

## Research Communities Ranking Method

The rankings for Canada's Top 20 Research Communities List 2006 are based on an analysis of corporate research and development (R&D) and university research activities in 27 Census Metropolitan Areas (CMAs - based on the 2001 Census boundaries). The corporate R&D indicator category includes 7 measures: number of companies performing R&D, number of R&D companies per capita, corporate R&D spending, corporate R&D spending per capita, number of scientists and engineers employed, number of scientists and engineers employed per capita and percent of labour force in Natural and Applied Sciences and related occupations. The university research indicator includes 4 measures: total university research income, faculty research intensity, number of scientific publications and publication intensity.

The corporate R&D score is out of a possible 64 points and the university research score is out of a possible 36 points. Points were awarded based on a CMA's ranking on the 7 corporate R&D related measures and the 4 university research measures. Up to 9.1 points were assigned for each of the 11 measures. The total score for each community was out of a possible 100 points.

Listed below is an explanation of each criterion.

A. Corporate R&D Indicators – measures that indicate each community's success in establishing and maintaining its corporate research and development environment (total of a possible 64 points).

All data were obtained from Statistics Canada and based on the latest available data by Census Metropolitan Areas (CMAs).

1. Total Number of Companies Performing R&D
  - ▶ This measure ranks the total number of R&D establishments performing R&D by location of research for Fiscal 2002.
2. Number of R&D Companies per Capita
  - ▶ Number of R&D companies per capita is defined as the total number of companies per population. The 2002 CMA population figures were used.
3. Total Corporate R&D Spending
  - ▶ Total corporate R&D spending represents the total current intramural expenditures for Fiscal 2002 for each CMA.
4. Corporate R&D Spending per Capita
  - ▶ Corporate R&D spending per capita is defined as the total corporate intramural expenditures per population. The 2002 CMA population figures were used.
5. Total Number of Scientists and Engineers Employed
  - ▶ This measure represents the total number of scientists and engineers employed in each CMA in Fiscal 2002.
6. Number of Scientists and Engineers Employed per Capita
  - ▶ Number of scientists and engineers employed per capita is defined as the total number of scientists and engineers employed per population. The 2002 CMA population figures were used.
7. Percent of Labour Force in Natural and Applied Sciences and Related Occupations
  - ▶ The data for this measure was obtained from the 2001 Census community profiles data.

**B. University Research Indicators – measures that indicate the success of universities in each community in attracting research income, conducting and publishing research (total of a possible 36 points). The rankings were based on the aggregate total of all the universities in that community (CMA).**

Financial data were obtained from Statistics Canada. Faculty data were obtained from Statistics Canada and the RESEARCH Infosource University R&D Database. Publication data were obtained from Observatoire des sciences et des technologies' (OST) Canadian bibliometric database which contains data from the SCI, SSCI and AHCI databases of Thomson Scientific.

**1. Total Sponsored Research Income**

- ▶ Points are based on the total sponsored research income for all universities in each CMA for Fiscal 2002.

**2. Faculty Research Intensity**

- ▶ Faculty research intensity is defined as total research income per full-time faculty position (full, associate and assistant faculty positions only were included). Fiscal 2002 research income and academic year 2001-2002 full-time faculty data were used to calculate rank order and allocate points.

**3. Total Number of Scientific Publications**

- ▶ Publications include articles, notes and reviews published by researchers affiliated with Canadian universities or research hospitals in approximately 6,000 peer-reviewed scientific international journals, covering different fields of natural science, health science, social science and humanities. Points are based on the total number of publications published by researchers affiliated with universities in a particular CMA for 2002.

**4. Publication Intensity**

- ▶ Publication intensity is defined as the total number of publications per full-time faculty. It has been estimated that there is, on average, a minimum 2-year lag time between research and publication. Calendar year 2002 was used for publication counts and therefore 1999-2000 full-time faculty counts were used to calculate the ranking and allocate points for universities in each CMA.