54% of respondents felt that “operator certification is supported and understood by local government officials”. This is roughly equivalent of the 49% of Saskatchewan respondents who felt that their employer valued their work.

APPENDIX A
SURVEY INSTRUMENT

1. Most of the questions in this survey are about your employment in a water/wastewater collection, distribution, or treatment operation. If you are currently **not working** in such a position, please circle number 3 below and report on your most recent water/wastewater job in the balance of this survey.
 - Currently employed, in Saskatchewan 1
 - Currently employed, outside Saskatchewan 2
 - Not currently employed 3 (please report on most recent position in the rest of the survey)

2. If you are working in **more than one** water/wastewater job, that is, with two or more different employers please circle 2 below and report on the one in which you spend the most time.
 - Working in a single water/wastewater related job 1
 - Working in two or more water/wastewater jobs 2 (report on the main job in the rest of the survey)

 - Working in a water/wastewater related job and in another unrelated job 3 (please report on the water/waste-water job in the rest of the survey)

3. For those who are **temporarily performing the duties of a higher position**, please circle number 1 below and report on the characteristics of the temporary position for the balance of the survey.
 - Temporary performing higher level duties 1 (release report on the temporary position in the rest of the survey)
 - No 2

4. What is the size and type of the community served by the water or wastewater treatment, distribution, or collection plant where you work? Please circle only one.
 - Regina or Saskatoon 1
 - Other large city (Prince Albert, Moose Jaw, Yorkton, Swift Current, North Battleford, Estevan) 2
 - Other town or city with more than 1,500 population 3
 - Town or village with a population from 500 to 1,500 4
 - Town or village with a population under 500 5
 - Reserve 6
 - Hutterite colony 7
 - Private corporation 8

5. What is the classification of the facility or system where you work? Circle as many as are appropriate.
 - a) Small system waterworks 1
 - b) Small system wastewater 2

	<u>Level I</u>	<u>Level II</u>	<u>Level III</u>	<u>Level IV</u>
c) Water Distribution	1	2	3	4
d) Water Treatment	1	2	3	4
e) Wastewater Collection	1	2	3	4
f) Wastewater Treatment	1	2	3	4

6. Which of the following best describes your current position?
 - Permanent 1
 - Temporary, term, or contract 2
 - Casual 3

7. Are you a member of the union or in a position covered by a collective agreement?
 - Yes 1
 - No 2

8. What level best describes your current position? Please circle only one.
- Executive or manager 1
 - Supervisor or foreman/woman 2
 - Water or wastewater operator 3
 - Water or wastewater operator in training 4
 - Relief water or wastewater operator 5
 - Assistant water or wastewater operator 6
 - Maintenance or trades 7
 - Labourer or helper 8
 - Other 9
- (please specify _____)
9. What are the normal hours of work not counting overtime, or standby?
- Hours of work (e.g. 37.5 or 40) ___ . ___ . ___ per week
10. Do you work full-time or part-time? (Part time is normally considered as less than 30 hours/week.)
- Full time, or 1
 - Part-time ___ . ___ . ___ hours per week on average
11. Some smaller facilities do not require full-time operators. Averaged over the course of the year, and including overtime, what amount of time would you estimate that you spend on your water and wastewater duties including supervision?
- All (more than 7 hours per day) 1
 - Most (5 to 6.9 hours per day on average) 2
 - Some (2 to 4.9 hours per day on average) 3
 - Hardly any (less than 2 hours per day on average) 4
12. Does your regular work schedule require you to routinely work shift work, on evenings, and/or weekends?
- Yes, shift work 1
 - Yes, work on evenings and/or weekends 2
 - Yes, both 3
 - No 4
13. Are you required to be on call during time off?
- Yes, all of the time 1
 - Frequently 2
 - Occasionally 3
 - No 4
14. Are you paid for on-call or standby duty?
- Yes 1
 - Partly for some of the duties 2
 - No 3
15. Averaged over the course of the year, how many paid and unpaid overtime hours do you work per week?
- Unpaid ___ . ___ . ___ per week
- Paid ___ . ___ . ___ per week
16. Are you a regional operator?
- Yes 1
 - No 2

The next few questions are about your individual characteristics. They will be used to describe the kinds of water and wastewater workers working in the province. If you do not wish to answer any particular one, skip to the next question.

