

Biennial Report 2010–2012

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Grand Challenges Canada™
Grands Défis Canada^{MC}

BOLD IDEAS FOR HUMANITY.™

Biennial Report

May 2010 to March 2012

Preamble

Grand Challenges Canada is dedicated to supporting bold ideas with big impact in global health. We are funded by the Government of Canada and we fund innovators in low- and middle-income countries and Canada. The bold ideas we support integrate science/technology, social and business innovation (we call this *Integrated Innovation*) and we focus on bringing successful innovation to scale, catalyzing sustainability and impact. We have a determined focus on results, and saving and improving lives.

On May 3, 2010, the Honourable Jim Flaherty, Minister of Finance, launched **Grand Challenges Canada** as an exciting new approach to development innovation, aimed at solving some of the world's most pressing health challenges.

Our vision is: **Bold Ideas. Big Impact. A Better World.**

Our mission is: **Saving and improving lives in low- and middle-income countries through Integrated Innovation.**

At the core of our operating philosophy is **Integrated Innovation**, which is the coordinated application of scientific/technological, social and business innovation to develop solutions to complex challenges, and to identify and overcome barriers to sustainably bringing these solutions to scale.

This Biennial Report covers the period from May 2010 to March 2012. Where noted, data on programs and grants are included to June 2012.

Table of Contents

PREAMBLE.....	II
A MESSAGE FROM THE CHAIRMAN OF THE BOARD	2
A MESSAGE FROM THE CEO	3
OUR FIRST TWO YEARS: FROM START-UP TO FULL OPERATIONS	5
HOW WE WORK	7
THE GRAND CHALLENGES APPROACH	7
INTEGRATED INNOVATION	9
The Elements of Integrated Innovation.....	9
OUR PRIORITIES AND PROGRAMS.....	12
DELIVERING ON OUR PRIMARY STRATEGIC PRIORITY	13
1. Stars in Global Health	13
2. Saving Lives at Birth.....	16
3. Saving Brains	18
4. Global Mental Health.....	19
DELIVERING ON OUR SECONDARY STRATEGIC PRIORITY	21
1. Testing new models of Private Investment, Blended Value and Pay-on-Results	21
2. Nurturing and Supporting Grand Challenges Organizations in Strategic Partner Countries.....	21
PROGRAM REACH.....	22
CORPORATE PROFILE	24
GOVERNANCE	24
OPERATIONS	24
Human Resources.....	25
FINANCIAL SUMMARY.....	26
ANNEX 1: SUMMARY OF GRANTS.....	34
ANNEX 2: BOARD OF DIRECTORS	42
ANNEX 3: SCIENTIFIC ADVISORY BOARD	44
ANNEX 4: ORGANIZATION CHART	46

<40 years

Life expectancy in parts of the developing world

~ 7 million

Children who die each year before their fifth birthday, the vast majority of whom live in poor countries

>100

Times more likely a woman in Africa is to die in childbirth than is a woman in North America

150,000 and 1.6 million

Annual maternal deaths and newborn deaths in the 72 hours around the time of birth

200 million

Children who fail to reach their development potential due to malnourishment, infection or trauma around the time of birth and lack of parental stimulation

13%

Proportion of the total global burden of disease that results from mental disorders

Less than 1%

Proportion of health budgets in low-income countries dedicated to mental health conditions

A grand challenge is a specific barrier that, if removed, would help solve an important health problem in the developing world – one that can have a global impact through widespread implementation.

A Message from the Chairman of the Board



I am very proud to be the founding Chairman of the Board of Grand Challenges Canada - an important new initiative with the potential to bring transformational change to global health and to foreign aid more broadly.

How will we do that?

First, by identifying those challenges that will have a transformative impact. To date, we have identified three strategic priorities that are outlined in this report and have launched programs in each.

Second, by funding and supporting innovators both in Canada and in the developing world. This latter element is critical because local innovators have the skills and insight to best define and solve the challenges faced by their countries.

Third, as solutions are being identified and developed, we will ensure that entrepreneurs and business leaders are involved from the outset to maximize the chances that the solutions that emerge will go to scale and be available to the people who need them most.

By bringing Integrated Innovation to bear, Grand Challenges Canada offers a fresh perspective on global health issues and will bring solutions to scale in low and middle-income countries where there is great need. More importantly, I believe that Integrated Innovation is a fresh and important approach for development more broadly and that our work in global health will catalyze more changes in the future in other sectors.

As the following report makes clear, we have accomplished much in our first two years of operation but we are only a short way along the path to saving and improving lives in these low- and middle-income countries. I am confident that the team we have assembled has the skills, experience and commitment to realize that goal.

My deep thanks to the Board of Directors and Scientific Advisory Board for their guidance and support. In particular, I would like to recognize Drs. David Malone and Alain Beaudet for their outstanding support and their thoughtful contributions. Thanks also to Peter Singer, Abdallah Daar and Andrew Taylor for their outstanding leadership. And to our highly-skilled staff, I offer both my thanks and admiration for their commitment to this exciting new enterprise.



