CANADIANS MAKING A DIFFERENCE

THE EXPERT PANEL ON CANADA'S STRATEGIC ROLE IN GLOBAL HEALTH

Canadian Academy of Health Sciences
Académie canadienne des sciences de la santé

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The Canadian Academy of Health Sciences

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EXPERT PANEL ON CANADA'S STRATEGIC ROLE IN GLOBAL HEALTH

The Expert Panel on Canada's Strategic Role in Global Health (the Panel) represents a diverse range of expertise and perspectives, exemplifying the reputation of the Canadian Academy of Health Sciences for objectivity, integrity, and competence. All Panel members volunteered their time and expertise to address this critical issue and were required to declare in writing any potential conflicts of interest.

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JOINT SCIENTIFIC ADVISORY COMMITTEE

In the fall of 2010, CAHS asked the Council of Canadian Academies (the Council; an independent, not-for-profit corporation that supports evidence-based, expert studies to inform public policy development in Canada) to provide assistance in convening an expert panel to examine Canada's strategic role in global health, and to conduct the assessment according to the Council's established standard policies and procedures. The oversight of this assessment was undertaken by a joint Scientific Advisory Committee of CAHS and the Council:

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EXTERNAL REVIEWERS

This report was reviewed in draft form by the individuals below — a group of reviewers selected by the Joint Scientific Advisory Committee. The reviewers assessed the objectivity and quality of the report. Their submissions — which will remain confidential — were considered fully by the Panel, and most of their suggestions have been incorporated in the report. The reviewers were not asked to endorse the conclusions nor did they see the final draft of the report before its release. Responsibility for the final content of this report rests entirely with the authoring Panel and the Canadian Academy of Health Sciences. The external reviewers were:

Zulfiqar Ahmed Bhutta	Founding Chair and Professor, Division of Women and Child Health, Aga Khan University (Karachi, Pakistan)
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The report review procedures were monitored on behalf of CAHS's Board of Governors and Joint Scientific Advisory Committee by **Dr. John Cairns** and **Prof. Susan McDaniel**. Dr. Cairns is Professor of Medicine, University of British Columbia. Prof. McDaniel is Professor of Sociology and Prentice Research Chair in Global Population & Economy, University of Lethbridge, and Canada Research Chair (Tier 1) in Global Population & Life Course. The role of the report review monitors is to ensure that the Panel gives full and fair consideration to the submissions of the report reviewers. The Canadian Academy of Health Sciences Board relies on the advice of the monitors in deciding to authorize release of the Expert Panel's report.

Letter from the President of the Canadian Academy of Health Sciences

On behalf of the Canadian Academy of Health Sciences, I am extremely pleased to present this report on Canada's strategic role in global health, most appropriately titled *Canadians Making a Difference*. As this report makes clear, there is a window of opportunity for Canadians to really harness the individual successes of their current activities and resources in order to realize a greater impact in global health.

I wish to offer my sincere thanks to the Expert Panel, chaired by Peter A. Singer, for its stellar work in bringing to bear a compelling, evidence-based report that will no doubt become a platform for further discussion and mobilization of the necessary leadership in this area. The generous contributions in time and effort from each Panel member are reflected through each page of this report.

I also wish to thank the President of the Council of Canadian Academies, Elizabeth Dowdeswell, who has been a champion for partnership between our two organizations. The Council, under the leadership of Christina Stachulak, managed the process for this unique assessment, and we are grateful to see its established standards and processes brought to this endeavour. I am grateful to the Joint Scientific Advisory Committee, which oversaw the process, as well as to the group of reviewers that ensured the integrity and rigour of the resulting report. Finally, I'd like to thank the Rockefeller Foundation, sanofi pasteur, and the McLaughlin-Rotman Centre for Global Health for their generous support in making this assessment happen.

The leadership of the Canadian Academy of Health Sciences looks forward to many fruitful discussions with stakeholders to advance the findings of this report.

Catharine I. Whiteside, MD, PhD, FRCPC, FCAHS
President (2009–2011), Canadian Academy of Health Sciences

Letter from the Panel Chair

Over the past year, the Expert Panel has been inspired by the range and scope of what individual Canadians and Canadian organizations and institutions are doing and have accomplished in global health. It is clear that Canadian scientists, policy-makers, volunteers, entrepreneurs, and many others are making a real difference in the health outcomes of individuals and communities, both here in Canada and in some of the poorest and remotest regions of the world.

During our lifetimes, Canada is and has been a leader in global health. But, as this report observes, we could accomplish even more as a country if we had a coherent national global health strategy that brought together, connected, and coordinated the efforts and energies of individuals and organizations, and helped to catalyze their success.

Along with all Canadians interested in global health, we are very grateful to the distinguished Panel members; the Presidents of the Canadian Academy of Health Sciences and Council of Canadian Academies (Catharine Whiteside and Elizabeth Dowdeswell); the Co-Chairs of the Joint Scientific Advisory Committee (John Cairns, who shepherded this assessment from the very beginning, and Tom Brzustowski); and the Sponsors (Rockefeller Foundation, sanofi pasteur, and the McLaughlin-Rotman Centre for Global Health). We also owe a big debt of gratitude to the staff at the Council of Canadian Academies who managed the process for this assessment, and the outstanding team that put together this report including Christina Stachulak who managed the Panel with such thoughtfulness and grace, David Brook who turned the Panel's discussions into a cogent document, Emmanuel Mongin, Kristen Cucan, and consultants Clare Walker and Philip Hadridge.

On a personal note, I would like to extend my thanks to Joseph L. Rotman who has been a great mentor over the years and is a firm believer that Canada has a critical role to play in global health. I also extend my thanks to my family. My wife Heather's experiences volunteering in the developing world to provide health care to those in need have underscored for me that we must act. In 20 years of practice in North America, Heather did not witness the death of a single woman or infant. Within two weeks in Africa, she had witnessed both. Why is it right that an African woman is over 100 times more likely to die in childbirth than her Canadian counterparts? This disparity in health outcomes and mortality rates is one of the greatest ethical challenges of our time.

This assessment is not the end of the conversation on Canada's strategic role in global health. Instead, we hope that it will be the beginning of a broader national conversation that will ultimately lead to the implementation of a bold new global health strategy for our great country.

Peter A. Singer, O.C., MD, MPH, FRSC, FCAHS
Chair, The Expert Panel on Canada's Strategic Role in Global Health
Foreign Secretary, Canadian Academy of Health Sciences

Executive Summary

Canadians and Canadian institutions and organizations are making a real difference in identifying and addressing critical global health challenges. Unlike other high-income countries (HICs), however, Canada does not have a national multi-sectoral strategy to address the increasingly complex issue of global health. In September 2010, the Canadian Academy of Health Sciences (CAHS) convened the Expert Panel on Canada's Strategic Role in Global Health (the Panel) to assess whether Canada should play a more strategic role in global health. The Panel's charge was very clear: to assess the available evidence and identify potential strategic roles for Canada in global health.

THE CURRENT STATE OF GLOBAL HEALTH

After reviewing a range of definitions of global health from recent publications and academic journals, the Panel agreed to use the following definition of global health, as articulated in a widely cited 2009 article in *The Lancet*,[1] to frame its work:

> Global health is an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level clinical care.

The Panel's first task was to determine whether there was a rationale for Canada to play a more strategic role in global health. To do so, the Panel explored two fundamental questions, the first of which was as follows: If Canada does *not* play a more strategic role in global health, will there be significant consequences?

To answer this question, the Panel reviewed the current state of global health and the possible impacts of its current challenges on Canada and on low- and middle-income countries (LMICs). The Panel found that the global burden of disease is disproportionately higher in LMICs than in HICs. But the same distributional inequalities are also seen within HICs, where specific at-risk populations have significantly worse health outcomes than the population at large. By far the greatest burden of death from infectious and parasitic diseases falls on LMICs. At the same time, the prevalence and impact of non-communicable diseases, including mental health, are also rapidly increasing in these countries. Without significant attention, it is likely that the level of health inequity will continue to grow both globally and within Canada.

Three major findings emerged from the Panel's analysis:

- Complex global health issues will continue to increase in scope and complexity.
- Increasing inequity in global health is occurring in the context of ongoing international financial and economic instability, which is resulting in significant resource constraints on current and future investments in global health.

[1] Koplan, J. P., *et al.* (2009). Towards a common definition of global health. *The Lancet.*

- There is an exciting opportunity for global health partnerships between Canada and LMICs that encourage bilateral South-North learning across all sectors through meaningful and mutual engagement.

On this basis, the Panel's answer to the first question was that there would indeed be significant direct and indirect consequences if Canada were *not* to play a more strategic role in global health.

PRINCIPLES FOR CANADA'S ROLE IN GLOBAL HEALTH

The Panel articulated a set of three core principles that should inform the development and implementation of Canada's current and future strategic roles, programs, and activities in global health:

1. **Equity –** Inequities in terms of access to appropriate health care and of health outcomes need to be explicitly addressed.
2. **Effectiveness –** In a world of limitless challenges and finite resources, the investment of resources must lead to the greatest beneficial impact.
3. **Engagement –** The common problems found in many national contexts present an opportunity for shared or mutual learning and the development of common solutions.

CANADA'S CURRENT ROLE IN GLOBAL HEALTH

The second fundamental question that the Panel explored was as follows: If Canada plays a more strategic role in global health, will it have the resources and/or capacity to make a difference? In its review of Canada's current roles in global health, the Panel found that many sectors of Canada's economy and society make substantial contributions to global health. The federal government, for example, invests more than $559 million per year in global health through five primary roles:

- development assistance;
- funding research and innovation;
- supporting multilateral organizations and initiatives;
- providing disaster relief; and
- ensuring health security.

Canadian academia is active in health-related education, research, network building, and capacity building in LMICs. There is also a high level of interest and engagement in global health among students in institutions of higher learning.

Canadian civil society (e.g., non-governmental organizations (NGOs), philanthropic foundations/ charities, professional health organizations) is involved in capacity building and technical assistance in LMICs, advocacy, emergency relief, and research and policy development.

Finally, the private sector plays a critical role in global health. The finance, telecommunications, and health products and services sectors all have direct and indirect impacts on global health. More broadly, a wide range of companies have an impact on global health issues through their production and sourcing processes and corporate social responsibility (CSR) programs. There is also an increasing role for the Canadian private sector to partner and enable mutual learning with small- and medium-sized enterprises (SMEs) in LMICs.

Individual Canadians and Canadian organizations and institutions are carrying out a wide range of activities and making contributions in global health. The collective impact of these success stories, however, is often less than it could be as a result of the lack of a national global health framework or strategy.

STRENGTHS, BARRIERS, AND OPPORTUNITIES

Given its comparatively small size and limited resources, it is important for Canada to focus its global health activities on existing areas of strength and comparative advantage. The Panel identified the following strengths:

1. Strong value placed on universal access to health care
2. Opportunity for individuals to show leadership in global health
3. Effective regulatory standards

4. Strong health and foreign policy
5. Track record of successful programs in global health security
6. History of vaccine innovation from discovery to delivery
7. Recognized leaders in health innovation and research
8. World-class educational system
9. Global leaders in indigenous health research
10. Global leaders in social determinants of health research
11. Vibrant philanthropic sector
12. Strong commitment to maternal, newborn, and child health

The Panel also identified seven significant barriers limiting the impact of Canada's investments in global health:

1. There is no unifying vision for global health in Canada.
2. There is often poor coordination among Canadian global health actors.
3. Career paths in global health at institutions of higher learning are often unclear.
4. Social and economic policy decisions are often taken without sufficient attention to their potential health impacts.
5. There is often limited application of our understanding of social determinants of health to policies and actions.
6. There are significant resource constraints within government, private, and civil society sectors.
7. There are limited avenues to mobilize interest in global health.

Despite these barriers, the Panel concluded, in answer to the second fundamental question, that Canada *does* have sufficient resources and capacity to make an important contribution to global health. The Panel then compared Canada's global health strengths and priorities to those of four international comparators (the European Union, the United States, Switzerland and the United Kingdom), and identified five areas where Canada has an opportunity to be a global leader:

- indigenous and circumpolar health research;
- population and public health;
- community-oriented primary health care;
- smart partnerships in health education and research; and
- global health innovation.

STRATEGIC OPPORTUNITIES FOR CANADA IN GLOBAL HEALTH

Building on the opportunities identified above, the Panel articulated five roles that Canada could play as part of a multi-sectoral global health strategy. The five roles are not listed in order of priority.

Indigenous and Circumpolar Health Research

Indigenous communities in Canada face a range of unique health challenges including an increased prevalence of diseases such as diabetes and other disabilities. In light of these issues, Canada has developed significant strengths in indigenous and circumpolar health research. There is a significant potential role for Canada to play in global health that focuses on improving indigenous and circumpolar health. Such a role would help facilitate the delivery of health services in communities through integrated health centres. Delivery of care could be complemented by health education and promotion programs based on evidence and research within communities. Students and researchers, in collaboration with local communities and the public and private sectors, would be a driving force in pioneering innovative technological, social, and organizational solutions to meet the health challenges faced by global indigenous communities.

Population and Public Health

Canadians have a strong track record in public health programs and in research on social determinants of health. Building on these strengths, Canada could markedly improve its contributions to global health by increasing its efforts to address social determinants of health collaboratively with other countries while, at the same time, continuing its strong work in public health. Canada would ensure that international health programs and initiatives include social determinants of health in their scope of funding and integrate evidence from social determinants of health research into their development processes. The federal government would build from the current knowledge base to assess the health impacts of all new major social and economic policies. Canada would also work with other countries to develop a more transparent system for assessing progress on these already agreed to social foundations for population health.

To date, the federal government has made significant investments in understanding the impact of key public health policies through the six National Collaborating Centres for Public Health. There would be an opportunity to build on this foundation to ensure the ongoing strength of Canada's global work in prevention, detection, and response to pandemics and health promotion to lower the burden of non-communicable diseases.

Community-Oriented Primary Health Care

An important Canadian global health strength is leadership by Canadians and Canadian donor agencies in community-oriented primary health care. Canada's strong capacity in health worker training could, in the spirit of mutual learning, help develop initial and refresher training programs for LMIC health workers at all levels, which could strengthen primary health systems. Professional organizations, university projects, and individuals also have had long-term relationships with partners around the globe, contributing to stronger local cadres of practitioners in countries with limited training resources and senior personnel as well as in countries and communities recovering from humanitarian disasters.

Through reflecting on the lessons learned from our own primary health-care experiences and building on the expertise of others, especially local partners, Canada would be well positioned to partner with LMIC communities, institutions, and governments to support planning, implementation, and evaluation of sustainable, community-based, primary health-care systems. There is also a growing need for comprehensive, accurate, and implementable frameworks for the evaluation of primary health care. Canadian NGOs, universities, colleges, and professional organizations could participate in the co-development and implementation of primary health-care evaluation tools for use at local, district, and national levels.

Smart Partnerships in Education and Research

Canada could build on our existing partnerships and develop new equitable and mutually beneficial partnerships with LMIC institutions to promote health education and research. The objective would be to strengthen the human resources and infrastructure in both Canada and LMICs, while, at the same time, complementing Canadian activities and strengths in population and public health, and community-oriented primary health care. Canada would build on the increasing interest in global health among university students and faculty to establish frameworks for attractive multidisciplinary career tracks in global health that would be accepted by all Canadian universities. This interest could be further reinforced by supporting committed, trained Canadians to partner with LMIC institutions in a cross-disciplinary network of centres of excellence between Canadian and LMIC institutions.

Strong incentives would be created to fund Canadian and LMIC researchers to collaborate on global health questions and to develop local research and training infrastructure in LMICs needed to mobilize research in the LMIC partner institutions. As part of these capacity-building efforts, centres of excellence with dedicated funding for education, training, and research could be established according to criteria agreed upon with partner countries. Finally, building on the theme of the importance of metrics and evaluation, Canada would help to implement multilateral networks for generating evidence to support policy improvements in Canada and in LMICs.

Global Health Innovation

Canada has an important constellation of strengths in global health relating to innovation and research, including women's and children's health, non-communicable diseases including mental health, and selected infectious diseases. Thus Canada has the opportunity to be an innovator in global health. This role would be built on a commitment to *integrated innovation:* combining scientific and technological innovations with social, cultural, and business innovations to achieve sustainable impact at scale. This role would also build on Canada's existing investment base in global health research through initiatives like the Global Health Research Initiative (GHRI), and the Development Innovation Fund (DIF) delivered by Grand Challenges Canada (GCC). Students and faculty would also be enabled to contribute to global health.

Incentives would also be put in place to encourage greater participation of the private sector as a critical contributor and enabler of innovation. Canada would support the creation of innovative small- and medium-sized enterprises (SMEs) in LMICs, building on a trend begun by Acumen Fund and others. The success of innovation in global health would drive innovative approaches in other areas of development including agriculture, energy, and water. An engaged and empowered private sector makes a difference in global health, not just through its commitment to corporate social responsibility but also through day-to-day activities and investments. Other countries would be inspired by Canada's example to undertake their own innovation-oriented development institutions and initiatives.

NEXT STEPS

The Panel concluded the assessment by analyzing how best to mobilize the necessary leadership to crystallize the five strategic opportunities into a national multi-sectoral global health strategy going forward. The next steps, broadly speaking, would involve a rethinking of how Canada "does aid" across a range of sectors, and a shift toward a model that would enable its LMIC partners to build economies and health systems of the future.

The Panel concluded that an "all-of-Canada" approach would be the most consistent with the three core principles and would have the greatest chance of realizing the potential of the five strategic opportunities. In this approach all members of the global health community, including governments, academia, civil society, and the private sector, would work together to build a single multi-sectoral global health strategy that would then be implemented by the most appropriate organizations and institutions.

The Panel's mandate was not to provide recommendations, but to set the table for a discussion among decision-makers, including individuals and organizations across sectors such as government, academia, civil society, and the private sector. This requires the engagement of all stakeholders (Canadian policy-makers, entrepreneurs, researchers, not-for-profits, and the Canadian public) in a broad ongoing conversation on global health.

The Panel proposed a five-step process moving forward. The first two steps of this process have already been completed: the engagement of a core group of global health leaders (which CAHS accomplished through its symposium on global health in Fall 2009) followed by the undertaking of this assessment.

The third step in the process — a continued listening phase — could begin in early 2012 with the convening of global health leaders across all health sectors to consider the findings of this assessment. A fourth step might be to strike a global health commission composed of high-level national leaders from inside and outside of global health in a range of sectors including, for example, government, media, religious/spiritual organizations, civil society organizations, and private-sector companies. This commission would develop a national multi-sectoral global health strategy, with specific recommendations, metrics, and measurements of success over time, building upon the insights gained from the earlier listening phase. The final step would be to create a mechanism to monitor the outcomes and impacts of the strategy to enable continuous feedback and improvement.

The Panel's key observation in this assessment was that while individual Canadians, organizations, institutions, agencies, and departments all play significant and substantial roles in global health, the impact of these contributions could be maximized under a coherent global health approach. Canada has the necessary strengths and resources to make an impact in addressing the pressing global health issues that are affecting the health of individuals in Canada and in LMICs.

The Panel concluded that there was a compelling rationale for Canada to play a more strategic role in global health. The likelihood of achieving that goal would be significantly sustained and enhanced through a more coordinated approach involving all members of the global health community in Canada.

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1. Introduction and Charge to the Panel

In September 2010, the Canadian Academy of Health Sciences (CAHS) launched a major new assessment entitled *Canada's Strategic Role in Global Health*. CAHS asked the Council of Canadian Academies (the Council) to manage the process for the assessment. CAHS and the Council jointly appointed the Expert Panel on Canada's Strategic Role in Global Health (the Panel) in November 2010, with the objective of preparing a comprehensive, evidence-based report on Canada's role in global health.

The purpose of this assessment is not to make specific recommendations for future actions. The Panel set out to collect, lay out, and evaluate the evidence base around Canada's current and potential future roles in global health. And, in Chapter 7, the Panel articulates a potential path forward for developing a global health strategy for Canada that would include specific recommendations and metrics for measuring success.

1.1 Charge to the Panel

The charge to the Panel was as follows:

> *The role of the Panel will be to examine Canada's current role in global health, to assess its comparative advantages in the context of global health needs and to recommend steps to optimize Canada's strategic role in terms of optimal use of Canadian investment of human, financial, and other resources relating to global health.*

To do so, the Panel will:

Define the elements of Canada's current role in global health;

- *Map Canada's current federal, and to the extent possible provincial and non-governmental, activities in global health; and*
- *Identify and document some recent stories (both successful and less so) characterizing Canada's role in global health.*

Articulate the rationale for Canada to play a more significant role in global health;

- *Define metrics and criteria against which a more significant role might be measured*

Identify areas of Canadian strength in comparison with world leaders in global health and opportunities for Canada to take on a more strategic role in global health;

- *Define what various sectors including government, academe, civil society, and private industry do and could contribute to Canada's role in global health;*
- *Specifically, focus on how the increasing interest in global health on Canada's university campuses can be constructively channelled into supporting the Canadian role;*
- *Analyze the Canadian context against the roles and best practices of other international actors, as well as the recommendations of recent reports on global health from the U.S., U.K. and other countries – clarify the points of reference and where Canada can play a more strategic role; and*
- *Identify the major structural and policy barriers, if any, preventing Canada from playing a more strategic role in global health.*

Develop scenarios that will recommend specific actions to enable Canada (working through various sectors including government, academe, civil society, and private industry)

to take on strategic, high impact roles in global health and to define areas for potential leadership.