17. Please record your gender.
- Male 1
 Female 2
18. In what year were you born? 19 __ __
19. Are you a member of the Saskatchewan Water and Wastewater Association (SWWA)?
- Yes 1
 No 2
20. Are you an Aboriginal person, that is Treaty or Status Indian, Métis, First Nation, or other Aboriginal group?
- Yes 1
 No 2
21. Are you a member of a visible minority group, that is, someone who is not Aboriginal but is of African, Asian, Latin, or Arabic ancestry?
- Yes 1
 No 2
22. Do you have a long-term health or physical condition that requires a specific job modification, technical device, or accommodation to assist you to perform the essential functions of your job?
- Yes 1
 No 2
23. Were you born in Saskatchewan?
- Yes 1
 No 2
24. Not counting on the job training and other short courses, what is the highest level of formal education that you have successfully completed? Please circle only one.
- Less than high school 1
 High school (grade 12) 2
 Business diploma/certificate 3
 Technical or trades certificate 4
 Bachelor's degree 5
 Graduate degree 6
25. Are you currently enrolled in a program leading to a certificate, diploma, or degree? Please circle only one.
- Yes, high school 1
 Yes, regional college 2
 Yes, technical school 3
 Yes, university 4
 No 5
26. What is your current level of certification in each of the following areas? Please circle the appropriate number.
- | | Small | | | | | |
|--------------------------|---------------|----------------|-----------------|------------------|-----------------|-------------|
| | <u>System</u> | <u>Level I</u> | <u>Level II</u> | <u>Level III</u> | <u>Level IV</u> | <u>None</u> |
| a) Water Distribution | 0 | 1 | 2 | 3 | 4 | 9 |
| b) Water Treatment | 0 | 1 | 2 | 3 | 4 | 9 |
| c) Wastewater Collection | 0 | 1 | 2 | 3 | 4 | 9 |
| d) Wastewater Treatment | 0 | 1 | 2 | 3 | 4 | 9 |

27. Are you willing to take additional training to increase your level of certification?
- | | | | |
|--|---|----------------------------------|---|
| Yes, currently taking training | 1 | Maybe but probably not | 4 |
| Yes, very willing | 2 | Definitely not | 5 |
| Yes, depending on the circumstance | 3 | Don't know | 9 |
28. How long have you been working in your current position?
- | | | | |
|-----------------------------|---|------------------------------|---|
| Less than 2 years | 1 | 16 to 20 years | 5 |
| 2 to 5 years | 2 | 21 to 25 years | 6 |
| 6 to 10 years | 3 | More than 25 years | 7 |
| 11 to 15 years | 4 | | |
29. How long have you been working for this employer?
- | | | | |
|-----------------------------|---|------------------------------|---|
| Less than 2 years | 1 | 16 to 20 years | 5 |
| 2 to 5 years | 2 | 21 to 25 years | 6 |
| 6 to 10 years | 3 | More than 25 years | 7 |
| 11 to 15 years | 4 | | |
30. How long have you been working as a water and wastewater worker?
- | | | | |
|-----------------------------|---|------------------------------|---|
| Less than 2 years | 1 | 16 to 20 years | 5 |
| 2 to 5 years | 2 | 21 to 25 years | 6 |
| 6 to 10 years | 3 | More than 25 years | 7 |
| 11 to 15 years | 4 | | |
31. For the purposes of determining your rate of pay, please report your hourly rate if known. If not, report your bi-weekly or monthly gross earnings before taxes and other deductions; the hourly rate will be calculated based on average weekly hours. If you work part-time, please report an hourly rate.
- Hourly rate during most recent pay period \$_____/hour, or
- or Weekly earnings \$_____/week, or
- or Bi-weekly earnings \$_____ every two weeks, or
- or Monthly earnings \$_____/month
32. When your certification level last increased, did you receive an increase in your pay rate?
- | | |
|--|---|
| Yes | 1 |
| No | 2 |
| No change in certification level | 3 |
33. Are you covered by a pension and if so, what type of pension plan are you a member of?
- | | |
|--|---|
| Defined benefit (e.g. MEPP) | 1 |
| Money purchase | 2 |
| Not a member of a pension plan | 3 |
| Don't know | 9 |
34. a) In what year will you be eligible to retire with a full pension (e.g. rule of 80)?
- Already eligible (√), or
- Year _____
- b) If you have firm plans to retire, in what year are you planning to do so?
- No plans yet (√), or
- Year _____

35. The following questions ask for your opinion on a variety of issues facing water and wastewater workers. Please circle the number below the response that best describes your views.

	<u>Definitely Agree</u>	<u>Agree Somewhat</u>	<u>Disagree Somewhat</u>	<u>Definitely Disagree</u>	<u>Don't Know</u>
a. My employer doesn't value the work that water/wastewater workers do	1	2	3	4	9
b. I am not interested in extra training because there are no additional pay or benefits	1	2	3	4	9
c. I'm too close to retirement to consider getting extra training	1	2	3	4	9
d. My level of certification is sufficient for this facility so I don't need extra training	1	2	3	4	9
e. There is sufficient capital investment to operate and maintain the water and wastewater systems	1	2	3	4	9
f. The Saskatchewan Water and Wastewater Association has done a good job representing the profession	1	2	3	4	9
g. My employer is having difficulty filling vacancies for water and wastewater workers	1	2	3	4	9
h. I would be interested in moving to a higher certification level if my employer helped with the training costs	1	2	3	4	9

36. Do you have any other comments about the survey or the issues that it addressed?

Thank you for completing the questionnaire.
Please return it in the enclosed self-addressed stamped envelope before September 7th.