Joseph L. Rotman OC, LL.D.
Chairman

A Message from the CEO



It's always exciting to be present at beginnings. And it's especially exciting to witness the beginning of an innovative new approach to global health innovation like Grand Challenges Canada. In fact, ours is the first country in the world to adopt a grand challenges approach in its foreign aid; other nations, such as the United States, Brazil and many others, are now looking at following Canada's lead.

Since its creation in May 2010, Grand Challenges Canada has hit the ground running – identifying three strategic priorities and launching a range of programs and activities to address them.

This report is intended to capture two things for interested readers.

First, the work we have undertaken to date in bringing Grand Challenges Canada into being – including the exciting priorities and programs we've established and all the hard work of creating a nimble, responsive organization that also embraces best practices for operations, risk management, peer review and oversight. Second, we also attempt to offer readers a sense of the impact and results that Grand Challenges Canada is focused on achieving in the future in each of our priority areas and on all major program platforms.

I want to recognize, in particular, Grand Challenges Canada. They have really pioneered the idea of integrated innovation - they have... pushed all of our thinking in this particular area.

Of course, the hard work of creating a new organization can never succeed without the support and friendship of outstanding partners. Over the past two years, it has been our privilege to work with a range of exceptional organizations, including the Bill & Melinda Gates Foundation, the Government of Norway, the UK's Department for International Development (DFID) and the United States Agency for International Development (USAID). We are particularly indebted to our consortium partners, the International Development Research Centre (IDRC) and the Canadian Institutes of Health Research (CIHR), and their respective presidents Dr. David Malone and Dr. Alain Beaudet, for their tireless efforts and support.

- **Melinda Gates, co-chair and trustee of the Bill & Melinda Gates Foundation, at the launch of Saving Lives at Birth**

As we continue to build Grand Challenges Canada into an even greater success, we are motivated constantly by the promise of making a difference that reaches far and lasts long. "Bold ideas with big impact" is not just a slogan. It's a mindset, a culture. It's an unyielding sense of optimism that innovative approaches developed by creative minds

not only can work, they will work. Having now launched this enterprise into the field we feel immensely privileged to work on its next stage of development.

My thanks to our Chair, Joseph L. Rotman, and our Board for their pioneering spirit and wise counsel, and to our Scientific Advisory Board, chaired by Abdallah Daar, for its dedication to excellence. We would also like to thank the Honourable Jim Flaherty, Minister of Finance, for his vision and foresight in creating the Development Innovation Fund and his support for our ongoing efforts to deliver this important Canadian initiative.

Finally, to our management and staff, my thanks for the professionalism of their work and the depth of their commitment. It is their achievements that are reflected in the following pages.



Peter A. Singer OC, MD, MPH, FRSC
Chief Executive Officer

Our First Two Years: From Start-up to Full Operations

In its first two years of operations, Grand Challenges Canada has achieved the following results and milestones:

<p style="text-align: center;">START-UP PHASE</p> <p>Key governance structures implemented</p> <ul style="list-style-type: none"> • Board of Directors recruited and 17 Board meetings held • Scientific Advisory Board recruited and 8 meetings held <p>Accountability policies and approaches developed and implemented</p> <ul style="list-style-type: none"> • Summarized in Corporate Accountability Binder • Three successful financial audits completed <p>Key members of the team have been recruited</p> <ul style="list-style-type: none"> • Close to a full complement with 18 full-time equivalent staff members, including technical, financial, communications and administrative personnel <p>Core program areas articulated</p> <ul style="list-style-type: none"> • All current Grand Challenges (programs) identified, vetted by the Science Advisory Board, approved by the Board of Directors and launched
<p style="text-align: center;">PROGRAM DELIVERY PHASE</p> <p>Total Awards Made</p> <ul style="list-style-type: none"> • 164 grants • 1 non-grant investment <p>Awards by Program</p> <ul style="list-style-type: none"> • Stars in Global Health: Awarded over 100 proof-of-concept grants, each at \$100,000 CAD, and 5 Grand Challenges Explorations grants (in partnership with the Bill & Melinda Gates Foundation) <ul style="list-style-type: none"> ◦ <i>Point-of-Care Diagnostics:</i> 11 grants (now part of the Stars in Global Health program) • Saving Lives at Birth: 11 grants¹ • Saving Brains: 13 grants • Global Mental Health: 15 grants² <ul style="list-style-type: none"> ◦ <i>Hypertension:</i> 6 grants • Three platform grants to develop common outcome metrics (Saving Brains, Global Mental Health and Scaling) • Testing new models of financial innovation: \$10M non-grant investment <p>Research Support Activities</p>

¹ Nine of these 11 grants have been funded by Grand Challenges Canada, and the additional two grants are being managed by Grand Challenges Canada with funds from the U.K. Department for International Development

² Please note that due to the timing of the announcement of these grants they are not included in the list of grants in Annex I. The individual grants will be listed as part of the 2012-2013 Annual Report.