- *Scenarios will include a clear assessment & elaboration of the cost of inaction and will identify opportunity costs of staying the current course; and*
- *Scenarios will embody suggestions to CAHS and other global health actors to maximize the impact of this report.*

The Panel addressed all elements of the charge but two — the definition of specific metrics and the identification of examples of less successful Canadian global health stories. The Panel felt that it would not be possible to articulate meaningful metrics given that it was not mandated to make specific recommendations; it did, however, describe a process for how this could be undertaken in Chapter 7. Also, given the difficult nature of determining *success* in the context of global health, the Panel chose instead to focus on those stories that capture Canadians and Canadian organizations and institutions making a difference in global health.

1.2 Approach and Methodology

The Panel consisted primarily of academic experts representing a variety of fields related to global health, including economics, epidemiology, ethics, international development, and public health. The assessment was chaired by Peter A. Singer, Foreign Secretary of CAHS, CEO of Grand Challenges Canada, and Director of the McLaughlin-Rotman Centre for Global Health.

The Panel acknowledged its own limitations early on in the process, including the need for more robust representation from other sectors (although many Panel members have important experience with civil society, government, and the private sector) and from low- and middle-income countries (LMICs). To address these limitations, the Panel heard testimony from and conducted targeted interviews with expert witnesses to ensure that voices from all sectors and sub-sectors of global health were heard. And although many of the Panel members are academics, they are also leading practitioners in their fields; thus they were chosen for the Panel as much for their experiences in applying their knowledge in the field as for their academic credentials.

Over the course of 12 months, the Panel met as a whole on three occasions. There were also frequent conference calls and other communications among the Panel and its sub-groups during that time.

In undertaking this assessment, the Panel took an inclusive view of what constitutes evidence. The Panel recognized that the field of global health does not, in many cases, have the same base of quantitative data as other health-related fields. In view of this limitation, the Panel worked to ensure that the depth of evidence in this assessment was comparable to similar recent international assessments of global health, as discussed in Chapter 5 of this report.

In developing its evidence base, the Panel drew from as wide a range of sources as possible including civil society, the public and private sectors, university-based global health programs, academic research, and professional organizations. The evidence was gathered through various forms including:

- a review of recent international reports on global health (including the Institute of Medicine and Center for Strategic and International Studies in the United States, the United Kingdom, Switzerland, and the European Union);
- a literature review of recent Canadian reports, policies, and proposed frameworks relating to global health;
- a Call for Evidence (which generated 77 responses);
- testimony from 30 expert witnesses (see Annex 1 for a list of the expert witnesses that the Panel heard from);
- six targeted interviews (see Annex 1 for a list of the individuals who were interviewed);
- roundtables with students on four university campuses across Canada; and
- the professional experience and expertise of individual Panel members.

Although the Panel strove to engage with a broad group of stakeholders, there were fewer experts and interviewees from the private and not-for-profit sectors than would have been ideal.

The penultimate draft of the Panel's report was carefully evaluated by 15 anonymous reviewers whose comments were carefully considered and addressed at a Panel meeting. Report review monitors appointed jointly by the Council and CAHS oversaw this process to ensure that all reviewer comments were addressed.

1.3 Audiences

The primary audiences for this assessment include the full range of global health actors in Canada: decision-makers in the federal and provincial governments who direct and fund Canada's global health activities; students, faculty, and administration in universities and colleges; and leaders in civil society and the private sector. An additional audience is the Canadian public. As global health continues to grow in importance, it will be increasingly important for the Canadian public to be engaged and informed about key global health issues. The ongoing role of CAHS is to ensure that the findings of this report are communicated broadly and used as a starting point for continued conversations with all audiences.

1.4 How the Report is Organized

The report captures the outcomes of the Panel's deliberations and the assessment process. It is organized as follows:

Chapter 2 begins to explore the rationale for Canada to play a more strategic role in global health by analyzing the current state of global health and the implications of key global health challenges both globally and for Canada. The chapter concludes with a brief discussion of the potential consequences if Canada does not act.

Chapter 3 articulates a set of core principles that should inform Canada's role in global health going forward, and some specific goals and measures of success for each.

Chapter 4 examines Canada's current roles in global health as played by the public sector, academia, civil society, the private sector, and individual Canadians and Canadian institutions and organizations.

Chapter 5 analyzes these current roles in global health to identify Canada's main strengths, along with key barriers that are currently preventing Canada from maximizing the impact of its investments in global health. The chapter also reviews international priorities and best practices in global health for the purpose of identifying key areas of opportunity for Canada.

Chapter 6 explores in detail the potential roles that Canada could play to take advantage of the opportunities identified in Chapter 5 and the potential impact of each of these roles.

Chapter 7 articulates a potential path forward for developing a global health strategy for Canada that would include specific recommendations and metrics to measure success.

2. The Current State of Global Health

Canada has a long tradition of excellence in global health. As early as the 1950s, Canadian scientists at the Connaught Medical Research Laboratories at the University of Toronto were making key contributions to the discovery and commercialization of the Salk Polio Vaccine. More than 50 years later, individual Canadians and Canadian institutions and organizations are still interested in, and committed to, global health. This interest and commitment is particularly evident on university campuses across the country. A growing number of students believe that Canada can and should take a strong leadership role in global health, and that they themselves can make an important contribution to global health going forward.[2]

Unlike other high-income countries (HICs) such as the United States, the United Kingdom, and Switzerland, Canada does not have a nationally organized strategic role in global health. The Panel's first task was, therefore, to articulate a rationale for whether Canada should indeed play a more strategic role in global health — and, if so, why?

The Panel chose to develop this rationale by answering two fundamental questions:

1. If Canada does *not* play a more strategic role in global health, will there be significant consequences?
2. If Canada plays a more strategic role in global health, does it have the resources and/or capacity to make a difference?

Answering the first question requires an understanding of the scope and possible impacts of current and future global health challenges both for Canada and for low- and middle-income countries (LMICs). The remainder of this chapter explores these challenges in some depth.

Answering the second question requires an understanding of Canada's capacity to make a meaningful difference in global health through an analysis of its current role in global health, its key strengths, the barriers that prevent maximum impact of its investments, and areas of opportunity for Canadian leadership. Chapters 3 through 6 explore each of these areas in detail.

Before starting its deliberations on the first question, the Panel felt it was necessary to establish a common definition of global health to frame its work. After reviewing a range of definitions of global health from recent publications and academic journals, the Panel agreed to use the following definition of *global health* from a widely cited 2009 article in *The Lancet*:

> Global health is an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level clinical care.
>
> (Koplan *et al.*, 2009)

[2] Based on the outcomes of four roundtables that the Panel conducted with university students across the country to assess their views on and interest in global health.

Table 2.1 Comparison of Global, International and Public Health
Koplan *et al.*, 2009.*

	Global Health	International Health	Public Health
Geographical Reach	Focuses on issues that directly or indirectly affect health but that can transcend national boundaries.	Focuses on health issues of countries other than one's own, especially those of low-income and middle-income.	Focuses on issues that affect the health of the population of a particular community or country.
Level of Cooperation	Development and implementation of solutions often requires global cooperation.	Development and implementation of solutions usually require binational cooperation.	Development and implementation of solutions does not usually require global cooperation.
Individuals or Populations	Embraces both prevention in populations and clinical care of individuals.	Embraces both prevention in populations and clinical care of individuals.	Mainly focuses on prevention programmes for populations.
Access to Health	Health equity among nations and for all people is a major objective.	Seeks to help people of other nations.	Health equity within a nation or community is a major objective.
Range of Disciplines	Highly interdisciplinary and multidisciplinary within and beyond health sciences.	Embraces a few disciplines but does not emphasize multidisciplinarity.	Encourages multidisciplinary approaches, particularly within health sciences and with social sciences.

* Reproduced from *The Lancet*, vol. 373, J.P. Koplan, T.C. Bond, M.H. Merson, K.S. Reddy, M.H. Rodriguez, N.K. Sewankambo, J.N. Wasserheit, Towards a common definition of global health, pgs. 1993–1995, 2009, with permission from Elsevier.

This definition goes on to suggest that the *global* in global health refers "to any health issue that concerns many countries or is affected by transnational determinants, such as climate change or urbanization, or solutions such as polio eradication." In other words, "the global in global health refers to the scope of problems, not their location" (Koplan *et al.*, 2009).

The Lancet article also explored the differences and distinctions between global, international, and public health (see Table 2.1).

In various discussions, Panel members emphasized that although the term *global health* is commonly understood to mean health in LMICs, in reality it encompasses a broad range of transnational and transregional issues that span lower-, middle-, and upper-income countries.

The Panel recognized that there are a number of transnational determinants of, and risks to, health that mandate a transnational response. These risks range from flu pandemics and other infectious diseases to the health impacts of climate change, agriculture, poverty, natural disaster, and conflict. The Panel also agreed that global health (i) includes a variety of challenges such as infectious and non-communicable diseases (including mental health), and physical and intellectual disabilities, as well as accidents and injuries; and (ii) spans health systems, community health, and public health.

2.1 The Current State of Global Health

Over the past two decades, the world has become increasingly interdependent and interconnected. This shift has resulted in an increase in the importance and complexity of global health. For example, outbreaks of pandemics such as severe acute respiratory syndrome (SARS) and H1N1 flu have had significant economic, health, and social impacts on Canada even though they originated far from its borders (Darby, 2003). Global health systems are also becoming more strongly entwined. This has resulted in an increasingly mobile global health workforce where, paradoxically, lower-income countries are subsidizing HICs like Canada, through the out-migration of health professionals to meet the demand in HICs for highly skilled health practitioners (Henheffer, 2009), despite the massive and chronic shortage of health professionals in LMICs (estimated to be almost 3.5 million) (Forsyth *et al.*, 2011).

2.1.1 The Shifting Burden of Disease

The global burden of disease and disability is disproportionately higher in LMICs than in HICs. This disparity is highlighted in the *Global Burden of Disease* (WHO, 2008a), a World Health Organization (WHO) report that compares the loss of years of full health due to death, injury, and illness across various countries and regions of the world. Figure 2.1 highlights the disparity between HICs and LMICs in terms of years of potential life lost (YLL) and years lost due to disability (YLD). For example, the YLL rate is about seven times higher in Africa than in HICs. In total, disability-adjusted life years (DALYs) are about 80 per cent higher in Africa than in HICs. This inequity in terms of life expectancy is one of the greatest ethical challenges of our time. As an HIC, Canada has a responsibility to help address this challenge and reduce the level of global health inequity.

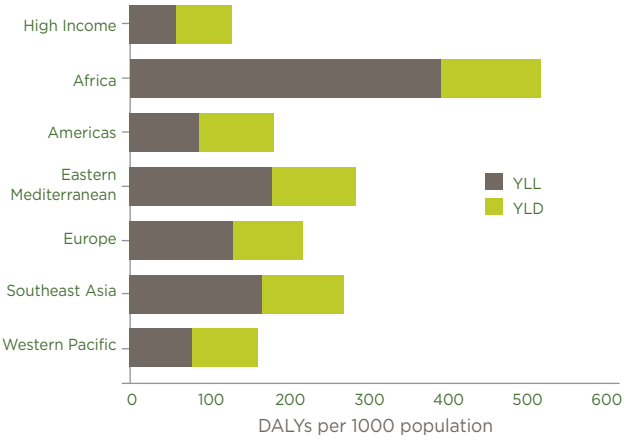

Figure 2.1 The Global Burden of Disease
WHO, 2008a. Reproduced with permission from the World Health Organization (WHO).

The same distributional inequalities are also seen within HICs where specific at-risk populations have significantly worse health outcomes than the population at large. For example, in Canada, the gap between the average life expectancy of First Nations and of non-First Nations Canadians is approximately five years for women and seven years for men (INAC, 2006). This disparity is highlighted in Figure 2.2, which illustrates the gap in life expectancy in Canada between the North and South.

This disparity in life expectancy is also experienced in other countries with significant aboriginal populations, such as Australia where the gap in life expectancy between aboriginal Australians and the overall population born between 1996 and 2011 is estimated to be 16 to 17 years (AIHW, 2010).

Indigenous populations in both the developing and developed world are afflicted at much higher levels than their non-indigenous neighbours by a range of health challenges including maternal and infant mortality, malnutrition, mental health problems and physical and intellectual disabilities, non-communicable diseases including diabetes and cardiovascular disease, HIV/AIDS (human immunodeficiency virus/acquired immune deficiency syndrome), malaria, and tuberculosis.

The populations of HICs and LMICs also vary greatly in terms of the types of diseases and conditions that lead to poor health outcomes. Globally, by far the greatest burden of death from infectious and parasitic diseases falls on LMICs. At the same time, the prevalence and impact of non-communicable disease are also rapidly increasing in these countries. A study published in *The Lancet* in 2010 of mortality statistics in 23 LMICs estimated that 64 per cent of current deaths are due to non-communicable diseases (Alwan *et al.*, 2010). By 2030, non-communicable diseases are expected to account for about three-quarters of global deaths (WHO, 2008a).

Figure 2.2 Life Expectancy at Birth in Canada (by region)
Conference Board of Canada, 2011. Adapted and reprinted with permission from the Conference Board of Canada.

Table 2.2 provides a snapshot of the relative contributions of different conditions to the overall burden of disease (WHO, 2008a). It is worth highlighting that although the most pressing challenge, in terms of non-communicable diseases, is unipolar depressive disorders, many LMICs allocate less than one per cent of their health budgets to mental health care (Jacob *et al.*, 2007). Changing diets and increasingly sedentary lifestyles in many countries are also contributing to the greater incidence of non-communicable diseases including some cancers and Type 2 diabetes (Habib & Saha, 2010).

Finally, HIV/AIDS continues as the major global pandemic and a significant contributor to the global burden of disease. More than 25 million individuals have died from HIV/AIDS over the past three decades. Despite improvements in treatment protocols and the introduction of antiretroviral drugs, in 2008 the AIDS pandemic claimed the lives of around two million individuals, and about 430,000 children were born with HIV (UNAIDS, 2009). In 2009, approximately 33.3 million individuals were living with HIV (UNAIDS, 2010). Integrated primary care, prevention, and treatment are critical to efforts to contain and control this pandemic. Ongoing development of vaccines and drugs will also be important over the long term. The same types of interventions are also needed for other major global pandemics including tuberculosis and malaria.

In the absence of a coherent Canadian global health strategy, it is likely that the burden of disease will continue to shift toward LMICs, and the level of health inequity will continue to grow both globally and within Canada.

Table 2.2 The Main Causes of Disease (all ages, 2004)

WHO, 2008a. Reproduced with permission from the World Health Organization (WHO).

	Disease or injury	DALYs (millions)	Per cent of total DALYs
1	Lower respiratory infections	94.5	6.2
2	Diarrhoeal diseases	72.8	4.8
3	Unipolar depressive disorders	65.5	4.3
4	Ischaemic heart disease	62.6	4.1
5	HIV/AIDS	58.5	3.8
6	Cerebrovascular disease	46.6	3.1
7	Prematurity and low birth weight	44.3	2.9
8	Birth asphyxia and birth trauma	41.7	2.7
9	Road traffic accidents	41.2	2.7
10	Neonatal infections and other*	40.4	2.7
11	Tuberculosis	34.2	2.2
12	Malaria	34.0	2.2
13	Chronic obstructive pulmonary disease	30.2	2.0
14	Refractive errors	27.7	1.8
15	Hearing loss, adult onset	27.4	1.8
16	Congenital anomalies	25.3	1.7
17	Alcohol use disorders	23.7	1.6
18	Violence	21.7	1.4
19	Diabetes mellitus	19.7	1.3
20	Self-inflicted injuries	19.6	1.3

* This category also includes other non-infectious causes arising in the perinatal period apart from prematurity, low birth weight, birth trauma and asphyxia. These non-infectious causes are responsible for about 20 per cent of DALYs shown in this category.

2.1.2 Increasingly Complex Challenges

A broad range of global issues are strongly interconnected with global health outcomes including lack of access to clean drinking water; and effective sanitation, hunger, urbanization, natural disasters, and climate change (Commission on Social Determinants of Health, 2008). Although many of these issues have not yet had a direct impact on Canada, there are significant indirect impacts associated with each in terms of increasing health inequity, global insecurity, migrations of vulnerable populations, and increasing numbers and virulence of global pandemics.

For example, lack of access to drinking water is a growing challenge, but water management and infrastructure in many countries are inadequate to deal with increasing extreme weather conditions (e.g., floods, rising level of oceans) or with the distribution of water during times of severe drought. Although Canada is blessed with bountiful supplies of fresh water, increased water insecurity may lead to greater global insecurity as populations are forced to relocate in an attempt to access necessary supplies of water. Further, drought and shortfalls of drinkable water are significant contributors to increased global health inequity as they disproportionately affect poor and vulnerable populations (Moe & Rheingans, 2006).

In many parts of the world, unpredictable access to food and water and fluctuations in food prices are leading to social unrest and political instability (Waldie, 2011). In 2010, for example, 925 million people lived with hunger (World Hunger Education Service, 2011). This situation is not likely to improve without interventions to address challenges such as the continuing decline in crop yields in some parts of Africa (Klare, 2007). Rising food prices can also have serious health consequences for HICs like Canada, particularly for its vulnerable and economically disadvantaged individuals and communities.

The increasing population density of large cities has direct implications for the quality of life of their inhabitants. In much of the developing world, migration to urban centres has contributed to the creation of slum settlements, primarily as a result of the inability of rural migrants to find work or affordable housing. The lack of access to food, water, and sanitation in these settlements facilitates the spread of disease from lower-income neighbourhoods to the surrounding city and region. Urbanization in LMICs is another significant source of growing global health inequity (Nsiah-Gyabaah, 2004).

Increasingly mild winters, due to a changing climate, are challenging the ability of Europe and North America to resist the spread of parasitic diseases traditionally endemic to equatorial regions. Vulnerable populations are disproportionately affected by these weather events, causing a greater burden on health-care systems that are already under tremendous pressure due to aging

populations and overcrowded cities. In addition, rapid climate change has been linked to 150,000 deaths annually around the world resulting from illnesses linked to climate fluctuations (such as infectious diseases) and malnutrition (Patz *et al.*, 2005).

In Canada, changing climate patterns will have a disproportionate impact in the North, which will experience the most significant temperature changes (NRTEE, 2009). Other parts of Canada will also experience more extreme weather. Globally, changing climate will contribute to and exacerbate a range of other challenges including access to safe drinking water and hunger. As with the other phenomena described in this section, changing climate will have a stronger impact on poor and vulnerable populations both within Canada and globally, which will further increase global health inequity (DFID, 2004).

Finally, natural disasters, such as the Southeast Asian tsunami and the earthquake in Haiti, have significant impacts on both short- and long-term health in the affected regions.

2.1.3 Outmoded and Ineffective Governance Structures

The issues described in the previous section share an important characteristic in that they all transcend traditional national borders. More broadly, since the end of the 20th century, the level of interconnection between communities, regions, and states — a phenomenon known as *globalization* — has accelerated (Friedman, 2005).

Globalization can have a range of direct and indirect impacts on health. For example, the increased mobility of populations can intensify the risks of transmitting infectious diseases from one country to another (Saker *et al.*, 2004). Additionally, the emigration of health-care professionals trained in LMICs to HICs is a contributing factor to the lack of health-care practitioners in some parts of the world. In 1999, for example, 9.7 per cent of physicians in Canada were trained in South Africa (Sullivan, 1999).

Traditional state-based governance structures are, and will continue to be, inadequate for dealing with these transboundary challenges. Further, traditional mechanisms for dealing with transnational and global issues, such as the United Nations (UN), are not well suited to addressing these complex and multi-faceted challenges. Governance strategies that include a range of state and non-state actors are needed to solve these challenging global health issues (Dodgson *et al.*, 2002).

Canada has an important potential role to play in helping to develop and implement these new governance strategies, building on our traditional role as "honest brokers" in international affairs (Hillmer, 1999). To do so will require (i) a recognition that these transboundary issues have a more profound impact on poor and vulnerable populations, and (ii) a commitment to meaningful and mutual engagement with both HICs and LMICs to develop and implement appropriate interventions.

2.1.4 Constrained Resources

The recent financial crisis has driven the national budgets of many HICs into deficit, limiting both their willingness and capacity to increase their committed investments in global health programs and activities. The United States and United Kingdom are exceptions to this trend. In 2010/11, the United States announced significant funding cuts for foreign aid, but maintained its level of investment in global health (Provost, 2011). The United Kingdom actually increased its level of investment in foreign aid, despite significant cuts to other areas of government spending (Fisher, 2011). In 2010, the Canadian government froze annual foreign aid spending at $5 billion (Department of Finance Canada, 2010); but the Muskoka Initiative on Maternal, Newborn and Child Health is a significant new spending initiative in global health funded out of the existing aid budget (Government of Canada, 2011a).

