

Fellowships to expand the skills of young researchers who do not hold established posts, and Research Leave Fellowships to release university staff from teaching and administrative duties so they can undertake full-time research.

#### 6. OTHER SOURCES OF RESEARCH INCOME

U.K. universities have also been successful in attracting research income from the European Union and overseas. Income from EU grants and contracts now accounts for 9% of specific annual income from research grants and contracts. Equivalent income from other overseas sources accounts for 4.5% of annual receipts.

**Summary:** The U.K. government has acknowledged university research as one crucial element of economic competitiveness and, as such, is committed to both increasing its investment in research and to encouraging more collaboration between universities and industry. Towards this end, in its 1999 budget, the U.K. government announced a \$100 million investment in university laboratories and equipment as well as a 30% increase in the budget of the University Challenge Fund. This fund, established in 1998 and increased to \$65 million, enables universities to develop and then commercialize promising research projects.

The U.K. has developed a robust policy with university research at the heart of the U.K. innovation/economic development policy framework. The U.K.'s strategy has grown numerous flagship research programs of international significance; it

has developed and attracted a strong talent pool to its knowledge-based industries across fields of relevance, including culture and the arts. It has also expanded strong industrial collaboration and investment.

The U.K. has recognized the need to have sustained, effective university cost-recovery of the support for the people, world-class infrastructure, research facilities, operations and administration that underpin successful research programs. The weakness of the U.K. policy framework resides in the institutional instability resulting from the ongoing "raiding" of talent and the virtually systematic decoupling of research and teaching, such that the education and preparation of the future workforce does not benefit effectively from the connectedness to world-class research.

#### **Summary of the nine jurisdictions being compared:**

The nine jurisdictions studied take a range of different approaches to research and innovation policy, and each has its strengths and weaknesses. Of the eight jurisdictions other than Ontario, research policies range from a flagship approach with an emphasis on succeeding in competitive federalism, as is the case in Alberta, Quebec, Michigan, North Carolina, and Scotland in the United Kingdom, to a laissez-faire approach as has been the case in Massachusetts, to the building of system consistency approach that characterizes Ohio's major thrust. British Columbia has been subjected to a widely unstable and fluctuating policy environment.

The policy environments in Alberta, Quebec,

Michigan, North Carolina, and the United Kingdom are for the most part progressive and effective, and reward talent and world-class infrastructure as well as enhancing critical mass, critical agility and innovation. In Canada, Alberta and Quebec have made particularly commendable efforts to support university research. However, Canada does not have a federal indirect cost-recovery mechanism and Alberta has not created one. Quebec's progress is threatened by regulation affecting fees and under-investment in the basic operating budgets of universities. Alberta, Quebec and British Columbia have health research councils and programs to support university intellectual property commercialization. British Columbia's unstable policy environment has had a negative impact on its success in attracting federal research dollars. It has been hurt by the recent Asian economic crisis and by the fact that funding for universities and university research is unstable and overall funding for university research remains the lowest of all of the provinces studied.

Quebec's single major vulnerability is the under-investment in the operating grants of the province's universities. Frozen tuition fees and operating grant cuts have caused an overall drop in university revenues since 1996, affecting the operation of university programs. Otherwise, Quebec has a robust research policy framework in place. In its 1999/2000 budget, the provincial government announced \$406.7 million in additional funding to the research and technology sector over the next three years. Building on the province's success in

funding university research over the past two decades, Quebec universities have enjoyed a growing share of the total research awards obtained by Canadian universities through competition.

Alberta has made laudable efforts to attract and develop research talent and excellence and has made gains towards a meaningful indirect cost-recovery program, though it remains vulnerable in this area.

Finally, the U.K. has acknowledged university research as a crucial element of economic competitiveness and, as such, the government is committed to increase its investment in research and the direct and operational costs of research, as well as to encourage more collaboration between universities, industry and other sectors, and to grow innovation clusters and systems. Towards this end, in the 1999 budget, the U.K. government announced a new \$100 million investment in university laboratories and equipment as well as a 30% increase in the budget of the University Challenge Fund, which enables universities to develop and then commercialize promising research projects. The U.K. has made an extremely progressive and growing investment in the indirect costs of research, funding these at 45% or more of total direct research costs.

#### *Summary of the Implications for Ontario:*

Ontario has tremendous potential to create a highly productive hybrid policy which builds on its current significant talent, flagship research programs and potential to grow research excellence and research-teaching benefits. With research resources and investment it can adopt the best elements of

American, Canadian and United Kingdom research policies.

The Government of Ontario has recently created a strong innovation policy framework in the *OJIB Road Map* and, in addition, is committed to developing an effective research policy, and to encouraging research excellence and broadening the impact of research in the province. Among the recent initiatives are: the SuperBuild Growth Fund; the Ontario Innovation Trust; the Ontario Centres of Excellence; the Ontario Research and Development Challenge Fund; the Premier's Research Excellence Awards; and a favourable R&D tax incentive regime. Ontario has enjoyed historic success in attracting private investment for university research, and is home to an enormous pool of research talent and world-class research programs. In 1996/97, private funding for university research totaled \$300 million and Ontario's universities attracted almost \$1 billion in research support beyond that provided by the Government of Ontario.

Ontario, however, has lacked a coherent university research policy and strategy, and fails to succeed in federal and international competition commensurate with its research talent, capacity and economic position in Canada. NSERC and SSHRC funding have fallen since the early 1980s while MRC funding has remained at the same level as against MRC growth in Alberta and Quebec. In addition, in the absence of a provincial research strategy, Ontario is vulnerable to ongoing loss of its lead research talent and has not attracted national and international research facilities in key economic

growth areas. Of major concern are the significant gaps in full cost-recovery related to research talent, the growth and operation of world-class infrastructure and a provincial health research council, and the absence of investment in university intellectual property commercialization.

Although each jurisdiction has its strengths and vulnerabilities, no system is perfect. Ontario has recently developed an innovation policy framework that is well positioned to support strong research policy and research impact for innovation. Ontario has every opportunity to be a sustained international leader in research and innovation and to create broad benefits for Ontario and Canada from such progress. Specific research policy recommendations are presented in this Report.