In a world of diminishing international aid, the consequences of inefficiency in the administration of aid for global health are redoubled as there are no additional funds to compensate for this inefficiency.

Another major long-term trend is the shifting locus of economic growth from countries in North America and Europe to emerging economies in Asia, such as India and China, and in the Americas, such as Brazil (Engardio, 2005). This shift will have significant implications for the changing landscape of investments in global health funding; the development of, and competition for, talented global health professionals, researchers, and other leaders in the public and private sectors; and the market for health innovation.

The growth of the size and importance of these emerging market economies will be accompanied by an expectation that they will play a larger role as funders of foreign aid (rather than as recipients as in the past). These economies, however, may have very different priorities for their foreign aid investments than traditional HICs. This could have significant implications for the sources and availability of funding to address global health challenges in the future including a greater regional focus and a stronger emphasis on market development. In this new global context, Canada must ensure that its investments in global health both recognize the potentially significant contributions of these new donors and target areas in which Canada can make a considerable impact.

Finally, in a world of increasingly scarce development resources and diminishing international aid, a continued priority for LMICs is to work toward open and democratic governance, respect for human rights, the elimination of corruption, and a refocusing of internal resources toward improvements in health and health care.

2.1.5 Shifting Private-Sector Priorities

For the most part, HIC private-sector expenditure on the development of medical technologies and pharmaceutical products targets consumers in North America, Europe, and, increasingly, Asia and the Americas. In general, these products are differentiated primarily by performance with very little regard to affordability. As such, they are often sold at a price point that makes them unaffordable for lower-income individuals and families in LMICs. A comparatively small fraction of private-sector expenditure in health is directed at the pressing challenges of LMICs, with an even smaller fraction aimed at addressing the challenges of the very poorest countries (Al-Tuwaijri *et al.*, 2004).

At the same time, there is an ever-increasing capacity for, and scale of, research, in emerging market countries, with a particular emphasis on life sciences technologies (McLaughlin-Rotman Centre for Global Health, 2011). In the coming years, Canadian companies will have more opportunities to partner with emerging life sciences and medical product companies in LMICs. As the research capacity of LMICs continues to grow, multinationals may continue to shift their research centres to these countries in order to benefit from lower research costs and their untapped potential for innovation.

2.2 The Consequences of Inaction

Canada's contributions to global health have an impact on our international role and on our standing as a global actor. Further, Canada is not an island: we are vulnerable to global health pandemics/threats such as SARS, and the resurgence of measles, polio, HIV/AIDS, and others.

Three major findings emerge from the Panel's review and analysis of the evidence presented in the previous section:

1. Given current global conditions, it is very likely that global health issues will continue to increase in both their scope and complexity. These issues will have a disproportionate impact on poor and vulnerable populations both in Canada and in LMICs. This growing inequity poses a significant moral and ethical challenge for HICs such as Canada, and provides a strong impetus for action on global health.
2. Increasing inequity in global health is occurring in the context of ongoing international financial and economic instability, which is resulting in significant resource constraints on current and future investments in global health. Thus the moral and ethical imperative to act is heightened by the need to ensure that Canada's investments in global health are as effective as possible.
3. There is an exciting opportunity for global health partnerships between Canada and LMICs that encourage both North-South and South-North learning across all sectors, including the private sector. This opportunity can only be realized through meaningful and mutual engagement.

Thus the Panel's answer to the first question it posed, in its efforts to articulate a rationale for a more strategic role in global health, is that there would indeed be significant direct and indirect consequences if Canada does not act. Further, without a more strategic approach, Canada may miss out on significant opportunities for mutual learning and partnership, as well as personal benefits for the individuals involved.

3. Principles for Action

Building on the Panel's analysis of current global health challenges and the three main findings presented in Chapter 2, this chapter articulates a set of three core principles that should inform the development and implementation of a more strategic role for Canada in global health. After reviewing the evidence, the Panel collectively agreed on these three principles. These principles are accompanied by goals and related measures of success to provide more concrete guidance in assessing Canada's potential strategic roles and their impact on global health issues. The Panel recognized that these measures of success would need to include specific quantifiable metrics if they were to be implementable. The development of these metrics was beyond the scope of the Panel's work; it should, however, be a part of the next steps outlined in Chapter 7 of this report.

3.1 Principles for Global Health

In the Panel's view, the three principles that should inform Canada's role in global health are as follows:

1. **Equity** – the recognition that inequities in global health need to be addressed. The constitution of the World Health Organization (WHO) offers a useful definition of equity in health, stating that "The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition" (WHO, 1946).

   The Panel highlighted two aspects of health equity:

   - the right to health for all, including the social and economic foundations of health, in both low- and middle-income countries (LMICs) and high-income countries (HICs); and
   - the importance of universal access to health services.

2. **Effectiveness** – the recognition that in a world of limitless challenges and finite resources the investment of resources must lead to the greatest possible impact. This impact can be measured in terms of the return on investment (ROI) or value for money (over a broad spectrum of value creation including financial, social, and environmental returns) of an investment. An effective investment should produce high-quality outcomes and impacts, and these impacts should be realized as broadly as possible.

   In particular, the Panel emphasized the importance of taking a multidisciplinary approach to global health and of enabling cooperation and collaboration across a broad range of academic fields, policies, and programs to maximize the potential for impact.

   The Panel recognized that evidence is at the core of effectiveness and that all new policy and program decisions should be taken on the basis of the best available evidence.

Table 3.1 Principles, Goals, and Measures of Success for a More Strategic Role for Canada in Global Health

Principle	Goal	Criteria/Measures of Success
Equity	1. Improve health equity	a. Improvements in key indicators of health equity
Effectiveness	2. Maximize health impacts 3. Enhance human security 4. Maximize benefits to society 5. Focus investment on outstanding outcomes 6. Ensure that decisions are evidence-based	b. Scope of impact on mortality and morbidity c. Improvements in key indicators of global human security d. Scope of social and economic benefits e. Implementation of effective and appropriate evaluation frameworks f. Documentation and validation of evidentiary sources
Engagement	7. Optimize opportunities for innovation and mutual learning 8. Catalyze and sustain Canadian interest	g. Number, scope and impact of partnerships between LMIC and HIC institutions h. Recognition of and/or level of awareness of global health issues among the Canadian public

Appropriate metrics and measurements should be in place to demonstrate the extent and impact of these programs and initiatives and to provide a rationale for continued investment and involvement going forward.

3. **Engagement** – the recognition that the common problems found in many national contexts present an opportunity for shared or mutual learning and the development of common solutions. The Panel highlighted the importance of sustainability and capacity building as components of genuine mutual learning.

3.2 Assessing the Principles

The Panel agreed that it is not enough to simply articulate a set of broad principles for global health. To make these principles more concrete, the Panel developed a set of goals and related measures of success (see Table 3.1). These goals and success measures are based on the individual knowledge and expertise of Panel members and on an analysis of the evidence collected from the Call to Evidence.

The next sub-sections provide more detailed descriptions of the eight goals and their related measures of success.

Equity

1. Improve health equity – The most important goal of a more strategic role for Canada in global health should be to address issues of global health equity, by improving global health outcomes in LMICs and in vulnerable populations in HICs.

a. *Improvements in key indicators of health equity* – Some of the key indicators of health equity would include life expectancy, burden of disease, disability-adjusted life years (DALYs), and others. Examples of groups requiring attention would include:

- women and girls;
- poor and marginalized populations; and
- indigenous peoples.

Effectiveness

2. Maximize health impacts – Any strategic role in global health should help to build capacity and maximize the impacts of current and future Canadian programs and activities in global health.

b. *Scope of impacts on mortality and morbidity* – This would include both direct (e.g., reduced sickness and disability, increased lifespan) and indirect (e.g., improving health education, which would lead to improved health and productivity as adults) impacts.

3. Enhance human security – A more strategic role for Canada in global health should contribute to and enhance human security either directly (e.g., through improved early detection of potential pandemics), or indirectly (e.g., by enhancing health outcomes in LMICs, which would lead to more prosperous and stable economies).

c. Improvements in key indicators of global human security – Enhanced human security would be reflected in improved international cooperation and monitoring and/or increased capacity to detect, prevent, and treat transnational health threats.

4. Maximize benefits to society – Canada's activities in global health should maximize social and economic benefits as well as health benefits. The focus should be on maximizing ROI over a broad spectrum of value creation including human, financial, social, and environmental returns from these activities.

d. Scope of social and economic benefits – The ultimate impact of global health initiatives would be realized in their impact on quality of life metrics measuring social, economic, and health outcomes for the country as a whole, and for specific population segments.

5. Focus investment on outstanding outcomes – Canada's investments in global health programs, initiatives, and organizations should focus on areas in which Canada has a strong comparative advantage and that have the potential to deliver exceptional outcomes and impacts. This goal can only be realized through a strong commitment to measurement, evaluation, and good governance.

e. Implementation of effective and appropriate evaluation frameworks – One important process measure of a focus on outstanding outcomes and evidence-based decision-making would be the implementation of an appropriate and effective strategy for monitoring and evaluation.

6. Ensure that decisions are evidence based – Decisions should be taken on the basis of all of the best available evidence.

f. Documentation and validation of evidentiary sources – A critical underpinning of evidence-based decision-making is to clearly document the data and sources that were drawn on in the decision-making process.

Engagement

7. Optimize opportunities for innovation and mutual learning – A more strategic role for Canada in global health should enable innovation and the two-way flow of knowledge and learning.

g. Number, scope, and impact of partnerships between LMIC and HIC institutions – A more strategic role should include the opportunity for mutual learning and knowledge sharing and transfer among and between HICs and LMICs. This mutuality is a critical component of an effective and sustainable global health role. This measure would look at both the quantity and quality of partnerships between LMIC and HIC institutions.

8. Catalyze and sustain Canadian interest – A more strategic role for Canada in global health should sustain engagement with the Canadian public around significant global health issues.

h. Recognition of and/or level of awareness of global health issues among the Canadian public – Any role should help to shape and articulate a clear and meaningful role for Canada that would energize and engage the Canadian public and help to build Canada's leadership, contribution, presence, and profile internationally.

It was not within the Panel's mandate to apply these principles to an evaluation of Canada's current role in global health (see Chapter 4). Rather, these principles, goals, and measures of success are proposed as a framework to help develop, shape, and assess the viability of potential strategic roles going forward, as discussed in Chapter 6.

4. Canada's Current Role in Global Health

Chapter 2 introduced the two fundamental questions posed by the Panel to help articulate a rationale for Canada to play a more strategic role in global health; it went on to answer the first of these questions: there will be significant direct and indirect consequences if Canada does not play a more strategic role in global health.

The next few chapters address the second question: If Canada plays a more strategic role in global health, does it have the resources and/or capacity to make a difference? This chapter outlines and analyzes the main elements of Canada's current role in global health.

The Panel's analysis is based in part on a historical review of Canada's activities in, and contributions to, global health; a literature review; responses to a Call for Evidence; testimony from expert witnesses; and targeted interviews with experts. Examples are included for illustration and are not intended to be comprehensive.

4.1 The Role of the Public Sector

4.1.1 The Federal Government

The federal government plays a significant role in global health in Canada. Estimates of Canada's annual investment in global health from the official development assistance envelope in 2009 ranged from $559 million to around $634 million.[3] Given the federal government's commitments, it is likely that current annual investment in global health is of a similar magnitude. This investment is allocated by the following federal agencies and departments:

Success Story: The Muskoka Initiative on Maternal, Newborn and Child Health

At the 38th G8 summit in 2010, Canada created the Muskoka Initiative as a vehicle to target funding toward critical challenges in maternal, newborn, and child health (Group of Eight, 2010). Canada announced that it would target $2.85 billion in funding to the initiative over the next five years, and a total of over $7 billion in commitments was raised. Together with the president of Tanzania, the Canadian prime minister co-chaired an Accountability Commission to ensure the delivery of these commitments. Canada's contribution to this initiative focuses on developing comprehensive and integrated approaches in LMICs to support health services for mothers and children. To meet this goal, Canada is focusing on three objectives: (i) strengthening of health systems; (ii) diseases and illnesses; and (iii) nutrition (Government of Canada, 2011a).

- Canadian International Development Agency;
- International Development Research Centre;
- Health Canada;
- Public Health Agency of Canada;

[3] For a more detailed overview of Canada's investments in global health, please see Annex 2.

- Canadian Institutes of Health Research;
- Department of Finance Canada; and
- Department of Foreign Affairs and International Trade Canada.

The Panel's mandate was not to assess Canada's current role in global health against the three broad principles articulated in Chapter 3. It did note, however, that the network of roles and responsibilities within the federal government is highly complex.

The federal government plays five primary roles in global health:

- development assistance;
- funding research and innovation;
- supporting multilateral organizations and initiatives;
- providing disaster relief; and
- ensuring health security.

Development Assistance

The Canadian International Development Agency (CIDA) is the primary agency that delivers Canada's official development assistance. CIDA's three main areas of focus are food security, stimulating sustainable economic growth, and securing the future of children and youth (Oda, 2009). In 2009–10, CIDA's budget was about $3.5 billion, of which around 22 per cent was invested in improving health, while the International Development Research Centre (IDRC) had parliamentary appropriations of $174 million (CIDA, 2010; IDRC, 2011).

Research and Innovation

The federal government also makes investments that build and support research capacity both in Canada and in developing countries. This investment flows primarily through IDRC, a Canadian crown corporation which supports applied research in developing countries to find innovative, lasting local solutions (IDRC, 2010). IDRC is also a member of, and provides the secretariat for, the Global Health Research Initiative (GHRI). GHRI is a partnership between the Canadian Institutes of Health Research (CIHR), CIDA, Health Canada, IDRC, and the Public Health Agency of Canada (PHAC) to strengthen Canada's role in global health research (CIHR, 2009).

CIHR invests a component of its funding in global health research as do the other two Tri-Council granting agencies: the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Social Sciences and Humanities Research Council of Canada (SSHRC). The focus of the Tri-Council's funding is on the broader aspects of global health such as environment, enabling technologies, urbanization, and governance.

In Budget 2008, the federal government created the Development Innovation Fund (DIF) with a budget of $225 million to "support the best minds in the world as they search for breakthroughs in global health" (Department of Finance Canada, 2008). The DIF in Global Health is being delivered by Grand Challenges Canada, with its consortium partners, CIHR and IDRC. Its mission is "to identify global grand challenges, fund a global community of researchers and related institutions on a competitive basis to address them, and support the implementation/commercialization of the solutions that emerge" (GCC, 2010a).

Success Story: The Framework Convention on Tobacco Control

Tobacco consumption, one of the leading causes of preventable death in HICs, is becoming a public health threat in LMICs. By 2020, tobacco consumption is expected to kill about 10 million people a year (Roemer *et al.*, 2005). With strong support from countries such as Canada, WHO member states have developed a framework to reinforce collaboration on issues related to tobacco consumption nationally and internationally. This framework focuses on implementing reduction strategies in conjunction with supply strategies to reduce the use of tobacco. The treaty, signed by 168 of 192 WHO member states, entered into force in February 2005.

Multilateral Organizations and Initiatives

The federal government contributes internationally to global health by "negotiating and implementing protocols, declarations, memoranda of understanding and work plans."[4] For example, Health Canada represents Canada in many key multilateral institutions such as the World Health Organization (WHO).

The federal government has had an important role in several multilateral financing initiatives such as the Global Alliance for Vaccines and Immunization (GAVI); the Global Fund to Fight AIDS, Tuberculosis and Malaria; the Global Polio Eradication Initiative; and the Advance Market Commitment for pneumococcal vaccines (Government of Canada, 2006). The Canadian government played a leadership role at the 2010 G8 meeting by launching the Muskoka Initiative on Maternal, Newborn and Child Health (Prime Minister of Canada, 2010), with a Canadian investment of $2.85 billion between 2010 and 2015 (Government of Canada, 2011b).

Disaster Relief

The Department of Foreign Affairs and International Trade (DFAIT) provides on-the-ground support in response to natural disasters through the Stabilization and Reconstruction Task Force (START). It also coordinates government policy and engagement in fragile states (DFAIT, 2011). Recent Canadian efforts include reconstruction aid in Haiti and in Sri Lanka (Oxfam Canada, 2005).

Health Security

The Canadian government is very active in addressing issues of global health security. For example, PHAC has implemented a number of initiatives relating to pandemic awareness and preparedness (e.g., the Global Health Security Initiative), and to disease surveillance (e.g., the Canadian Integrated Public Health Surveillance, the Canadian Paediatric Surveillance Program, and the Chronic Disease Infobase) (PHAC, 2011).

Success Story: Identification of the H1N1 influenza strain

In 2009, soon after it began spreading, the Influenza A (H1N1) virus, a subtype of the influenza A virus, was declared a pandemic by the WHO. The international community reacted promptly to identify, isolate, and understand the virus. The Public Health Agency of Canada's National Microbiology Laboratory, which is recognized as one of the few laboratories in the world able to work with highly pathogenic viruses, was asked by the Mexican government to assist with diagnostic testing clusters (PHAC, 2009). This marked a significant achievement for Canada as it highlighted Canada's commitment to transparency and global information sharing, which encouraged strong international collaboration in the face of a significant public health threat.

4.1.2 Provincial Governments

Under the constitutional division of roles, responsibility for access to health care through the delivery of health services is within the jurisdiction of Canada's provinces and territories (with the exception of health care for First Nations and members of the Canadian Forces, which are administered by the federal government) (Minister of Justice, 1985). Most provinces and territories are not formally engaged in global health initiatives, although several provinces are involved in initiatives to support pandemic identification and prevention, such as the BC Centre for Disease Control (BC Centre for Disease Control, 2010).

[4] From a government submission to the Call for Evidence (24 December 2010).

4.2 The Role of Academia

There are four main categories of global health activity in academia:

- education;
- research and development;
- networking and knowledge mobilization; and
- capacity building in LMICs.

4.2.1 Education

Universities and colleges provide education and training for students and health-care professionals from Canada, other developed nations, and the developing world. A number of Canadian institutions have existing partnerships and exchange programs with universities and medical schools in LMICs. For example, the Université de Sherbrooke has a long-standing partnership with the University of Bamako to support the education of health professionals in Mali.

As part of its deliberations, the Panel held four roundtable discussions with university students at the University of British Columbia, the University of Toronto, McGill University/Université de Montreal, and McMaster University.[5] The students involved in the discussions came from a wide range of disciplines directly and indirectly engaged in global health. Out of the wide range of topics raised by the students, four key themes emerged:

- **Clarity and definitions** – Students recognized the wide variety of elements in global health that span many different academic fields and categories. As such, many students in global health who are looking for funding fall through the cracks between SSHRC and CIHR. Students felt strongly that interdisciplinary learning was critical for Canada in addressing global health challenges and that funding mechanisms should reflect the interdisciplinary nature of the field.
- **The importance of integration** – Students expressed the view that Canada should take a more integrated approach to foreign policy. In their opinion, it does not make sense to invest in global health programs when the benefits of these programs are being undermined by other elements of Canada's foreign policy such as trade or intellectual property policies. Students extended this need for integration to the academic practice of global health, which they felt should include a number of disparate fields like sociology, engineering, women's studies, and others.
- **The need for consolidation** – Students acknowledged the range of global health-related activities currently taking place on Canadian campuses. They felt, however, that there needs to be a way to identify and consolidate these activities to create clear pathways for channelling the increasing wave of interest in global health on campuses across Canada.
- **Canada as a leader** – Across all four campuses, students strongly expressed the view that Canada can and should take a strong leadership role in global health going forward. Further, students indicated the desire to contribute to this leadership themselves.

Success Story: Training Highly Skilled Health Personnel

In Quebec, the Faculty of Medicine at the Université de Sherbrooke has had a long-standing partnership with the Faculty of Medicine at the University of Bamako to support the education and training of health professionals in Mali. In 2010, a consortium involving the Faculty of Medicine at the Université de Sherbrooke, the CEGEP St-Jérôme, and the Centre de coopération international en santé et développement (CCISD) was funded with a $18.75 million contribution from CIDA to train health professionals in Mali (Faculté de médecine et des sciences de la santé, 2010).

[5] Students at other institutions of higher learning in the region were also invited to attend these sessions.

Success Story: Sprinkles Global Health Initiative

Iron deficiency anaemia affects about 1.5 billion people worldwide, particularly women of child-bearing age and children. In 1996, a research team at the Hospital for Sick Children in Toronto developed an innovative approach, in the form of Sprinkles, to deliver essential micronutrients to families in developing countries. Sprinkles take the form of single-dose sachets containing nutrients that can be sprinkled over food cooked at home (Zlotkin *et al.*, 2005). Sprinkles are now widely adopted in LMICs, and in 2009 were produced in six facilities worldwide, reaching four million children in 18 countries for the lifetime price of $2 (Silversides, 2009).

Students in all four roundtables conveyed the urgent need for more internship and study abroad opportunities in global health, and for the coordination of these opportunities across campuses to avoid duplication and to maximize their impact.

4.2.2 Research and Development

Universities, colleges, and health research institutions are the main performers in global health research in Canada. As illustrated in the 2006 Council of Canadian Academies report on the state of science and technology in Canada, the research fields in which Canada has the best global performance in terms of specialization and impact are psychology and psychiatry, earth and space sciences, and biomedical research and biology (CCA, 2006). The report also revealed that Canada is highly specialized in health-related social sciences, though this specialty has a lower impact than the fields cited above.

Canada has had some notable successes in commercializing and disseminating global health research such as the development of Sprinkles (see the Sprinkles success story).[6]

4.2.3 Networking and Knowledge Mobilization

Canadian academic institutions are active in helping to develop and advance national and international networks focused on global health research. For example, the Canadian Coalition for Global Health Research (CCGHR) is committed to promoting global connections between researchers in Canada and those in the developing world. McGill University is a leader in the Consortium of Universities for Global Health (CUGH), a North America-wide organization that aims to define the field and discipline of global health and to help coordinate projects and initiatives between and among its members and less-developed nations. McGill is hosting the 2011 CUGH annual meeting in conjunction with the Canadian Society for International Health (CSIH) and the Global Health Education Consortium (GHEC).[7]

Another critical role for academia is knowledge mobilization, informally through networks and interactions among peers and more formally through publications, conferences, and meetings.

Success Story: Research on Neglected Diseases

The University of British Columbia makes a significant contribution to research on neglected diseases through its Neglected Global Diseases Initiative. Particular successes include the development of an oral form of Amphotericin B (AmB) for treatment of visceral leishmaniasis in mouse models (Wasan *et al.*, 2010) that does not require intravenous administration and refrigeration. Most places in developing countries do not have the capacity to refrigerate or administer the traditional 50 year-old anti-fungal drug. Therefore, the development of this innovative oral formulation is one step further in dealing with visceral leishmaniasis in endemic regions.

[6] For more information on the Sprinkles Global Health Initiative, please see www.sghi.org

[7] For more information about this meeting, please see http://www.mcgill.ca/channels/events/item/?item_id=170245

4.2.4 Capacity Building in LMICs

Academia plays an important role in building education, research, and clinical capacity in LMICs. For example, since 1994 the Association of Universities and Colleges of Canada (AUCC) has funded more than 100 projects involving Canadian universities and education and training organizations in developing countries through its University Partnerships in Cooperation and Development (UPCD) program (AUCC, 2008). Other organizations like CCGHR focus on building capacity to produce and use new knowledge to improve global health in LMICs (CCGHR, 2010a). Finally, many Canadian institutions of higher learning have entered into partnerships with civil and academic institutions in LMICs to help sustainably build their health capacity.[8]

Success Story: Trauma and Global Health Program

McGill University runs the Trauma and Global Health (TGH) Program in partnership with research centres in participating LMICs (Guatemala, Nepal, Peru, Sri Lanka). This unique program looks at the impact and treatment of psychological trauma on civilian populations that have been subject to extreme adversity (Pedersen *et al.*, 2009). Its objectives are to (i) reduce the mental health burden of populations that are affected by political violence or natural disasters; (ii) promote the process of healing, and psycho-social rehabilitation and recovery; and (iii) develop mental health policies and services in the partner countries. The TGH Program is particularly active in the fields of research and documentation, capacity building, and knowledge transfer. It has made significant achievements in developing networks and partnerships, research and capacity building, and establishing documentation centres.

Success Story: The Canadian Public Health Association

The Canadian Public Health Association (CPHA) has been a leader in analyzing and proposing policies related to public health in Canada for more than 100 years and has been active internationally since 1982 (CPHA, 2008). CPHA's main objective is to foster equitable access to conditions that affect health by focusing on the three pillars of public health: disease prevention, health promotion, and health protection. CPHA has been a leader in global health through its involvement in initiatives such as the Southern African Aids Trust, Strengthening of Public Health Associations Program, Health Promotion in Action, and Canadian International Immunization Initiative.

4.3 The Role of Civil Society

Civil society is a term that encompasses a wide range of non-governmental, not-for-profit organizations and institutions with diverse mandates, budgets, and goals. Canada has a number of non-governmental organizations (NGOs) that are deeply engaged in global health such as CSIH, World Vision Canada, CARE Canada, PLAN, Save the Children Canada, Oxfam Canada, African Medical & Research Foundation Canada, Médecins Sans Frontières, UNICEF, Canadian Red Cross, and many others.

Professional associations and organizations in Canada also make a significant contribution by training, partnering, and delivering programs oriented toward global health. These include the Canadian Paediatric Society, the Society of Obstetricians and Gynaecologists of Canada, the Canadian Medical Association, the Canadian Nurses Association, the Canadian Association of Midwives, the Royal College of Physicians and Surgeons of Canada, the Association of Faculties of Medicine of Canada, and many others.

[8] For example, for more information on projects undertaken by the UPCD program, please see http://www.unesco.org/iau/conferences/maputo/pdf/Beland.pdf

Canadian NGOs and professional associations are involved in the following areas of global health:

- capacity building and technical assistance;
- advocacy;
- emergency relief;
- research and policy development; and
- philanthropy.

4.3.1 Capacity Building and Technical Assistance

One important function of NGOs and professional associations is working on the ground with local populations to identify and address their specific needs and challenges. Often NGOs and professional associations act as the delivery partners to implement research, distribute drugs and vaccines, and build the capacity of health systems. For example, Healthy Child Uganda, a partnership between universities and the Canadian Paediatric Society, is a "community-based partnership that works with local citizens to identify and solve the problems that most impact their children's health" (UToday, 2009).

Success Story: Save the Mothers

Save the Mothers is an international organization and Canadian charity with a mission to promote the health of mothers and children in line with UN Millennium Development Goal Number 5. Its main objective is to train professionals from developing countries in fields related to maternal health. To meet this objective, Save the Mothers trains future leaders in Uganda through a Master in Public Health Leadership degree, which provides them with tools to advocate for safe motherhood and bring changes to their communities (McMaster University, 2009). In 2009, Save the Mothers had welcomed 105 students and is now planning to expand to Kenya and Tanzania.

Professional organizations are also involved in capacity building and on-the-ground implementation. For example, since 1982 the Canadian Public Health Association (CPHA) has provided technical and financial assistance to more than 400 partners in over 80 countries (CPHA, 2008).[9]

Success Story: International Consortium on Anti-Virals

The International Consortium on Anti-Virals (ICAV) focuses on leveraging academic research for drug development. ICAV has developed an innovative drug development pipeline that connects institutional research (from a network of 200 experts from 90 institutions and 24 countries) to drug development teams. ICAV's added value is to license compounds that have been through a strict identification and evaluation process that reduces the risk of failure by a factor of 10. ICAV is currently investigating 20 compounds and estimates that it can cut the cost of resulting drugs by about 20 per cent (ICAV, 2008). Such an approach uses existing resources to offer low-cost drugs to meet the health needs of LMICs and developed countries.

4.3.2 Advocacy

NGOs play an essential role in raising awareness of critical issues and challenges, and in mobilizing resources to address these challenges. There is also an important role for NGOs and professional associations in advocating for global health issues and investments both with the Canadian government and with the governments of LMICs.

[9] Expert witness testimony at the 7–9 December 2010 Meeting of the Expert Panel.

Success Story: Dignitas International

In 2009, despite a decrease in the infection rate, roughly 2.6 million people worldwide became infected with HIV (UNAIDS, 2010). These infections are highly prevalent in populations that cannot afford antiretroviral (ARV) medication. Since 2004, Dignitas International, a Canadian not-for-profit organization, has been a recognized leader in its efforts to establish community-based care programs in developing countries so that children, youth, and families affected by HIV/AIDS can have access to complete health care, including prevention, treatment, care, and support services. Dignitas also regularly monitors and evaluates its programs and shares its findings with other organizations, governments, and the public. Dignitas has been working with the Malawi Ministry of Health to provide ARVs to over 15,000 children and adults, and to develop prevention and training programs (Dignitas, 2010).

4.3.3 Emergency Relief

Another major role of NGOs, and to a lesser extent professional associations such as the Canadian Medical Association, is to provide emergency relief in disaster or war zones. For example, organizations such as CARE Canada, Oxfam Canada, Oxfam-Québec, and Save the Children Canada, among others, have been providing emergency food, water, and medical services to Haiti since the January 2010 earthquake; they have also been active in many other global disaster areas.

4.3.4 Research and Policy Development

The strong links between NGOs and professional associations and local communities, as well as their experience on the ground, enable them to help develop and test policy and translate evidence into real-world interventions for local communities. CSIH and CCGHR bring together Canadian and developing country students and leaders in research, capacity building, and policy development to an annual conference and learning forums on current issues in global health. These activities are supported by agencies such as IDRC, CIHR, Health Canada, and CIDA (CCGHR, 2010b). Another role of civil society is to provide targeted support to the global health research community. For example, foundations can provide support to companies in the biopharmaceutical and medical device sectors and/or academic research institutions to undertake research and development to address global health challenges.

4.3.5 Philanthropy

Civil society also plays an important philanthropic role through the generosity of citizens who raise and donate money to various causes and foundations. Many foundations, both public (e.g., community foundations) and private, are involved in health issues. For example, since 2006, the Belinda Stronach Foundation has collected $5 million for anti-malarial bednets through its Spread the Net campaign (The Belinda Stronach Foundation, 2011); and the Glassco Foundation provides financial and organizational support for children's issues both in Canada and overseas, particularly in Zambia (see also the success story on the Mary A. Tidlund Charitable Foundation). Hospital foundations have also made a significant contribution in areas such as maternal, newborn, and child health.

Success Story: The Mary A. Tidlund Charitable Foundation

The Mary A. Tidlund Charitable Foundation was founded in 1998 to identify, support, and participate in medical and education programs in Canada and worldwide. Since then, the foundation has developed about 60 programs in areas such as capacity building in health and education, and microfinancing in 20 different countries (Famous 5 Foundation, 2011).

4.4 The Role of the Private Sector

Private enterprise has a significant impact on global health both in Canada and in LMICs. Choices that companies make about the types, price points, and markets for their products and services can all profoundly affect health equity and health outcomes. Small- and medium-sized enterprises (SMEs) and multinational companies can also have a great impact on the health of their employees in LMICs and on the communities in which they operate.

More broadly, the private sector is an engine that powers economic development and increased prosperity. Higher levels of income, in turn, are correlated with positive health outcomes (WHO Commission on Macroeconomics and Health, 2001). Economic growth in and of itself, however, does not ensure that overall incomes will rise. To have an impact on global health, economic growth must have a distributional element that raises income levels broadly across the region or country in question.

4.4.1 Impact by Sector

The private sector undertakes a number of sector-specific activities that directly and indirectly have an impact on global health. Some of the sectors, industries, and companies that have a particular impact include the following:

- **Finance** – Broadly, Canadian banks and investors have sponsored, promoted, and otherwise helped to provide resources for companies, NGOs, and others engaged in efforts to promote global health and/or to address pressing global health challenges. Sometimes these investments are made as part of ongoing corporate social responsibility (CSR) efforts, such as TD Canada Trust's support for financial literacy among lower-income and disadvantaged groups, particularly in the Canadian North (TD Canada Trust & SEDI, 2010). Other financial institutions have a more direct impact on global health through their day-to-day operations; for example, Royal Bank of Canada (RBC) is very active in the Caribbean and has supported efforts to improve access to clean water and other health-related initiatives (RBC, 2008).

  In addition to its current role, Canada could also provide leadership around significant financial issues and opportunities in LMICs. For example, Canada could offer lessons learned (both positive and negative) from its own health-care model, which could inform the debate around the implementation of *mutuelles*[10] in LMICs.

- **Health Products** – Private enterprise also makes a direct contribution to global health by developing, manufacturing, and distributing life-saving medicines and other health products like medical devices; and by delivering clinical care. As important as new health products and services are in addressing health challenges, however, most of them are developed for HIC markets and are prohibitively expensive (when they are available) for many in LMICs.

  Canadian pharmaceutical and biotechnology companies (and multinationals active in Canada) have played and are playing an important role in the development of global vaccines and other drugs and medical devices targeted at significant global diseases. Currently, a number of global pharmaceutical companies are developing and producing vaccines in Canada including GlaxoSmithKline (GSK) Canada, Merck Canada Ltd., Novartis, Pfizer Canada (formerly Wyeth Pharmaceuticals Canada), and sanofi pasteur. In addition, Canadian generic pharmaceutical companies have made and are currently making significant investments in the development of drugs, vaccines, and medical devices. For example, Apotex has developed antiretroviral products for export to developing countries (MSF Campaign for Access to Essential Medicines, 2011).

  The vaccine landscape in Canada is supported by two organizations: the Pan-Provincial Vaccine Enterprise (PREVENT) was created in 2008 to support the commercialization of Canadian vaccines; and the International Centre for Infectious Diseases (ICID) has a mandate to deliver innovative solutions to the global fight against infectious diseases (BIOTECanada Vaccine Industry Committee, 2010).

[10] A mutuelle is a form of self-insurance where a group of individuals in a community contribute to a central fund that then provides health services.

Canada also has a number of medical device and health information technology (IT) companies that produce products and services that are or can be targeted at global health challenges.

- **Telecommunications** – Telecommunications companies in Canada have an important indirect impact on global health by promoting communication and connectivity. Canada also has a significant number of companies that are active in developing specific mobile and telemedicine applications that focus on health and enable the communication of patient data and patient treatment at a distance (see Industry Canada (2011) for a list of Canadian companies). Because of Canada's geography (with a large number of smaller, geographically isolated communities), many of the e-health and telehealth technologies that have been developed in Canada could also have important applications in LMICs. Canadian private-sector companies are also helping to reduce the digital divide by participating in the development of low-cost computers that facilitate access to health information in the developing world.
- **Other Sectors** – There are a range of other sectors that are making an impact on global health such as agriculture, water, engineering, and health service delivery. Canada has a number of agricultural projects (see Agriculture and Agri-Food Canada (2010) for examples) that develop expertise in areas, such as improving northern agricultural productivity, that could make an important contribution in this regard. It is important to bear in mind, however, that such efforts tend to concentrate benefits on larger agricultural companies that can leverage the new technologies. The Panel also agreed on the importance of understanding the natural resources industries and the need for further study and evidence gathering in order to complete a detailed analysis of those industries as related to global health.

4.4.2 Corporate Social Responsibility

The United Nations (UN), in recognition of the important impact of multinationals on local health and economic development, established the Global Compact,[11] an initiative targeted at private companies that are dedicated to align their strategies and operations with principles relating to human rights, labour, environment, and anti-corruption. More than 70 Canadian institutions and companies are signatories to this compact, which reinforces the importance of ethical corporate behaviour and the need to respect local laws, respect and enforce human rights, and contribute to the countries and communities in which a corporation is active.

Although the primary objective of private enterprise is to maximize profits, and not necessarily to achieve the public good, increasingly companies are recognizing the need to consider and engage a broader community of stakeholders beyond shareholders. This shift in focus is reflected in the number of companies and industries that have begun to place a stronger emphasis on programs and initiatives that provide positive social impact, either under the aegis of CSR, or going beyond CSR to shared value and a recognition of the profitability in base of pyramid markets (Porter & Kramer, 2011; Prahalad, 2006).

Many corporations contribute to the achievement of positive social outcomes through their CSR platforms. The private sector in Canada has made a number of contributions to global health through charitable programs such as the partnership between Rx&D and Health Partners International Canada, which provides medicines and vaccines to communities in LMICs (HPIC & Rx&D, 2010).

Some multinational companies that operate in LMICs are having a positive effect on the health of their workers through the provision of health services and other types of health and safety infrastructure. This is particularly important in sectors like mining where Canadian multinationals employ a significant number of local workers in LMICs and safe working conditions are critical to good health outcomes.

[11] For more information about the UN Global Compact, please see www.unglobalcompact.org

Finally, a number of Canadian companies contribute to global health through charitable donations and/or by adopting international best practices. Aeroplan, for example, supports Engineers Without Borders (EWB, 2008). Aeroplan and Air Canada have also supported aid organizations, patients, and medical personnel in the provision of aid – notably in Haiti and Chile. In terms of adopting best practices, hoteliers and transportation companies have engaged in good practices to reduce and prevent human trafficking of vulnerable people (McGahan *et al.*, 2010).

Although CSR activities can make an important contribution to the health and welfare of local communities, the impact of these investments is dwarfed by the impacts, both positive and negative, of companies' primary activities. Further, while companies are quick to publicize their CSR programs and investments, there is much less information available about the global health impacts (both positive and negative) of their day-to-day operations.

4.4.3 Research and Innovation

Although Canada has incentives such as the Scientific Research and Experimental Development Tax Credit to support general investments in research and development, Canada is deficient in structures that encourage the private sector to explore the potential to apply their innovative products and services to global health challenges. The Panel heard from expert witnesses that there may be an opportunity in the future to structure tax or other incentives to support the involvement of Canadian companies in addressing pressing global health challenges.

Developing new global health products and services is the first of several steps needed for a potential global health solution to deliver real-world impact. One of the most pressing challenges in global health has been the difficulty in scaling up the delivery of new health products and services where they are needed the most (Kurowski *et al.*, 2007). An increasing number of companies in emerging market nations such as China and India, however, are now focused on producing high-quality health products and services at a fraction of their cost in HICs.

4.4.4 International Leadership

Canada has shown considerable leadership in studying the role of the private sector in development. For example, former Prime Minister Paul Martin co-chaired the UN Commission on the Private Sector and Development. The findings of the commission were captured in a report entitled *Unleashing Entrepreneurship* (Commission on the Private Sector and Development, 2004), which moved beyond a focus on multinational corporations to a recognition of the importance of SMEs in economic growth and development. After leaving office, Mr. Martin also co-chaired a panel that developed a strategic plan for the African Development Bank, which included a section on the creation of innovation centres, or centres of excellence, for innovation-led private-sector growth (High Level Panel for the African Development Bank, 2007).

Another area of international leadership for Canada is in developing appropriate strategies around intellectual property (IP). This could take the form of traditional IP rights (such as patent protection), pooled patents, or open source innovation. For example, the Canadian Parliament passed a law (in its 40th session), known as *Canada's Access to Medicine's Regime*, which would have allowed Canadian generic drug manufacturers to produce patented medicines to be shipped to specific high-risk countries; however, this law died in the Senate in advance of the Spring 2011 federal election (Platts, 2011).

4.4.5 The Private Sector in LMICs

The private sector in LMICs, as well as in Canada, plays a critical role in global health both directly, by providing health services and developing and delivering affordable health products, and indirectly, by providing a range of benefits and services that contribute to better health outcomes and employment. A good example of this is A to Z Textile Mills in Arusha, Tanzania, which is the largest manufacturer of long-lasting insecticide-treated nets in Africa and employs about 7,000 people (Singer *et al.*, 2008; Acumen Fund, 2011). The Panel heard from a range of sources that there could be an increasing role for the Canadian private sector to partner and enable mutual learning with companies, particularly SMEs, in LMICs.

As the private sector in Canada increases its level of interest and engagement in global health, it will be increasingly important to understand the cultural and ethical implications of its interactions. For example, although it is important to commercialize knowledge so as to create new companies and jobs in LMICs, it is also critical to respect indigenous knowledge and to not exploit it solely for the benefit of HICs. The private sector also needs to think through the implications of undertaking activities such as clinical trials in LMIC settings (Finegold, 2005).

Success Story: Teck/MI/CIDA Partnership

In June 2011, Teck (an extractive company based in Vancouver) announced that it was entering into a partnership with the Micronutrient Initiative and CIDA. This public-private-civil society alliance is focused on "reducing child mortality by scaling up the use of zinc, combined with oral rehydration salts, to treat diarrhea, and by providing zinc supplementation for children over six months old." In total, this partnership will invest $5.2 million, and its first project will be undertaken in Senegal in conjunction with the Senegal Ministry of Health (MI, 2011; McNeil Jr., 2011).

The Panel heard from expert witnesses about several examples of non-Canadian initiatives to support the development of the private sector in LMICs. For example, the Acumen Fund, a not-for-profit global venture fund, uses entrepreneurial approaches to solve the problems of global poverty. In particular, the Panel heard about the impact of patient investments in ventures such as A to Z in Tanzania, which, following an initial investment by Acumen, has grown over the past five years to become the largest manufacturer of bed nets in Africa, producing about 30 million nets per year (Shah *et al.*, 2010).

Another initiative, the Grassroots Business Fund, supports small enterprises such as farmers, artisans, and micro entrepreneurs from LMICs by linking these enterprises to specific projects that can provide a sustainable source of ongoing funding. For example, one of its projects provides funding to an Indian firm to develop technological solutions to efficiently collect milk in rural areas and therefore increase farmers' revenues by reducing lost income from wasted milk (GBF, 2010).

4.5 The Leadership Role of Individuals, Institutions, and Organizations

Throughout the evidence-gathering process, the Panel heard about a wide range of activities undertaken, and contributions made, by individual Canadians and Canadian organizations and institutions to addressing global health issues and challenges. These ranged from the contributions of individuals to major international initiatives such as the WHO Commission on Social Determinants, leading global health researchers and research institutions like the Centre de recherche en infectiologie (CRI) in Québec City, innovative civil society organizations like Dignitas International, and major public policy initiatives such as the 2010 Muskoka Initiative on Maternal, Newborn and Child Health. Some of these activities and contributions are featured as "success stories" in boxes throughout this report.

The charge to the Panel asked only that it define the current elements of Canada's role in global health. As such, it was beyond the Panel's mandate to assess Canada's current roles (as described above) against the principles, goals, and measures of success set out in Chapter 3. The Panel did, however, make two key observations, based on input from a number of witnesses and experts, on the submissions from the Call for Evidence, and on the experiences of individual Panel members:

1. Individual Canadians and Canadian institutions and organizations are engaged with, and active in, global health across all sectors of Canadian society.
2. The impact of Canada's activities in global health, however, could be enhanced if these roles and activities were better coordinated and if collaboration could be encouraged across and within sectors.

5. Strengths, Barriers, and Opportunities

This chapter builds on the review and analysis of Canada's current role (Chapter 4) to articulate Canada's main strengths in global health. It also describes some potential barriers to leveraging these strengths for the purpose of maximizing the impact of Canada's global health investments and activities. This chapter goes on to identify potential areas of opportunity for Canadian leadership in global health by assessing these strengths and barriers in the context of the global health priorities, activities, and investments of key comparator countries.

5.1 Canada's Strengths in Global Health

> *Canada should seek to promote its points of strength and make it possible for global health research to flourish.*
>
> (Academic Respondent to Call for Evidence, 20 October 2010)

Many respondents to the Call for Evidence and expert witnesses expressed the view that, given Canada's comparatively small size and resources, it is important to focus our global health resources on existing areas of strength and comparative advantage. As one respondent stated, "Our role should focus on areas where Canada has the expertise, credibility and capacity to support tangible outcomes" (Government Respondent to Call for Evidence, 3 December 2010).

With that in mind, the Panel articulated 12 Canadian strengths in global health. The Panel's identification and analysis of strengths and barriers are based on a review of the available literature and application of its own reasoned judgment, supported by testimony from expert witnesses, submissions to the Call for Evidence, and outcomes from the roundtables with university students. The first two strengths are overarching and cut across sectors, while the others emerge from Canada's sector-specific roles in global health, as discussed in Chapter 4.

1. **Strong value placed on universal access to health care** – One of the most important strengths to emerge from the evidence is Canada's focus on universal access to health care and our rights-based approach to health, as enshrined in the *Canada Health Act* (Minister of Justice, 1985).

   > *As a country, we have excellent systems that can be exported elsewhere while maintaining a sensitivity for local cultures and practices.*
   >
   > (Civil Society Respondent to Call for Evidence, 5 November 2010)

   This strength helps provide Canada with the necessary credibility to support the focus on equity as a critical principle for global health.

2. **Opportunity for individuals to show leadership in global health** – One of Canada's strongest assets is a culture that enables individual Canadians and Canadian organizations to take a leadership role in global health. There is also rising interest on the part of university students to become more engaged in global health and to make a difference in that area.

3. **Effective regulatory standards** – Canada has developed and implemented strong regulatory and non-regulatory standards to ensure the efficacy and safety of health products and services. Canada also contributes to the development of international regulatory standards by engaging in bilateral, regional, and multilateral cooperation activities that range from exchanging information and building regulatory capacity to influencing international standards and policies that affect health and safety.

4. **Strong health and foreign policy** – Canada is an international leader in developing and championing international global health policies and initiatives including, for example, the *Framework Convention on Tobacco Control* and the Ottawa Agreement to ban the use of anti-personnel landmines (Mine Ban Treaty) (ICBL, 1997).

   Canada is also involved in the area of accountability for results and measurable outcomes from development investment through the implementation of The Official Development Assistance Accountability Act (Minister of Justice, 2011). As part of this commitment to accountability, Prime Minister Stephen Harper co-chaired the World Health Organization (WHO) Commission on Information and Accountability for Women's and Children's Health (Commission on Information and Accountability for Women's and Children's Health, 2011).

5. **Track record of successful programs in global health security** – Canada is a global leader in several areas of global health security, working to prepare responses to a range of biological and chemical threats. For example, Canada helped to establish the Global Health Security Initiative, a consortium of like-minded countries (G7 + Mexico) that share information and work collaboratively to strengthen public health preparedness and respond globally to the threat of chemical, biological, and radio-nuclear terrorism, and pandemic influenza. Canada also played a lead role in the development of the Global Public Health Intelligence Network (GPHIN), which is used internationally in disease surveillance (PHAC, 2004).

6. **History of vaccine innovation from discovery to delivery** – The federal government has had a significant role in important multilateral financing initiatives in this area such as the Global Alliance for Vaccines and Immunization (GAVI), the Global Polio Eradication Initiative, and the Advance Market Commitment for pneumococcal vaccines. The private sector is active in developing new vaccines to address pressing global health challenges (BIOTECanada, 2011). In addition, civil society organizations and the federal government have supported ongoing efforts to bring vaccination campaigns to scale such as the Expanded Program on Immunization (CPHA, 2005).

7. **Recognized leaders in health innovation and research** – As outlined in Chapter 4, Canadian academia has significant strength in and commitment to global health.

Success Story: University of Manitoba

Canada has some of the world's leading researchers in HIV and other infectious diseases. For three decades, researchers at the University of Manitoba have been collaborating with scientists at the University of Nairobi in Kenya. In the 1980s, these researchers were working at the leading edge of HIV/AIDS research (Chouinard, 1987). Since then, the University of Manitoba has been running a collaborative network of clinical and community research on HIV with the University of Nairobi.

Canada has great strengths in evaluation and research, and these attributes and resources could be deployed to assist countries and global organizations improve their scale up processes, identify problems as they go, and do better on the next initiative.

(Academic Respondent to Call for Evidence, 3 November 2010)

Specific areas of research strength include the following:

- **Global mental health** – Bibliometric analysis of Canadian academic publications suggests that Canada has the best overall research performance in psychology and psychiatry (CCA, 2006). Canada is active in mental health internationally through initiatives such as the WHO/PAHO Collaborating Centre in Mental Health Training and Policy Development hosted at Dalhousie University. Canadian co-leadership resulted in the recent identification of Grand Challenges in Global Mental Health (Collins *et al.*, 2011).

Success Story: The BC Centre of Excellence in HIV/AIDS

The BC Centre of Excellence in HIV/AIDS, a program at Providence Health Care in British Columbia, has pioneered a strategy for HIV/AIDS prevention called "treatment as prevention." This strategy, based on research undertaken by the centre, has shown that "the benefits of highly active antiretroviral therapy (HAART) extend beyond prolonging disease-free survival among HIV-infected individuals, to significantly preventing the transmission and spread of HIV." In February 2011, China announced that it would be implementing a country-wide prevention program based on this strategy (BC Centre for Excellence in HIV/AIDS, 2011).

- **Non-communicable diseases** – Canada is a leader in identifying and addressing non-communicable diseases. For example, the Global Alliance for Chronic Diseases is chaired by a Canadian and has recently conducted a major global priority exercise in global mental health that lays the groundwork for research investments in this area in low- and middle-income countries (LMICs).[12]
- **Infectious diseases** – Canada has strength in research on infectious and neglected diseases. For example, Canada has some of the world's leading researchers in human immunodeficiency virus (HIV) at the University of British Columbia and the University of Manitoba. The latter has spent more than 30 years developing and running a collaborative network of clinical and community research on HIV with the University of Nairobi in Kenya. The Centre de recherche en infectiologie (CRI) in Québec City is another world leader in infectious disease research with 250 researchers focusing on a range of global health challenges. The Sandra Rotman Laboratories at the McLaughlin-Rotman Centre for Global Health in Toronto is also undertaking innovative work in the identification and treatment of malaria. The governments of Canada and of Ontario have also supported the International Consortium on Anti-Virals (ICAV) (ICAV, 2010).
- **Global health ethics** – Canada is seen as a leader in global health ethics through the efforts of a number of academic research units, such as the Centre for Applied Ethics at the University of British Columbia, the Joint Centre for Bioethics at the University of Toronto, and the work of eminent Canadian scholars through initiatives such as HumGen and P3G,[13] an international project on biobanks.
- **Knowledge translation/knowledge exchange** – Canada has great strength in translating knowledge and evidence into policy. For example, the Canadian Institutes of Health Research (CIHR) and the Canada Foundation for Innovation (CFI) funded the creation of Knowledge Translation Canada (KT Clearinghouse, 2011). Canada has particular knowledge translation expertise in northern and aboriginal research (CAHR, 2011).

[12] For more information on the Global Alliance for Chronic Diseases, please see www.ga-cd.org

[13] For more information on HumGen and P3G, please see http://www.humgen.org

Success Story: Ethical Guidelines for Pandemic Flu

In 2005, the Pandemic Influenza Working Group at the University of Toronto Joint Centre for Bioethics (JCB) developed an influential and widely cited set of ethical guidelines for preparedness planning in pandemic influenza entitled *Stand on Guard for Thee*. The JCB working group promoted the need to develop an ethical component for all pandemics, and developed 15 ethical points to deal with pandemic situations (University of Toronto Joint Centre for Bioethics Pandemic Influenza Working Group, 2005). This ethical framework was the first of its kind and marked a significant step in terms of global understanding of the ethical dimensions of pandemic illness.

- **Micronutrients** – Canada has made a major contribution to global health in the field of micronutrients; the Micronutrient Initiative and the Sprinkles Global Health program (see Sprinkles success story) have both had a major impact on global policy and practice in the field.

  Canada has a range of evolving global health research funding programs including the Teasdale-Corti Grants through the Global Health Research Initiative (GHRI) (IDRC, 2009) and the Canadian Rising Stars Program through Grand Challenges Canada. There are also a number of dedicated global health research units across the country, and 10 WHO collaborating centres.[14]

  Finally, Canada has research strength in a number of fields that have a direct impact on global health, including water and food security, and in climate change and climate science.

8. **World-class educational system** – Canada has a strong educational system that offers high standards of basic education, professional accreditation, and training. In 2006, 47 per cent of Canadians between the ages of 25–64 had a tertiary level educational attainment, which is the highest proportion among Organisation for Economic Co-operation and Development (OECD) countries (OECD, 2009). With specialized programs from granting agencies, such as CIHR, and Genome Canada, Canada also provides support for training in basic science, which serves as the foundation for more applied research and development in health sciences.

   Canada has been very active in building capacity in LMICs through partnerships between Canadian universities and colleges and their LMIC counterparts (e.g., the long-standing partnership between the Université de Sherbrooke and the University of Bamako in Mali).

Success Story: Partnership with BiH for Primary Health-Care Reform

Between 1993 and 2010, Canada played a central role in the reform of primary health care (PHC) in Bosnia-Herzegovina (BiH), with contributions from the Queen's University International Centre for the Advancement of Community Based Rehabilitation (ICACBR) and the Department of Family Medicine, Faculty of Health Sciences; and the Canadian Society of International Health (CSIH). This partnership with BiH, began during the conflict when ICACBR set up four community-based rehabilitation (CBR) centres in Sarajevo in 1993. This has led to a national network of 58 CBR centres serving over 40,000 people annually in the post-conflict reform of PHC. Queen's Family Medicine developed the first Family Medicine Training Program for doctors and nurses at four universities. CSIH then partnered with Queen's ICACBR in health human resources planning with special attention to PHC (Edmonds, 2005).

[14] For a listing of the various collaborating centres across the country, please see: http://apps.who.int/whocc/List.aspx?cc_code=CAN

9. **Global leaders in indigenous health research** – Canada is an emerging leader in the field of global indigenous health research. For example, in June 2000, CIHR established the Institute of Aboriginal Peoples' Health (IAPH) to provide health research funding opportunities such as the Aboriginal Health Intervention Project — a $4.8 million funding opportunity for three years (ResearchNet, 2011) Other examples include the Global Indigenous Health Research Symposium, hosted by the University of Victoria Centre for Aboriginal Health Research in 2008, and the Task Group on Global Indigenous Health Research, initiated by the Canadian Coalition for Global Health Research (CCGHR) in 2005 (CAHR, 2009). Another important milestone was the inclusion of an aboriginal lens in the ethics guidelines released in 2010 by the Tri-Council (NSERC, SSHRC and CIHR) (Tri-Council, 2010).

Success Story: Institute for Circumpolar Health Research (ICHR)

ICHR is a leading indigenous health research organization based in Canada's North that designs and implements research projects with locally based faculty members, and supervises graduate student training on site. It is eligible to hold Tri-Council grants, and houses a Statistics Canada research data centre, the first one in the North and outside a university.

Canada is also working closely with other countries with significant indigenous populations. As part of its leadership in this area, Canada convenes events that foster indigenous health research and the exchange of ideas and best practices among nations with indigenous communities. For example, the Canadian Society for Circumpolar Health co-hosted the International Congress on Circumpolar Health held in July 2009 in Yellowknife (ICCH, 2009), which brought together 600 health professionals, representatives from indigenous communities, and representatives from the federal and provincial governments (CSCH, 2010a). Additionally, Canada played an important role in the 2007–08 International Polar Year (IPY), which focused on health and community well-being (CSCH, 2010b), and in the International Union for Circumpolar Health (IUCH).

Finally, in 2012, Canada will host the IPY *From Knowledge to Action* conference in Montréal. The IPY is a major international initiative to focus research on Canada's North; Canada is committed to continuing the efforts begun by the IPY.

10. **Global leaders in social determinants of health research** – Canada has a long tradition of excellence in health-related social science research, with early recognition of the importance of social determinants of health, first in the Lalonde report (1974) and later through Canada's involvement in the 1986 *Ottawa Charter for Health Promotion* (WHO, 1986). Canada has become an international leader in articulating and understanding social determinants of health through its participation and leadership in the WHO Commission on Social Determinants of Health, including its important role in several of the knowledge hubs associated with the commission.
11. **Vibrant philanthropic sector** – Citizens play an important role as philanthropists. For example, individual Canadians give generously to charity and in response to global disasters. In 2009, Canadians gave approximately $7.7 billion in total donations to all charitable causes (Statistics Canada, 2011), and the Canadian Red Cross raised $199 million through its relief effort for Haiti (CBC News, 2011). The philanthropic sector is also supported by a growing network of "quiet" philanthropists and foundations. From 1998 to 2005, the number of active foundations in Canada more than doubled to about 2,900 (Moreno & Plewes, 2007).
12. **Strong commitment to maternal, newborn, and child health** – Canada has become a global leader in maternal, newborn, and child health through significant new funding programs announced as part of the Muskoka Initiative and its leadership on the Commission on Information and Accountability for Women's and Children's Health (Commission on Information and Accountability for Women's and Children's Health, 2011).

5.2 Barriers to Impact

There are a number of significant barriers that are preventing Canada from leveraging its strengths in global health to maximize the impact of its investments in this area.

1. **There is no unifying vision for global health in Canada** – Although individual Canadians and Canadian organizations have made, and continue to make, a significant impact on global health, their collective impact is far less than the sum of their individual contributions due to the lack of a unifying vision of what we can accomplish in this area as a country. This was by far the most commonly identified barrier to Canada playing a more strategic role in global health.
2. **There is often poor coordination among Canadian global health actors** – Without a coordinating mechanism or framework for Canadian global health contributors, it is difficult for interested individuals and organizations to find out whom to contact or with whom to work. There may also be duplication of efforts as different groups work independently in the same countries or sectors, often without sharing resources and materials; this translates into lost opportunities to learn lessons from others. There is also a lack of an enabling environment to support global health activities and programs (e.g., the lack of formal networking among global health centres at Canada's universities to support research and other activities in global health).

   The Panel determined that this poor coordination is often due to the absence of national networking infrastructure and a lack of incentives for collaboration. For example, in academia, there is often little cooperation or coordination of agreements between Canadian and high-income countries (HIC) universities working with the same LMIC institutions or in the same countries. As a result, three or more Canadian universities can have overlapping agreements with a single LMIC school, which can lead to redundancies and challenges for the host university.

   A related barrier (articulated in the Call for Evidence) is the lack of a "champion" for global health in Canada. Although Canada has many strong individual leaders and voices, there is no single focal point to ensure that global health actors stay aligned with Canadian or local government priorities. And there is no common advocate to ensure global health remains on the national agenda within or outside of government.
3. **Career paths in global health at institutions of higher learning are often unclear** – Although there are a wide variety of elements in global health that span many different academic fields and categories, programs to support their learning and opportunities for fieldwork are limited at most institutions of higher learning. When looking for funding, students and junior faculty in global health often fall through the cracks between SSHRC and CIHR. Students who participated in the Panel's on-campus roundtables felt strongly that the lack of interdisciplinary learning was a critical barrier to developing meaningful solutions to global health challenges and that, in the future, funding mechanisms should recognize the interdisciplinary nature of the field. In addition, universities would benefit from new opportunities for students and early-career professionals to work in different sectors (e.g., spending time in business or government, or working with a non-governmental organization (NGO) on the ground in an LMIC); other sectors would also benefit from the enhanced expertise and rigour that academics would bring to their assignments.
4. **Social and economic policy decisions are often taken without sufficient attention to their potential health impacts** – Currently, health impacts are not a formal part of the assessment framework that is used to evaluate new policy decisions in Canada. This is a significant challenge given the strong links between health and the social-economic status of a population (Commission on Social Determinants of Health, 2008; Mackenbach, 2006). As such, policies in a wide range of areas can have a significant indirect impact on health outcomes.

5. **There is often limited application of our understanding of social determinants of health to policies and actions** – Despite the evidence (Lalonde, 1974; WHO, 1986), Canada has had few programs that translate the understanding of the health impacts of social determinants of health into policies and actions (CPHI, 2003; Collins & Hayes, 2007; Raphael *et al.*, 2008). This barrier is exacerbated by the limited resources allocated to the tracking and measurement of outcomes of specific programs and the health impacts of important demographic transitions such as aging and migration. This lack of resources makes it very difficult to undertake meaningful evaluations of outcomes and, in turn, to translate these outcomes into better policy going forward (WHO, 2008a).

6. **There are significant resource constraints within government, private, and civil society sectors** – Canada is a comparatively small player in global health. Estimates of Canada's annual investments in global health range from $559 million to $634 million (see Chapter 4). These numbers are small in comparison with other major players such as the United States, which spent about $6.7 billion on global health in 2009 (OECD DAC, 2011a), and are just over half of what countries like the U.K. spend per year (OECD DAC, 2011a). Even when normalized for gross national income (GNI), Canada remains a relatively small investor in global health.

   Resource constraints are also reflected in the lack of Canadian international development funding allocated to building academic infrastructure in LMIC countries to help them establish and sustain their own education and research training programs.

   The Panel heard frequently in testimony and interviews that, as a comparatively small country with fewer resources, it is even more important for Canada to be strategic in how it invests its energy and resources in global health. It also heard that the critical focus of Canada's investments should be on outputs and impact rather than on specific programs or initiatives.

7. **There are limited avenues to mobilize interest in global health** – A final barrier was identified by students in the roundtable discussions on university campuses across Canada. Although there are global health-related activities on campuses, there is a need to identify and consolidate these activities and create clear pathways through which to channel the increasing wave of student interest in global health.

5.3 Canada's Role in the International Context

Taken together, the previous two sections of this chapter suggest that Canada has a significant number of global health strengths that are already having an impact globally and that could be deployed as part of a broader and more strategic role in global health. Further, the barriers identified by the Panel (in particular, the first two barriers relating to coordination and strategy) suggest that the impact of these strengths could be even greater if Canada took appropriate action.

Demonstrating that Canada has a number of global health strengths is insufficient, in and of itself, to validate that Canada would have a real impact in global health if it were to play a more strategic role. Therefore, the Panel looked outside of Canada at the areas of strength, priorities, and roles in global health of three key comparator countries and the European Union (EU), as outlined in the five recent international reports and assessments listed in Table 5.1.[15]

[15] The five key reports include: *Health is Global: A UK Government Strategy 2008–13* (HM Government 2008), *Swiss Health Foreign Policy: Agreement on Health Foreign Policy Objectives* (FDHA & FDFA, 2006), *Report of the CSIS Commission on Smart Global Health Policy* (Fallon & Gayle, 2010), *The U.S. Commitment to Global Health: Recommendations for the Public and Private Sectors* (IOM, 2009), *The EU Role in Global Health* (European Commission, 2010).

Table 5.1 Global Health Roles and Investments of Key Comparator Countries

Country	Global Health Strategy?	Roles	Official Development Assistance Spending (2009) on Health[16]
United Kingdom	Yes, published in 2008 and approved by Cabinet (HM Government, 2008).	This strategy identified the following roles: • Enhance global health security (e.g., poverty, infectious diseases) • Stronger, fairer systems to deliver health (e.g., safer ways to deliver medicines) • More effective international health organizations • Stronger, freer, and fairer trade for better health (e.g., strong system of intellectual property rights) • Strengthening how evidence is developed and used to improve policy and practices (HM Government, 2008)	US$1B
Switzerland	Yes, published in 2006 (FDHA & FDFA, 2006).	This strategy identifies the following key roles: • Protect the health interests of the Swiss population • Harmonize national and international health policy • Improve international collaboration on health issues • Improve global health outcomes • Safeguard Switzerland's role as a host country to international organizations and companies in the health sector (FDHA & FDFA, 2006)	US$57M
United States	Various bodies such as the Institute of Medicine (IOM) (IOM, 2009) and the Center for Strategic and International Studies (CSIS) (Fallon & Gayle, 2010) have undertaken assessments and developed recommendations, independent of government. Inside government the Global Health Initiative (GHI), the Quadrennial Diplomacy and Development Review and the President's Policy Directive on Global Development articulate a comprehensive approach to a new U.S. global development policy in which health features prominently (USAID, 2010; U.S. Department of State, 2010; The White House, 2010).	The IOM report highlights the following priorities: • Scale up existing interventions to achieve significant health gains • Generate and share knowledge to address health problems endemic to the global poor • Invest in people, institutions, and capacity building with global partners • Increase U.S. financial commitments to global health • Set the example of engaging in respectful partnerships (IOM, 2009) The principles underlying the foundation of GHI are the following: • Implement a woman- and girl-centered approach • Increase impact through strategic coordination and integration • Strengthen and leverage key multilateral organizations, global health partnerships and private sector engagement • Encourage country ownership and invest in country-led plans • Build sustainability through health systems strengthening • Improve metrics, monitoring and evaluation • Promote research and innovation (USAID, 2010)	US$6.7B
European Union	The European Commission released a document in 2010 (*The EU role in Global Health*) proposing a vision for global health to the European Parliament (European Commission, 2010).	The proposed vision outlines the following key priorities: • Democratic and inclusive governance • Towards universal coverage of basic quality health care • Coherence among EU policies related to global health • Research and evidence-based dialogue and action • Delivering results through enhanced coordination, monitoring, and capacity building (European Commission, 2010)	US$638M (EU Institutions)

[16] Based on spending data in the health and population policy/reproductive health sectors from the OECD Development Assistance Committee (OECD DAC, 2011a).

5.3.1 International Best Practices

From its review of the five international reports, the Panel articulated six international best practices:

1. **Developing a national/regional global health strategy** – Most of the jurisdictions that were reviewed have already taken clear steps in developing and implementing global health strategies. In 2006, the Swiss federal administration agreed to specific actions in relation to global health as part of its foreign policy (FDHA & FDFA, 2006). In 2008, the United Kingdom developed an official strategy for the next five years, and a vision for the next 10 to 15 years (HM Government, 2008). This strategy identified issues and proposed a plan for moving forward. In 2010 the European Commission developed a plan that articulated a clear vision for its role in global health and established guiding principles for all relevant policy sectors and areas where it could be more effective (European Commission, 2010). Likewise, the Global Health Initiative (GHI), the Quadrennial Diplomacy and Development Review, and the President's Policy Directive on Global Development presented a comprehensive approach to a new U.S. global development policy in which health features prominently.
2. **Investing in multilateral institutions** – One of the most common recommendations in the reports was the importance of investing in multilateral institutions, such as the WHO and the UN. Most of the reports recognized that working with multilateral institutions is one of the best ways to address global health problems. The Center for Strategic and International Studies (CSIS) report, however, although appreciating the importance of multilateral institutions, emphasized the value of unilateral investments as a means to ensure greater control over where investments are made and as a tool to strengthen bilateral partnerships between the United States and LMICs (Fallon & Gayle, 2010). Most of the reports also emphasized the importance of investing in multilateral institutions such as GAVI and the Global Fund.
3. **Strong focus on the Millennium Development Goals** – All of the reports used the Millennium Development Goals (MDGs) as a basis to develop recommendations and policies. For example, the CSIS report recommended that the United States should support the MDGs, and the Institute of Medicine (IOM) recommended an investment of US$13 billion (C$15.7 billion)[17] per year by 2012 in the health-related MDGs. This support for the MDGs is particularly prevalent in the areas of infectious diseases and maternal, newborn, and child health. Although they are not part of the MDGs, non-communicable and neglected diseases were also identified by most of the reports as important challenges going forward.
4. **Social determinants of health** – All of the reports linked global health both to the provision of basic health care and to a range of related areas such as sanitation and nutrition.
5. **Investing in innovation, research, and health technologies** – All of the reports highlighted the importance of research and innovation. For example, the U.K. report proposed to "maintain the U.K. as a global leader in research and innovation for health" (HM Government, 2008).
6. **Need for a more coherent and better coordinated approach** – Most of the reports highlighted the need for a more coherent and better coordinated approach to global health at the national and international levels. The two U.S. reports also expressed the need to work in collaboration with developing countries: "by listening to what countries need" (Fallon & Gayle, 2010), and "align aid with country-led plans" (IOM, 2009). Indeed, "country ownership" has become a driving theme/principle of global health for the U.S. Agency for International Development (USAID) and other major donors/organizations such as the Global Fund and the Joint United Nations Programme on HIV/AIDS (UNAIDS).

[17] 2009 exchange rate.

5.3.2 Areas of Opportunity for Canada

The Panel's final step in articulating a clear rationale for Canada to play a more strategic role in global health is to ascertain whether there are specific fields or areas of focus in which Canada can make a significant impact. To do so, the Panel compared Canada's strengths with the international priorities and investments outlined in the five key reports and identified the following five areas of opportunity for Canadian leadership in global health (not listed in order of priority):

1. **Indigenous and circumpolar health research** – Most international reports were silent on indigenous health research despite it being an area of growing importance in global health. Given Canada's existing strength in indigenous health research (see Strength #9), this could be an area for significant Canadian leadership.
2. **Population and public health** – All five international reports linked global health to the provision of basic health care. Several also made the link to a number of related issues such as sanitation and nutrition. None of the reports, however, made an explicit link to the concept of social determinants of health or to the implications of social determinants for policy-making and practice. Given Canada's expertise (see Strengths #7 and #10), this is an area in which Canada could make a significant contribution.
3. **Community-oriented primary health care** – Communities, especially remote communities in both HICs and LMICs, often lack the capacity to support the effective delivery of primary health care with an appropriate focus on prevention. In the five international reports, little reference is made to the importance of community-oriented health programming, although they touched on the importance of health systems (a component of community-oriented health). Further, the shortage of primary health-care providers also has a significant impact on access to health-care services in many LMICs, an issue mentioned in several of the reports. Canada has the capacity (building on Strengths #1, #2, #8, and #10) to show leadership in the development and support of the delivery of community-based health services.
4. **Smart partnerships in health education and research** – A number of respondents to the Panel's Call for Evidence and expert witnesses emphasized the strength of Canada's post-secondary education system (see Strengths #6 through #10). They also highlighted a broad range of programs and exchanges already initiated with institutions in LMICs, which could serve as platforms for mutual learning in the future. In comparison, the U.K. report was the only one of the five reports that placed emphasis on the issue of education and building research capacity. As such, this is an area where Canada may have both the existing capacity and the opportunity to make a significant impact.
5. **Global health innovation** – The five international reports highlighted the importance of research and innovation in global health. For example, the U.K. report proposed to "maintain the UK as a global leader in research and innovation for health" (HM Government, 2008). Although the innovation and research space is crowded, it is also universally recognized as an important tool for generating long-term improvements in health outcomes. Further, the evidence suggests that if Canada were to focus its investments in specific areas of strength in global health research (see Strengths #6, #7, #8, and #10), they could be leveraged for greater global impact.

The next chapter looks at the specific roles that Canada could play if it were to capitalize on the areas of opportunity identified above, bearing in mind that individual Canadians and Canadian institutions and organizations are already active in each of these areas. Given Canada's limited resources and the vast array of issues in global health, the Panel felt strongly that Canada should focus on the areas where it could make a distinctive contribution: areas, or niches within a broader area, in which Canada is a world leader (meaning that we can be the #1 or #2 player globally).

6. Strategic Opportunities for Canada in Global Health

This chapter looks at how Canada could take advantage of the five areas of opportunity presented in Chapter 5 (not listed in order of priority):

- indigenous and circumpolar health research;
- population and public health;
- community-oriented primary health care;
- smart partnerships in education and research; and
- global health innovation.

The discussion explores the leadership role that Canada could play within each area, the sectors involved, and the potential impact of the decision to focus on each role. The Panel's mandate is not to recommend a detailed course of action. The inclusion of specific actions and activities within this discussion is simply to paint a picture of the types of activities that could be part of each role. These five roles are not intended to be mutually exclusive and could, taken together, form the basis of a larger strategic Canadian role in global health.

6.1 Indigenous and Circumpolar Health Research

Indigenous communities in Canada face a range of unique health challenges including an increased prevalence of diseases such as diabetes and mental health challenges and disabilities (FNIGC, 2010). In Canada, the gap in the average life expectancy between First Nations and non-First Nations Canadians is approximately five years for women and seven years for men (INAC, 2006). This is a significant and pressing challenge for Canada.

Due to the urgency of these issues, Canada has developed significant strengths in indigenous and circumpolar health research (see Section 5.1). It could be argued that this research has not yet come to fruition in terms of improved health outcomes in the North and for Canada's indigenous peoples; however, there is increasing optimism that we are on the cusp of important breakthroughs over the next decade. For example, a significant number of students have graduated in Canada in the last decade with PhDs focused on aboriginal and indigenous health research. Further, the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* has a specific section dedicated to the indigenous voice (Tri-Council, 2010). This is a unique and powerful tool to ensure that indigenous issues and challenges are recognized and addressed in Canada's research community. This section explores the potential for Canada to build on its existing strengths to play a global leadership role in indigenous and circumpolar health research.

The Panel recognizes that not all circumpolar health issues are related to indigenous populations; there are significant numbers of non-indigenous people living in the North. Similarly, not all indigenous health issues are specific to the circumpolar environment. There is, however, a significant amount of overlap between the two areas, and

Canada has world-leading capacity in both. The Panel also notes that although indigenous and northern populations are not the only vulnerable populations in Canada, there are a range of historical and economic factors that make this group particularly vulnerable. Canada can build on its unique research resources to become a world leader in addressing these challenges.

6.1.1 Engaging with communities on health-care delivery and health education

This role would recognize the challenges inherent in developing and delivering primary health care in indigenous communities. It would focus on facilitating the delivery of health services through local communities with health professionals knowledgeable on health issues specific to the North (although many of these challenges are similar to those in low- and middle-income countries). For example, groups such as the First Nations Health Council's community hubs[18] could be engaged to help overcome the challenge of delivering health care to extremely diverse and remote communities (with approximately 630 communities and between 56 to 70 languages in Canada) (SLMC, 2002).

Delivery of care could be complemented by health education programs based on evidence and research within communities. These programs would focus on issues of particular importance to indigenous people, such as nutrition and addiction (CAHR, 2009). Disease prevention programs could be put in place to target the major non-communicable and infectious disease burdens, such as diabetes and HIV/AIDS. These programs could benefit from technological innovations in information technology and in advancements in high-speed internet networks, which would allow more remote communities to have reliable internet access. Canadian expertise in social determinants of health (discussed in more detail in Section 6.1.3) could also be drawn on to support effective health interventions.

Health-care delivery and education programs would help ensure that health-care delivery practices in remote communities were of comparable quality to the rest of Canada.

6.1.2 Applying innovative solutions to meet the challenges faced by remote communities

This role would focus on making appropriate training and educational opportunities available to local students and researchers, in particular those from local indigenous communities. These students and researchers would then become a driving force in pioneering technological and social solutions to meet the health challenges faced by indigenous communities. These efforts to foster innovation would focus on:

- developing diagnostic devices, particularly to detect diseases, such as diabetes and tuberculosis, that are prevalent in indigenous communities;
- developing new information technology tools for health education and prevention; and
- providing greater access to health professionals for indigenous people living in remote and isolated indigenous communities.

6.1.3 Expanding research and training capacity in indigenous communities

As part of this role, the federal government, in recognition of the changing demographics of indigenous populations, would set up a robust education system tailored to the needs of indigenous peoples. The goal would be to improve the number of indigenous students who graduate from high school to close to the national average, with an increasing number of young students from these communities pursuing graduate studies.[19] Consequently, the pool of researchers and health professionals who know and understand the challenges faced by indigenous communities would grow, and the development of capacity-building programs would help deliver high-quality health care to indigenous populations.

[18] For more information on the First Nations Health Council's community hubs, please see http:www.fnhc.ca/index.php/community_engagement/community_hubs/

[19] Currently there is a significant gap in educational attainment between aboriginal and non-aboriginal Canadians. See http://www.statcan.gc.ca/pub/81-004-x/2005003/8612-eng.htm

The federal government, in partnership with universities, would take a leading role in developing research and training capacity suited to the needs of indigenous communities. With the backing of funding agencies, such as the Canada Foundation for Innovation (CFI) and the Tri-Council agencies (in particular CIHR), and the strong presence of global health networks at Canadian universities, Canada would develop centres of excellence accessible to indigenous populations. The main goals and activities of these centres of excellence would be to:

- identify gaps in the provision of health services;
- conduct research on indigenous health issues; and
- train health-care professionals.

The development of these centres would be based on the model of the Networks of Centres of Excellence of Canada and, particularly, the successful ArcticNet network. The centres would attract both the best students in the North and also students from global health programs in other Canadian universities. This model would nurture partnerships between research and training centres in the North and the rest of Canada.

Through this role, Canada could train and retain researchers, physicians, nurses, and other health professionals and community workers who are aware of and sensitive to the cultural needs and traditions of indigenous peoples. Indigenous health researchers who know their communities could use the results of their research to enhance capacity building.

Collaboration with other countries in programs such as the International Network of Indigenous Health Knowledge and Development (INIHKD) could be strengthened to provide opportunities for mutual learning. These collaborations would inform capacity-building efforts in indigenous communities and provide opportunities for sharing important lessons on disease prevention and addressing HIV/AIDS with LMICs (e.g., Uganda).

6.1.4 Impact

The most important potential benefits of playing a more strategic role in indigenous and circumpolar health would be addressing the inequities between Canada's indigenous community and the rest of the Canadian population, while, at the same time, developing tools to tackle inequities experienced by other marginalized groups around the world.

6.2 Population and Public Health

The critical role of public health interventions, ranging from clean water to vaccinations, has long been recognized both in Canada and globally. More recent attention has focused on the enormous role that social determinants of health play in population health. From 2005 to 2008, the World Health Organization (WHO) Commission on Social Determinants of Health, focused on the dramatic role played in health by social conditions such as education, income, discrimination, equity, housing, jobs, and early childhood care and education, among others (WHO, 2011a). In 2009, the Senate Committee on Population Health, led by Dr. Wilbert Joseph Keon, similarly reported on the substantial contribution of social determinants of health in Canada (The Standing Senate Committee on Social Affairs, Science and Technology, 2009) to overall health outcomes.

Globally, Canadians have a strong track record in public health programs and in research on social determinants of health. For example, Canadians led two of the knowledge hubs of the WHO Commission on Social Determinants of Health. Building on these strengths, Canada could markedly improve its contributions to global health by increasing its efforts to address social determinants of health collaboratively with other countries and, at the same time, continuing its strong work in public health.

6.2.1 Investing in Programs that Address Population Health

Given the strength of the evidence that poverty, educational gaps, discrimination, and other social determinants of health are important drivers of health outcomes, this role would ensure that international health programs and initiatives include social determinants of health in their scope of funding and integrate evidence from social determinants of health research into their development processes. The Muskoka Initiative on Maternal, Newborn and Child Health, for example, is an important opportunity for incorporating social determinants of health into program planning and

delivery. Maternal and child health is documented to be dramatically affected by social conditions ranging from maternal education to family income to the availability of transportation and women's ability to make decisions regarding the use of health care (Commission on Social Determinants of Health, 2008). Beyond this initiative, the Canadian International Development Agency (CIDA) could increase the impact of its global health investments by ensuring that it addresses all key facets of health, from social determinants of health to public health to medical services.

As part of a commitment to global health diplomacy, Canada could lead in catalyzing a global health policy process on the social determinants of health with a view to defining actionable and measurable policy changes and outcomes for the international global health community.

6.2.2 Assessing the Health Impacts and Informing Major Social and Economic Policy Choices

The social conditions that shape population health can be influenced both by programs (as discussed above) and public policies. Country-level social and economic policies — designed to improve equity, increase educational access, decrease poverty, and influence other social conditions — have a profound impact on health. Global social and economic policies, such as those related to trade, food, conflict, the environment, and others, play just as large a role in an era when policy is increasingly globalized.

This role would see the federal government build on the current knowledge base to assess the health impacts of all new major social and economic policies. Specifically, this role would focus on producing health impact assessments:

- before major negotiated policies; and
- as a matter of process, following policy decisions and when assessing next steps.

To adequately assess the direct or indirect health impacts of decisions, the federal government could build on the existing capacity in organizations like the Public Health Agency of Canada (PHAC), its collaborating centres, and universities to ensure there is capacity available to make assessments for the concerned departments on the health impact of their policies. The recommendations produced would inform policy-makers and negotiators of treaties on many issues such as migration policies, trade, climate change agreements, and debt reduction. While health impacts would only be one factor weighed in decisions, this expanded capacity would enable greater coherence between social and health policy choices.

This new assessment capacity would be built on the three core principles set out in Chapter 3:

- **Equity** – Major policy decisions should not lead to differential health impacts for different populations or sub-sets of populations.
- **Effectiveness** – Health impact assessments should be undertaken to evaluate the potential impacts of important policy decisions and to plan appropriate and effective next steps.
- **Engagement** – The results of assessments should be made publicly available before significant policy decisions are undertaken.

This expanded capacity would be consistent with the best practices of provinces and countries where health impact assessments are already required by law.

6.2.3 Creating New and Effective Tools for Global Accountability

Many of the international conventions sponsored by United Nations (UN) organizations include agreements to ensure the basic foundations needed for population health, in terms of adequate living conditions and basic equal rights. While signatories to these agreements report to the UN on what they are doing, currently there are few mechanisms in place to rapidly assess which countries are leading and which countries are lagging behind in their international commitments. To address this gap, Canada could take transformative steps to develop novel governance tools to improve accountability including, for example:

- Participation in the creation of a publicly available resource that describes what each country is doing in accordance with the treaties it has signed, according to the principles and practices of international law and other normative practices.

More progress in this area could be made if Canada worked with other countries to develop a more transparent system of assessing progress on these agreed-upon social foundations of population health.

- Development of a global resource network for governments seeking to increase what they do in addressing population health policy. Canada could build a network of researchers in social determinants of health in Canada and in LMICs to develop and distribute resources to help governments address population health policies.

Canada's leadership in collaboratively developing much more transparent global mechanisms for accountability in this area would be of particular importance. What each country does to improve social and economic conditions within its own borders is fundamental to its own population health and to global health; at the same time the UN agreements provide invaluable mechanisms for helping move this aspect of population health forward globally.

6.2.4 Building on Public Health Strategies

To date, the federal government has made significant investments in understanding the impact of key public health policies through the six National Collaborating Centres for Public Health. These institutions analyze evidence in key public health sub-fields such as environmental health, aboriginal health, infectious diseases, etc. (National Collaborating Centres for Public Health, 2011). The focus of these centres, located across Canada in independent host institutions, is on knowledge synthesis, transfer, and exchange (KSTE) efforts in their respective sub-fields. Excellent work is also taking place in provincial institutions such as the Institut national de santé publique du Québec[20] and similar agencies in Ontario and British Columbia.

This role would build on this foundation to ensure the ongoing strength of Canada's global work in prevention, detection, and response to pandemics and health promotion to lower the burden of non-communicable diseases.

6.2.5 Supporting Centres of Excellence and Training

As part of the recognition of the extent to which population and public health shape morbidity and mortality, and leveraging Canada's existing strength in these fields, the Global Health Research Initiative (GHRI) and CFI would develop grant programs to support a continued focus on global social determinants of health research and strong public health science. These programs would focus on policies and programs that could make a difference in countries around the world. GHRI and CFI would also support the creation of centres of excellence in Canada to provide a platform for research and training of people from around the world in social determinants of health and for building institutional partnerships with LMICs (see Section 6.4).

Finally, as part of a broader effort to establish career tracks in global health (also see Section 6.4), universities would establish career paths in the public, private, philanthropic, government, international governance, and non-governmental organization (NGO) sectors for researchers and students across disciplines that focus both on social determinants of health and on population and public health more broadly.

6.2.6 Impact

The evidence that has emerged from research on social determinants of health shows that this role would enable Canada to play a more strategic role in global health by:

- building our capacity to assess the health impacts of key policy decisions both domestically and internationally, and improving transparency and accountability around these impacts;
- developing tools to track our performance against our international commitments;
- helping build our capacity in research on social determinants of health and population and public health more broadly, and extending this expertise internationally; and
- catalyzing an actionable and measurable global health policy process focused on social determinants of health.

[20] For more information on the Institut nationale de santé publique du Québec, please see http://www.inspq.qc.ca/english/default.asp

6.3 Community-Oriented Primary Health Care

A common response to the health challenges of the 21st century, in low-, middle-, and high-income countries, relates to the effective implementation of primary health care. In 1978, the International Conference on Primary Health Care in Alma-Ata set out an ambitious vision of health for all by the year 2000, underpinned by a comprehensive strategy for systemic reforms of the health sector called *primary health care* (WHO, 1978). Although the global context has changed considerably since then, on the 30th anniversary of the *Alma-Ata Declaration* the 2008 *World Health Report* updated the notion of primary health care under the clarion of "Now More than Ever" (WHO, 2008b). Indeed, community-driven, community-based primary health care is re-emerging as an effective and affordable way to address rapidly changing health needs, expectations, and disparities.

The WHO defines the objective of primary health care as "better health for all" and outlines five key elements for achieving this goal (WHO, 2011b):

- reducing exclusion and social disparities in health (universal coverage reforms);
- organizing health services around people's needs and expectations (service delivery reforms);
- integrating health into all sectors (public policy reforms);
- pursuing collaborative models of policy dialogue (leadership reforms); and
- increasing stakeholder participation.

This definition builds on the definition of primary health care in the *Alma-Ata Declaration*:

> Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination.
>
> (WHO, 1978)

Canada's long-standing commitment to universal coverage, its pioneering of family medicine, and its responsiveness to the needs of its many communities place it in a good position to serve as a global leader in primary health care. Canadian individuals and institutions (e.g., government, professional organizations, universities, colleges, NGOs) also have extensive knowledge and expertise in designing, implementing, and evaluating primary health-care curricula and programs in Canada and in LMICs.

Canada's strong capacity in health worker training could, in the spirit of mutual learning, help develop initial and refresher training programs for LMIC health workers at all levels, which could strengthen primary health systems. Professional organizations, university projects, and individuals have had long-term relationships with partners around the globe, contributing to stronger local cadres of practitioners in countries with limited training resources and senior personnel, as well as in countries and communities recovering from humanitarian disasters. Training has focused on a variety of general practice and specialty areas for nursing, midwifery, clinical officers, pharmacies, laboratories, and physicians. A number of Canadian organizations have been significantly involved in supporting community-level training of community health workers and other community-based providers.

In addition, there is an emerging opportunity to integrate social innovation (including health delivery and demand-side interventions), business models, and technologies to optimize health outcomes. With the success of primary health-care models in many parts of the world, there is significant potential for mutual learning with LMIC partners, which could help to strengthen primary health care in Canada, especially in underserved populations.

6.3.1 Supporting and enabling primary health care in LMICs

Reflecting on the lessons learned from our own primary health-care experiences and building on the expertise of others, especially local partners, Canada would be well positioned to partner with LMIC communities, institutions, and governments to support planning, implementation, and evaluation of sustainable, community-based, primary health-care systems. Many countries and regions now have

strong agendas focused on primary health care. Partnerships involving Canadian participants could align with national and regional government community-based strategies and policies to support primary health-care strategies, especially in the following key areas:

- **People-centred comprehensive services** – Integrating services for priority health challenges into universally accessible, essential packages of care with appropriate, timely referrals to and from secondary and tertiary health facilities. Packages of care would include the following key areas:
  - maternal, newborn, and child health, building on Canada's commitments through the Muskoka Initiative and Canadian leadership on the Commission on Information and Accountability for Women's and Children's Health (Commission on Information and Accountability for Women's and Children's Health, 2011) to promote health for mothers and children, prevent illness, and safely manage deliveries and acute illness in women and children;
  - non-communicable disease and disability prevention, management, and treatment including heart disease/stroke/diabetes/hypertension, chronic/palliative conditions, disabilities, and acute and mental health illnesses; and
  - infectious diseases including HIV/AIDS, tuberculosis, and malaria.
- **Universal health coverage** – Promoting and advocating for the development of more equitable and efficient health financing systems to enhance access to essential services and protect from health-care-induced impoverishment such as through government-supported health systems or prepayment insurance schemes (tax, employer, or community financed).
- **Public policies that promote health** – Identifying and engaging critical resources in other sectors, including the broad determinants of health, that are necessary to promote and sustain population health (e.g., road safety, nutrition, clean water, sanitation systems).
- **Integrating service delivery innovations** – Working with local partners to support and devise creative and locally appropriate ways to more effectively and efficiently meet patient demand for services including through new business models and health technologies.
- **Strong leadership and accountability** – Encouraging strong governance in health that:
  - articulates the common values and rules by which the health system is guided;
  - engages diverse stakeholders in the formulation of shared policies;
  - nurtures a culture of learning and innovation; and
  - holds all partners accountable to measurable indicators of performance.

6.3.2 Training and supporting capacity to train health workers

A common constraining factor in mobilizing toward ambitious primary health-care reforms across all countries is the health human resource crisis, which particularly limits LMIC care. Supporting trained health worker cadres, especially in rural and remote communities and those with vulnerable populations, with the resources needed to provide effective care remains a challenge for most health systems worldwide, but especially affects health outcomes in LMICs. The study and awareness of health human resources tracking is a rapidly growing field in which Canada has played an important leadership role. Canadian expertise and experience could be tapped more systematically, especially in the area of health worker planning, training, and evaluation.

Canadian institutions, NGOs, and professional organizations with extensive experience in training, in both Canada and overseas, would be well positioned

to aid in training at partner institutions in other countries (e.g., universities, colleges, and training schools); in local communities; and in Canada during exchanges (e.g., sandwich courses, short courses, full professional certification, or upgrading).

Initiatives could include co-development of curricula and teaching resources, training of trainers, program evaluation or student assessment, provision of short courses, refresher training, or clinical or other mentorship for trainees and/or faculty. Canadian training support should encourage addressing priority needs of local communities, and district and national health systems. Training should span the spectrum of health workers from professional clinical cadres, to community-based providers, such as community health workers, as well as to public health practitioners, policy analysts, and researchers.

One mechanism to enable training would include "smart" partnerships between Canadian and LMIC educational institutions (discussed in more detail in Section 6.4). The Canadian government could also partner with, and build on existing strengths within, Canadian civil society organizations, colleges, and universities.

The creation of a Canadian network of global community-oriented care/primary health-care support organizations could improve the exchange of ideas and knowledge, better coordinate existing programs in various countries and regions, and enable new network opportunities. It would be important to harness this expertise nationally by, for example, creating an exchange program for Canadian academics and CIDA staff.

6.3.3 Impact

The scale and scope of primary health care raise important questions about evaluation and impact, which represent a further area where Canada could play an important leadership role. There is a growing need for comprehensive, accurate, and implementable frameworks for the evaluation of primary health care. Canadian NGOs, universities, colleges, and professional organizations could participate in the co-development and implementation of primary health-care evaluation tools for use at local, district, and national levels. Capacity building in evaluation and program implementation would be closely tied to the evaluation capacity-building frameworks outlined in the population and public health role (see Section 6.2). Specific activities could include:

- primary health-care program operational research and intervention studies conducted jointly by local partners and Canadian teams (e.g., universities, institutes); and
- consultative input by Canadian and LMIC partners into global primary health-care programs, including program development and evaluations (e.g., the WHO).

6.4 Smart Partnerships in Research and Education

This role would build on the existing strength in global health research and training in Canadian educational institutions, and on the existing institutional partnerships between academic institutions in Canada and LMICs (including government ministries of health). It would explore the possibility of leveraging and enhancing these strengths and partnerships to support a "smart" partnership approach that would enable deep community linkages and mutual learning. Such an approach would be built on the three principles articulated in Chapter 3: it would be *equitable*, *effective*, and deeply and mutually *engaged*. It would, however, go beyond mutual learning to support country ownership and sustainability, which would be achieved by actively collaborating to build political ownership, leadership of local institutions, and in-country capabilities and accountability for sustaining an education and research system built on a sound infrastructure and human resource base. Smart partnerships would invest in the participation of young people, in particular, in university education and research opportunities in Canada and LMICs and would ensure they had appropriate career paths in global health.

6.4.1 Strengthening educational partnerships

This role would build on the increasing interest in global health among university students and faculty to establish frameworks for attractive multidisciplinary career tracks in global health. As a result, global health

would become a well-recognized discipline at the graduate, post-graduate, and faculty levels with a strong cross-faculty presence.

This interest could be further reinforced by supporting committed, trained Canadians to partner LMIC institutions in a cross-disciplinary network of centres of excellence (including both Canadian and LMIC institutions), providing a platform for bilateral research and training at all levels (undergraduate, graduate, post-graduate, and faculty). These centres would serve as incubators for integrated innovation (bringing together social and cultural, business, and technical innovation) (GCC, 2010b) and help institutions of higher education to enhance their capacity to design and deliver local training programs that focus on the following priority areas and activities:

- training a workforce that meets the needs of communities for health services, policy development, and technology, and builds academic leadership in education and research across the disciplines to sustain local training capacity;
- involving partners within communities to participate in the collaborative design of accessible educational models, such as distance education tools, which meet the needs of communities and are adapted to their cultural fabric;
- involving social entrepreneurs in the development of needed infrastructure for expanding distance learning education, such as the extension of internet networks to remote communities;
- developing the training capacity in communities (i.e., training the trainers); and
- building on local expertise in teaching by using the resources of local centres of excellence to stimulate job prospects for, and support the return of, health professionals who have gone abroad for their training, thereby helping to mitigate the extent of the "brain drain" of individuals who travel abroad to train as health professionals and never return to their countries of origin.

These integrated training programs would include scientific, social, non-profit leadership, public policy, entrepreneurship, and business management training. The focus would be on both prevention and population health in recognition of the increasing burden of non-communicable diseases and the management of non-communicable diseases and disabilities in LMICs. These centres would also create new opportunities for Canadian researchers to learn from, and share knowledge with, their colleagues in LMICs. As a result, Canadian universities and researchers, and their LMIC partners, would become beacons and partners of choice in public and global health for researchers worldwide.

As part of this role, global health would be integrated into the CanMEDS competencies of professional health training disciplines (e.g., medicine, nursing and dentistry).[21] Lessons learned from partnering with colleagues in LMICs could provide invaluable insights into the determinants of health, which, in turn, would improve the health of Canadians, particularly those from marginalized groups. Other university faculties and departments, such as engineering, pharmacy, science, business schools, public policy and administration schools, and humanities programs, could become increasingly involved in global health and contribute to the training of specialized educators, researchers, and professionals.

Canadian students across the disciplines would be able to choose from an array of clear career paths favouring multidisciplinary global health studies, with the majority encouraging placements in LMICs. This approach could be especially successful in the training of medical residents and fellows by creating training schemes at the post-graduate level (e.g., as described in Frenk *et al.* (2010)) and extended research and clinical opportunities funded federally and recognized by the Royal College of Physicians and Surgeons of Canada. Efforts would also be made to link these new academic career paths with jobs in the private, public, and not-for-profit sectors.

With strengthened global health programs in its universities and colleges, Canada could then attract international and national global health researchers and

[21] For more information on CanMEDS, please see http://www.deptmedicine.utoronto.ca/canmeds.htm

professionals involved in medical, social, organizational, cultural, and technological innovation to study and work in Canada. In so doing, Canadian institutions would recognize the need for brain circulation, ensuring equal opportunities for Canadian researchers to live, work, and contribute in LMICs and for LMIC researchers and health professionals to learn in Canada.

One strategy to support the training of international global health workers while minimizing the potential for long-term brain drain would be to provide "sandwich" PhD training that waives the significant overseas student fees for LMIC researchers and enables these researchers to come to Canada for brief but intense training. Canada could also capitalize on the wealth of knowledge and experience in distance education to co-design and co-deliver degree programs for remote learners. The most viable strategy would be for LMIC partners to build the capacity to mobilize leading PhD programs in-country to take advantage of the strengthened capacity of LMIC education and research institutions.

6.4.2 Strengthening institutional partnerships with LMICs to develop local research and training infrastructure

Canadian institutions could focus on strengthening global health partnerships in the areas of education and research infrastructure across disciplines in LMICs. Collaborative support from funding agencies, including Canadian (e.g., CFI, CIHR, NSERC, SSHRC, CIDA, Health Canada, IDRC, PHAC) and international/multilateral agencies (e.g., development banks, foundations, and other research funders of partner countries such as U.S. National Institutes of Health (NIH), the Deutsche Forschungsgemeinschaft (DFG), etc.), and from not-for-profit organizations, like the Canadian Coalition for Global Health Research (CCGHR), could facilitate program development with a focus on global health research and capacity building. Collaboration among funding agencies would also facilitate more sustainable long-term commitments to projects. For example, capacity-building grants to fund the development of research infrastructures in LMICs could be coupled with long-term operating grants to fund the necessary operational resources for maximizing the impact of the capacity-building grants.

Successful sustainable capacity-building projects would result from partnerships between the Association of Universities and Colleges of Canada; government agencies such as IDRC and CIDA; multilateral agencies such as WHO, the United Nations Development Programme (UNDP), and the World Bank; and regional development banks. These projects would focus on supporting and enabling the growth of long-term sustainable capacity in LMIC partner institutions — capacity that would continue to grow after the partnerships have run their course. The success of large-scale projects would be made possible by focusing on specific regions where partnerships have already been built between individual Canadian institutions and LMICs.[22]

Strong incentives would be created to fund the collaboration of Canadian and LMIC researchers on global health questions and the development of local research and training infrastructure in LMIC countries needed to mobilize research in the LMIC partner institutions. As part of these capacity-building efforts, centres of excellence with dedicated funding for education, training, and research could be established according to criteria agreed upon with partner countries. These institutes would attract the best students from LMICs and Canada, and provide incentives for foreign-trained individuals to return to their countries of origin.

Although the capacity-building institutes would be initiated by Canadian resources, LMIC governments and private- and public-sector agencies could provide sustainable local resources to contribute to a portion of the operating costs. Resources would be targeted at research relevant to the local country that also provides a return on investment for Canadian partners.

More broadly, there is an increasing need and opportunity for inter-state and/or organizational collaboration in global health that can enable foundations, multilaterals, national aid organizations, and others to work together toward a common goal. An example of such

[22] These regions would include Canada's long-standing presence in East Africa (University of British Columbia and University of Toronto in Uganda, and University of Manitoba in Kenya) and Asia (University of British Columbia in China, and University of Manitoba in India).

a collaboration is the Saving Lives at Birth initiative,[23] developed and delivered by USAID, Grand Challenges Canada, the Bill & Melinda Gates Foundation, the World Bank, and the Norwegian Ministry of Foreign Affairs.

6.4.3 Establishing standardized procedures and a code of conduct for institutional partnerships to support equitable research and training partnerships

Comprehensive and standardized pre-departure training programs that require trainees to demonstrate cultural sensitivity skills, attitudes, and knowledge would be established for all students and faculty members who pursue LMIC placements and research. Mentoring programs would be available for students and faculty members wanting to pursue a career in global health. Mechanisms within institutional and government funding agencies could be set up to enable faculty members' interest and dedication to global health by providing financial support to make global health and related activities sustainable career paths for both young and established faculty members. In addition, global health research and education could be recognized as contributors toward promotions and tenure.

Standardized procedures and a code of conduct for institutional partnerships could be developed to support equitable research and training partnerships.

6.4.4 Building knowledge translation/knowledge exchange capacity in global health

Over 1,000 Canadian global health academics, entrepreneurs, and policy-makers, including experts from fields such as anthropology, economics, business, law, and engineering, would donate 10 per cent of their time to join an organized, multidisciplinary Canadian Global Health Corps for focused transformative country partnerships with designated partners. By empowering LMICs to achieve the same (or greater) capacity in the training of health professionals and researchers as their Canadian partners, fruitful and equitable partnerships would be strengthened.

6.4.5 Impact

Playing a more strategic leadership role in developing institutional partnerships would help to improve the effectiveness of Canada's global health investments by enabling the following:

- increased linkages across the disciplines to mobilize health innovations of global value and impact;
- more channelled interest in global health on the part of young people in Canada and LMICs across the disciplines by creating new career paths/employment opportunities for global health academics, professionals, policy-makers, and employees (professional, trades, and logistics) in industry and public policy agencies;
- increased brain circulation from LMICs to HICs, and from HICs to LMICs, by providing opportunities for health-care professionals and researchers to stay and to conduct their practice and research in a fulfilling and rewarding environment in LMICs; and
- improved resource management of health services and areas of increasing health priority, including infectious and non-infectious disease pandemics, natural resources such as water, and natural and man-made disasters.

This role would also support engagement through increased opportunities for two-way learning. Finally, it would improve health equity by sharing knowledge and skills from Canada and LMIC countries with communities where they are needed the most.

6.5 Global Health Innovation

Canada's long-term impact on global health will be driven by our ability to develop and implement new ideas and to bring them to scale where they are needed — what is commonly called "innovation." Canada has an important constellation of strengths in global health relating to innovation and research, including global health ethics, social determinants of health, indigenous health, mental health, and others. There has also been a significant upswing in interest in global health on university

[23] For more information on the Saving Lives at Birth initiative, please see http://www.savinglivesatbirth.net/

campuses among students and faculty. This represents an important, and largely untapped, resource to support innovation in global health.

Further, knowledge is a global public good — the application of new knowledge in one country or region does not diminish its potential utility and impact in others (Thorsteinsdóttir *et al.*, 2003). Global health innovation can also be a form of global health diplomacy by bringing together resources, researchers, knowledge, and commitments from a broad spectrum of countries and sectors; and by creating linkages between innovators in Canada and those in LMICs where much of the economic growth in the world is expected to occur in the future.

6.5.1 Solve critical challenges in areas of research strength

This role envisages a future in which Canada would be seen worldwide as an innovator in global health, driven by its commitment to development innovation. This reputation could be built on early investments to address pressing global health challenges:

- innovations in women's and children's health, including technological innovations, such as warming blankets for newborns, and social innovations, such as promotion of gender rights, which build on our current efforts including the Saving Lives at Birth initiative (see Section 6.4.2);
- cutting-edge research on technological, social, and business innovations to combat non-communicable diseases, such as diseases in the elderly and mental health challenges, with a particular focus on reducing the burden on the health-care system and scaling up promising delivery strategies and technologies (e.g., policies such as smart tobacco taxation or initiatives such as hypertension implementation research and global mental health); and
- innovation in infectious diseases, which builds on existing strengths in HIV/AIDS, malaria, neglected diseases, and others, and focuses on prevention and early diagnosis.

This role could also be built on a commitment to *integrated innovation*: combining scientific and technological innovations with social and business innovations to achieve impact, scale, and sustainability (GCC, 2010b).

6.5.2 Build on existing strengths in research and innovation

This role would emerge from Canada's existing investment base in global health through initiatives like the Global Health Research Initiative (GHRI) and the Development Innovation Fund (DIF) delivered by Grand Challenges Canada (see Chapter 4). These investments could be supported by emerging partnerships within government through a renewed GHRI and by linkages between GHRI and external bodies and organizations like Grand Challenges Canada. This work could be extended to cover the full range of approaches to scientific, social, and business innovation. These partnerships would improve coordination among funding programs and help to bridge the divide between various global health research communities by bringing together social, business, and technological innovators through integrated innovation.

6.5.3 Energize and support young innovators

As outlined in Section 5.2, an important barrier restricting Canada's impact in global health is the lack of opportunities for mobilizing the rising interest of Canadian university students and faculty in contributing to innovation. Building on the initiatives described in Section 6.4, students and faculty would be more fully enabled to make a contribution through:

- dedicated and funded global health programs that include a range of multidisciplinary options;
- clear tenure track and career progressions for faculty focused on global health; and
- ongoing support for exceptional young Canadian global health researchers through the Canadian Rising Stars in Global Health program.

One innovative idea would be to create a G20 science corps, implemented by universities working closely with IDRC, to carry out bilateral strategies to support scientific exchanges.

6.5.4 Engage the private sector in innovation

The private sector could be a critical contributor and enabler of innovation. Building on a trend begun by Acumen Fund and others, Canada could focus on supporting the creation of innovative small- and medium-sized enterprises (SMEs) in developing countries by implementing a social capital fund to support promising early-stage SMEs in LMICs.

An early example of a successful SME is A to Z Textile Mills in Arusha, Tanzania, which employs 7,000 people and produces about 30 million long-lasting, insecticide-impregnated bed nets per year (Acumen Fund, 2011; Shah *et al.*, 2010) to protect against malaria. An important thrust of this role for Canada would be to support the creation and growth of 100 such enterprises, achieving health gains and, at the same time, providing employment to local communities. The private sector would be engaged with the academic sector to develop clinical trials for drugs and vaccines for diseases that are of particular burden in LMICs and have been underfunded. These clinical trials would be developed in partnerships between private-sector companies and centres of excellence, both in Canada and in LMICs.

Canada could also create incentives to help Canadian biopharmaceutical and medical devices companies to specifically engage in health solutions that affect the poor. Incentives would also encourage Canadian companies to participate in innovative partnerships and collaborations focused on new technologies that target, and originate in, the global South.

6.5.5 Lead in global health innovation

The success of innovation in global health would drive the implementation of complementary innovative approaches in other areas of development including agriculture, energy, and water. Other countries would also realize the value of an innovation-oriented approach and undertake their own innovation-oriented development institutions to drive global health innovation. In 2010, for example, USAID launched its Grand Challenges in Development initiative as an effort to reorient itself toward innovation (USAID, 2011).

In Canada, scientists could also be integrated into the foreign affairs portfolio as part of a broader recognition of the importance and potential of innovation for development.

Although India and China may be reluctant to follow the 40-year-old path of international development (beyond undertaking humanitarian responses to natural disasters), they may be keen to incorporate a focus on innovation as part of their global contribution. An indicator of success for this approach would be the creation of Indian and Chinese grand challenges organizations, which would work together with Grand Challenges Canada to address the exploding epidemic of non-communicable diseases. This would reinforce the Canada-India and Canada-China science and technology agreements, and lead to greater collaboration between innovating Canadian companies and their Chinese and Indian counterparts.

6.5.6 Impact

Putting a stronger emphasis on innovation in general — and integrating technological, social, and business innovation in particular — would have the potential to improve the effectiveness of Canadian investment in global health by:

- developing promising new solutions to pressing global health challenges while, at the same time, building capacity in LMIC institutions; and
- bringing solutions to scale in regions and communities where they are needed the most.

One unexpected outcome of this development approach would be its effect on the Canadian health system. In 2009, Jeffrey Immelt, CEO of General Electric, coined the term *reverse innovation* to apply to high-value

innovations created in developing countries under situations of resource scarcity, which could also be used in developed countries (Immelt *et al.*, 2009). Although it is not always easy to shift culture and practice in HICs, this role in innovation would lead to the implementation of the integrated technological, social, and business innovations developed in LMICs in publicly funded health systems in Canada, which would improve affordability while maintaining quality.

The net result of this significant reorientation toward innovation would involve a re-thinking of how Canada "does aid," and a shift to a model that enables its LMIC partners to build economies and health systems of the future. It would also enable a rebranding of Canada's role in the world as an innovator. As a long-term goal, development innovation, and in particular global health innovation, would be an essential plank of Canada's foreign policy.

Finally, this role would also increase the level of engagement on the part of the Canadian research community — and the Canadian public — in global health.

7. Next Steps

With the identification in Chapter 6 of five potential roles that would maximize Canada's impact in global health, the Panel concluded the assessment by analyzing how best to mobilize the necessary leadership to crystallize these roles into a national multi-sectoral global health strategy, which would include specific recommendations for action and monitoring progress in implementation of the strategy over time.

The Panel began by considering who would be best suited to lead the implementation of such a strategy. The Panel used the methodology of scenario-building as a tool for developing its analysis. The resulting four scenarios reflect the key themes developed in the previous chapters of this report:

- The status quo
- Individuals, institutions, and organizations lead the way
- The federal government develops a plan
- The all-of-Canada approach

In analyzing these scenarios, the Panel found that maintaining the status quo or a lack of action would be inconsistent with the three core principles set out in Chapter 3 (equity, effectiveness, and engagement) and would lead to sub-optimal outcomes both for Canada and for our global health partners.

The Panel also determined that any scenario that is dependent on one significant actor (whether government or credible leaders from other sectors) to develop and implement a multi-sectoral global health strategy would only be viable if the strategy was comprehensive, reflected the views of major stakeholders, and engaged key actors.

Ultimately, the Panel concluded that the scenario most consistent with the three core principles, and with the greatest potential for realizing the five strategic opportunities discussed in Chapters 5 and 6, would be an all-of-Canada approach, with sustained engagement and input from all key actors and sectors. In this scenario, all members of the global health community, including governments, would work together to build a single multi-sectoral global health strategy that would then be implemented by the most appropriate organizations and institutions. This would require a concerted effort and commitment by leaders in all sectors to collaborate in developing, refining, and implementing the strategy. To move the process forward in the short term, the identification of a strong champion and strong leadership in each sector would be essential.

In particular, an all-of-Canada approach would need to encourage and enable broad-based representation, especially from those sectors that are currently under-represented or least engaged. For example, it would be useful to engage and empower the private sector, not just through its commitment to corporate social responsibility, but also through day-to-day activities and investments. One strategy would be to enable partnerships between Canadian companies and their innovative counterparts in lower- and middle-income countries (LMICs).

Ultimately, investments in global health lead to more than just improvements in global health outcomes (although obviously this is a very important goal). They also play a role in supporting and enhancing national security, and represent a significant economic opportunity both for Canada and for LMICs.

Committed and meaningful engagement among sectors would continue to be important over the medium term. During the process of implementation, it would undoubtedly become apparent that various sectors, organizations, and agencies have different health goals and priorities that need to be reconciled. In the long term, this scenario could provide the framework for more effective and efficient inter- and intra-sectoral collaboration and cooperation, which would help achieve significant global health outcomes, perhaps even the creation of an organization to provide leadership and ensure accountability for the national multi-sectoral global health strategy.

The most significant challenge in implementing this approach would be to get buy-in from key stakeholders across all sectors. Given the diversity of the various actors in the Canadian global health community and the strength of their views and convictions, this would take strong leadership and willingness to compromise on the part of sector leaders. If agreement is reached across all or most stakeholders, it would make the multi-sectoral strategy that emerged an extremely useful tool for shaping global health policy and investments in Canada going forward.

7.1 From Assessment to Strategy

The Panel's mandate was not to provide recommendations, but to set the table for a discussion among decision-makers, including individuals and organizations across sectors such as government, academia, civil society, and the private sector. Many of these actors, along with their current and past contributions, have been named and discussed in this report.

The Panel is well aware of its limitations. It is difficult for a body consisting primarily of academics, even when many are accomplished global health practitioners, to adequately reflect the reality of the broad range of stakeholders (e.g., Canadian policy-makers, entrepreneurs, researchers, not-for-profits, and the Canadian public) that contribute to Canada's role in global health. Before the findings of this assessment can lead to the development and implementation of a national multi-sectoral global health strategy, all stakeholders must first be engaged in a broad ongoing conversation on global health.

The Panel proposed a five-step process to move from the findings of this assessment to the implementation and monitoring of a national multi-sectoral global health strategy. The first two steps of this process have already been completed: the engagement of a core group of global health leaders (which the Canadian Academy of Health Sciences (CAHS) accomplished through its symposium on global health in Fall 2009), followed by the undertaking of this assessment.

The third step in the process — a continued listening phase — could begin in early 2012 with the convening of global health leaders across all health sectors to consider the findings of this assessment. Ideally, leaders in each sector would step forward to "own" parts of the roles identified in the five areas of opportunity (see Chapter 6). The Panel anticipates that such action would be taken under the aegis of CAHS. The engagement could be extended significantly through the use of social media and other new media engagement tools.

To engage Canadians and their leaders outside of the health sector, a fourth step might be to strike a global health commission that would be active in 2013–14. The purpose of the commission would be to develop a national multi-sectoral global health strategy, with specific recommendations, metrics, and measurements of success over time, building upon the insights gained from the earlier listening phase. The model for such a commission could be analogous to the Smart Global

Figure 7.1 The Proposed Five Step Process

Health Commission in the United States (Fallon & Gayle, 2010). The membership of this commission would include high-level national leaders in a range of sectors including senior government officials, elected officials/ministers from the federal and provincial governments, media personalities, spiritual leaders, heads of major civil society organizations, and private-sector leaders including chief executive officers and/or presidents of innovative companies.

Upon acceptance of the strategy, the final step would be to create a mechanism to monitor its outcomes and impacts in order to enable continuous feedback and improvement. The focus of this process would be to develop and monitor specific measurable goals, and it could be modelled on the Commission on Information and Accountability for Women's and Children's Health (Commission on Information and Accountability for Women's and Children's Health, 2011). This mechanism would need to be in place and become operational as a key initial step in implementation of the strategy.

7.2 Beginning a Broader Discussion

The charge given to this Panel was to:

1. Define the elements of Canada's current role in global health;
2. Articulate the rationale for Canada to play a more significant role in global health;
3. Identify areas of Canadian strength in comparison with world leaders in global health and opportunities for Canada to take on a more strategic role in global health; and
4. Develop scenarios that will recommend specific actions to enable Canada (working through various sectors including government, academia, civil society, and private industry) to take on strategic, high-impact roles in global health and to define areas for potential leadership.

To answer this charge, the Panel assembled evidence from a range of sources including a review of recent international reports on global health; a literature review of recent Canadian reports, policies, and proposed frameworks relating to global health; a Call for Evidence, which received 77 responses; testimony from 30 expert witnesses; six targeted interviews; roundtables with students on four university campuses across Canada; and the professional experience and expertise of individual Panel members.

The Panel's key observation was that while individual Canadians, organizations, institutions, agencies, and departments all play significant and substantial roles in global health, the impact of these contributions is lessened because of fragmentation and lack of coordination of efforts. The Panel concluded that Canada has the necessary strengths and resources to help address the pressing global health issues that are affecting the health of individuals in Canada and in LMICs.

The Panel's analysis of the evidence suggested that Canada has both the necessary strengths and the opportunity to be a global leader in five specific areas of global health:

- indigenous and circumpolar health research;
- population and public health;
- community-oriented primary health care;
- smart partnerships in health education and research; and
- global health innovation.

The Panel recognizes that this is not an exclusive list of all of the areas in which Canada could potentially make a difference. The evidence suggests, however, that Canada could optimize the impact of its contributions to global health by building on existing strengths in these five areas.

The Panel concluded that there was a compelling rationale for Canada to play a more strategic role in global health. The likelihood of achieving that goal would be significantly sustained and enhanced through a more coordinated all-of-Canada approach.

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Annex 1: Expert Witnesses at the Meeting of the Expert Panel on 7–9 December 2010

The Expert Panel on Canada's Strategic Role in Global Health (the Panel) considered and invited a number of experts to speak to the Panel. The following witnesses attended the Panel meeting:

- **David Angell,** Director-General, Foreign Affairs and International Trade Canada, Ottawa, ON
- **Andrea Baumann,** Associate VP, Global Health Office, McMaster University, Hamilton, ON
- **Michel G. Bergeron,** Director, Division of Microbiology and le Centre de recherche en infectiologie, Université Laval, Québec City, QC
- **Katherine Bliss,** Deputy Director and Senior Fellow, Global Health Policy Center, and Senior Fellow, Americas Program, Center for Strategic & International Studies, Washington, D.C.
- **Peter Brenders,** President and CEO, BIOTECanada, Ottawa, ON
- **Timothy Brewer,** Director, Global Health Programs, McGill University, Montréal, QC
- **Eva Busza,** Principal Officer, Strategic Planning Unit, Executive Office of the Secretary General, United Nations, New York City, NY
- **David Butler-Jones,** Chief Public Health Officer, Public Health Agency of Canada, Winnipeg, MB
- **Jean Chamberlain,** Assistant Professor, Department of Obstetrics and Gynecology, and Director, International Women's Health Program, McMaster University; Founding Director, Save the Mothers, Uganda
- **James Chauvin,** Director, Global Health Programme, & Director of Policy, Canadian Public Health Association; Vice-President & President-Elect, World Federation of Public Health Associations, Ottawa, ON
- **Michael Clarke,** Director, Research for Health Equity, International Development Research Centre, Ottawa, ON
- **Nancy Edwards,** Scientific Director, Institute of Population and Public Health, Canadian Institutes of Health Research, Ottawa, ON
- **Mark Ferdinand,** Vice President, Policy Research & Analysis, Rx&D, Ottawa, ON
- **Janet Hatcher Roberts,** Executive Director, Canadian Society for International Health, Ottawa, ON
- **Omer Imtiazuddin,** Health Portfolio Manager, Acumen Fund, New York City, NY
- **Susan Johnson,** National Director, International Programs and Humanitarian Issues, Canadian Red Cross, Ottawa, ON
- **Judy Kopelow,** Director, Strategic Initiatives, Global Health Office, Dalla Lana School of Public Health, University of Toronto, Toronto, ON
- **Ronald Labonté,** Professor of Medicine, University of Ottawa, Ottawa, ON

- **Bridget Lynch,** President, International Confederation of Midwives, Toronto, ON
- **David Morley,** President and CEO, Save the Children Canada, Toronto, ON
- **Vic Neufeld,** Professor Emeritus, Medicine and Epidemiology, McMaster University; National Coordinator, Canadian Coalition for Global Health Research, Hamilton, ON
- **Shawna O'Hearn,** Director, Global Health Office, Dalhousie University, Halifax, NS
- **Frank Plummer,** Professor, Medicine and Medical Microbiology, University of Manitoba; Scientific Director General, National Microbiology Laboratory, Public Health Agency of Canada, Winnipeg, MB
- **Maura Ricketts,** Director, Office for Public Health, Canadian Medical Association, Ottawa, ON
- **Andrew Taylor,** Executive Vice-President, Grand Challenges Canada, Toronto, ON
- **Carol Valois,** Professeure agrégée, Département de Médecine de Famille, Université de Sherbrooke, Sherbrooke, QC
- **Kishor Wasan,** Professor & Distinguished University Scholar; CIHR/iCo Therapeutics Research Chair in Drug Delivery for Neglected Global Diseases; Founder of NGDI UBC, Vancouver, BC
- **June Webber,** Director of International Policy and Development & Director of Corporate Strategies, Canadian Nurses Association, Ottawa, ON
- **Stan Zlotkin,** Professor, Nutritional Sciences and Paediatrics, University of Toronto; Vice President, Medical and Academic Affairs, The Hospital for Sick Children, Toronto, ON

The Panel sought the perspectives of several additional researchers to ensure that voices from all sectors and sub-sectors of global health were heard. Focused telephone interviews were conducted with the following individuals:

- **Sonia Chehil,** Director, International Psychiatry, Dalhousie University, Halifax, NS
- **Patricia Garcia,** Professor, School of Public Health, Universidad Peruana Cayetano Heredia, Lima, Peru
- **Stanley Kutcher,** Professor of Psychiatry, Dalhousie University, Halifax, NS
- **Jacques Pépin,** Associate Professor, Faculty of Medicine and Health Sciences, Université de Sherbrooke, Sherbrooke, QC
- **Harvey Skinner,** Dean, Faculty of Health, York University, Toronto, ON
- **Sylvie Stachenko,** Dean, School of Public Health, University of Alberta, Edmonton, AB

Annex 2: Canada's Investments in Global Health

CANADA'S CURRENT PUBLIC-SECTOR INVESTMENTS IN GLOBAL HEALTH

Global Development Assistance for Health is US$26.87 billion (Ravishankar *et al.*, 2009). In analyzing Canada's current investments in global health, it became clear to the Panel that there was no single, definitive source of data on which to draw. Instead, the Panel reviewed three separate, but related, sets of data from:

- the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC);
- Institute for Health Metrics and Evaluation, University of Washington; and
- G8 Working Group – University of Toronto.

The Development Co-operation Directorate (DCD) of the OECD tracks all member country spending on development assistance through the DCD-DAC. Table A1 summarizes Canadian spending on basic health, general health, and population health.

In 2009, the Institute for Health Metrics and Evaluation (IHME) at the University of Washington undertook a comprehensive study of Development Assistance for Health investments from 1990 to 2007. The IHME study drew on the OECD data as well as on a number of other independent data sources, including reviews of United Nations (UN) and World Bank financial and annual reports; project databases for regional development banks such as the African Development Bank and the Asian Development Bank; a review of the United States Agency for International Development (USAID) volunteer agency reports and tax filings; and a review of grants and

Table A1 Summary of OECD Data on Canadian Global Health Spending (US $M)
Data Source: OECD Development Co-operation Directorate, 2011

	2001	2002	2003	2004	2005	2006	2007	2008
Health, General	28.04	11.84	42.55	27.67	32.83	48.48	114.57	70.58
Basic Health	23.51	52.98	118.19	70.83	258.58	153.44	418.62	293.61
Total Health	**51.55**	**64.82**	**160.74**	**98.50**	**291.41**	**201.92**	**533.19**	**364.19**
Population Policy/ Reproductive Health			26.69	152.45	43.41	48.26	93.15	65.05
Total (incl. Population Health)			**187.43**	**250.95**	**334.82**	**250.18**	**626.34**	**429.24**

"The DAC definition of aid to health includes both 'basic health' and 'health, general'. The former covers basic health care, basic health infrastructure, basic nutrition, infectious disease control, health education and health personnel development. The latter covers health sector policy, planning and programmes, medical education, training and research, and medical (non-basic) health services. Population policies/programmes and reproductive health comprise a separate sector from 1996 onwards." (OECD DAC, 2011b)

Table A2 Summary of IHME Data on Canadian Global Health Spending (US $M)
Data Source: Ravishankar *et al.*, 2009

Country/Region	2001	2002	2003	2004	2005	2006	2007
Canada	147	243	308	380	515	438	559

contributions from U.S. foundations, including the Bill & Melinda Gates Foundation. IHME asserts that its data reflects "all significant public and private channels of development assistance for improving health outcomes and strengthening health systems in low- and middle-income countries" (Ravishankar *et al.*, 2009). Table A2 provides a summary of the IHME data for Canada.

Finally, the G8 Working Group at the University of Toronto also took an in-depth look at Canadian spending and commitments on global health in advance of the G8 summit in 2009. Its aggregate findings are as follows:

2007–08 (Actual) $634.08 million

2008–09 (Prelim) $740.15 million

Rather than develop its own definition, the G8 working group identified all relevant components of the OECD DAC table and supplemented this data with additional data on global health spending from the Canadian International Development Agency (CIDA) and the Department of Foreign Affairs and International Trade (DFAIT).

It is interesting to note that although all three of the methodologies rely heavily on the OECD DAC for their data, there is no consistency across the three analyses either for the 2007-08 year or for the historical time sequences that are included in the first two analyses. Given the precision with which the methodologies were executed, it is worrying that the outcomes range from $559 million (IHME—a number that theoretically includes private-sector investments), to $626.34 million (OECD—a number that includes population health investments but excludes the private sector), to $634.08 million (University of Toronto G8 Working Group—a number that includes investments in water, sanitation, basic social services, and food aid, all of which CIDA considers to be investments in global health).

It is also worth noting that none of these methodologies capture any provincial investments in global health, and the only source that is updated with any regularity is the OECD data.

Acronyms and Abbreviations

ARV	antiretroviral
AUCC	Association of Universities and Colleges of Canada
BiH	Bosnia-Herzegovina
CAHS	Canadian Academy of Health Sciences
CBR	community-based rehabilitation
CCGHR	Canadian Coalition for Global Health Research
CCISD	Centre de coopération internationale en santé et développement
CFI	Canada Foundation for Innovation
CIDA	Canadian International Development Agency
CIHR	Canadian Institutes of Health Research
CPHA	Canadian Public Health Association
CRI	Centre de recherche en infectiologie
CSIH	Canadian Society for International Health
CSIS	Center for Strategic and International Studies (U.S.)
CSR	corporate social responsibility
CUGH	Consortium of Universities for Global Health
DAC	Development Assistance Committee (OECD)
DALYs	disability-adjusted life years
DFAIT	Department of Foreign Affairs and International Trade
DFG	Deutsche Forschungsgemeinschaft (Germany)
DIF	Development Innovation Fund
GAVI	Global Alliance for Vaccines and Immunization
GCC	Grand Challenges Canada
GHEC	Global Health Education Consortium
GHI	Global Health Initiative
GHRI	Global Health Research Initiative
GNI	gross national income
GPHIN	Global Public Health Intelligence Network
GSK	GlaxoSmithKline
HAART	highly active antiretroviral therapy

HICs	high-income countries
IAPH	Institute of Aboriginal Peoples' Health
ICACBR	International Centre for the Advancement of Community Based Rehabilitation
ICAV	International Consortium on Anti-Virals
ICHR	Institute for Circumpolar Health Research
ICID	International Centre for Infectious Diseases
IDRC	International Development Research Centre
IHME	Institute for Health Metrics and Evaluation
INIHKD	International Network of Indigenous Health Knowledge and Development
INSPQ	Institut national de santé publique du Québec
IOM	Institute of Medicine (U.S.)
IPY	International Polar Year
IUCH	International Union for Circumpolar Health
JCB	Joint Centre for Bioethics
KSTE	knowledge synthesis, transfer, and exchange
LMICs	low- and middle-income countries
MDGs	Millennium Development Goals
MI	Micronutrient Initiative
MSF	Médecins Sans Frontières
NGOs	non-governmental organizations
NSERC	Natural Sciences and Engineering Research Council of Canada
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
PHAC	Public Health Agency of Canada
PHC	primary health care
PREVENT	Pan-Provincial Vaccine Enterprise
RBC	Royal Bank of Canada
ROI	return on investment
SMEs	small- and medium-sized enterprises
SSHRC	Social Sciences and Humanities Research Council of Canada
START	Stabilization and Reconstruction Task Force
TGH	Trauma and Global Health Program
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UPCD	University Partnerships in Cooperation and Development
USAID	United States Agency for International Development
WHO	World Health Organization
YLD	years lost due to disability
YLL	years of potential life lost