- Conducted four Proposal Development/Outcome Metrics Workshops
- Partnered on two Grand Challenges annual meetings

Global Access Commitments and/or Agreements Implemented

- Global Access Commitments and/or Agreements (to ensure that innovations go to scale in low- and middle-income countries) have been implemented with all grantees

Innovations Supported (Examples)

- Simple mobile phone application helps detect high blood pressure in pregnancy, a leading cause of maternal and newborn death
- Cheap digital x-ray machine brings TB screening to the developing world
- New integrated way of tackling TB and HIV in poor countries
- Simple, inexpensive device makes DNA testing accessible to the developing world
- Innovative approach expands access to healthcare during pregnancy and birth

Partnerships Formed (Examples)

- Bill & Melinda Gates Foundation
- UK's Department for International Development (DFID)
- U.S. Agency for International Development (USAID)
- Government of Norway
- Government of Israel
- Norlien Foundation

Funding Leveraged (\$72M) through these partnerships

- \$2.5M Stars in Global Health
- \$22M Point-of-Care Diagnostics
- \$13M Women's and Children's Health: Saving Lives at Birth
- \$4.3M Hypertension
- \$30M Scaling Impact

Partner Funds under Management

- \$0.8M International Development Research Centre
- Up to \$10M UK's Department for International Development (DFID)

Public Engaged

- Public announcements in local, regional, national and international papers (50 media stories in last six months)
- Growing social media presence on Twitter, Facebook, YouTube

Metrics Defined

- Results-based Management Accountability Framework has been developed and implemented
- Outcome metrics under development in key program areas, in partnership with leading global researchers.

How We Work

Over our first two years of operations, two core elements of Grand Challenges Canada and its unique approach to development innovation in global health have emerged:

1. The Grand Challenges Approach
2. Integrated Innovation

THE GRAND CHALLENGES APPROACH

Grand Challenges Canada employs a distinct methodology for program delivery that differentiates us from other development institutions and agencies – the “**Grand Challenges Approach**”³. This approach was first developed over a century ago to solve mathematical challenges of the day. More recently, the Bill & Melinda Gates Foundation and Grand Challenges Canada have used this approach to:

1. **Mobilize, select and engage innovators** to address global health challenges through the competitive selection and funding of high-quality projects, validation of proof-of-concept innovations and solutions and, at the program level, support for building a community of innovators through, for example, hosting meetings for those communities and enabling knowledge transfer among them.
2. **Forge Partnerships** to leverage resources and expertise, maximize impact, and brand Canada as a leader in global health innovation.
3. **Scale impact and measure results** by developing clear program metrics to consistently measure impact across projects that are catalyzing the most impactful innovations to sustainably go to scale where they are needed the most.
4. **Build a focused platform and capacity to execute** to support the activities listed above, identify new challenges and enable other regions, countries and institutions to develop and implement their own Grand Challenges programs.

The Grand Challenges Approach is guided by five core principles:

1. **Focus** – Strategic and well-articulated grand challenges serve to focus research efforts, and to capture the imagination and engage the world’s best researchers.
2. **Best Ideas** – Projects are selected based on public, transparent calls for proposals seeking the best ideas.

³ There are several different working definitions of “grand challenge”, all of which focus on a similar core element, identifying a specific “critical barrier” that, if overcome, would have significant impact. In the context of global health, the following definition has been developed: *A grand challenge is one or more specific critical barrier(s) that, if removed, would help solve an important health problem in the developing world, with a high likelihood of global impact through widespread implementation.*

3. **Collaboration** – Funders, investigators and other stakeholders actively collaborate to accelerate process and integrate advances to ensure these advances serve those most in need.
4. **Impact** – Projects are selected not only for scientific excellence, but also for their likelihood to achieve the desired impact, and they are milestone-driven and actively managed to that end.
5. **Global Access** – Projects and investigators make global access commitments to ensure the fruits of their research are available to those most in need.

This last point is particularly important as it ensures that innovations that are developed are deployed where there is great need. Grand Challenges Canada's *Global Access Strategy* is described below.

GRAND CHALLENGES CANADA'S GLOBAL ACCESS STRATEGY

The Global Access Strategy encourages commercialization by the grantees of products or services resulting from the generation of intellectual property in a manner that ensures widespread and affordable access in the developing world. Grand Challenges Canada's Global Access Strategy is grounded in three principles:

1. Breakthrough solutions to global challenges are made accessible to those in need, particularly in the developing world. Accessibility relates to both price and availability.
2. Knowledge gained through discovery is broadly, and as promptly as possible, distributed between related projects and to the global scientific community.
3. Commercialization of resulting outputs is encouraged, as long as the first two principles are achieved.

Many of Grand Challenges Canada's grantees enter into a non-exclusive license agreement providing access to Grand Challenges Canada to any intellectual property developed by the grantees from their grant for use in the developing world. This approach ensures that the objectives of global access will be met.

When international laws create barriers to global access, Grand Challenges Canada works with its legal team to find solutions.

Grand Challenges Canada is leading, along with the Bill & Melinda Gates Foundation, efforts to engage emerging market countries (such as Brazil, India and China, along with other high income countries like Israel) to implement a grand challenges approach to global health in their foreign aid programs. These efforts are beginning to bear fruit: in March 2012, the Bill & Melinda Gates Foundation and Brazil announced the creation of Grand Challenges Brazil.

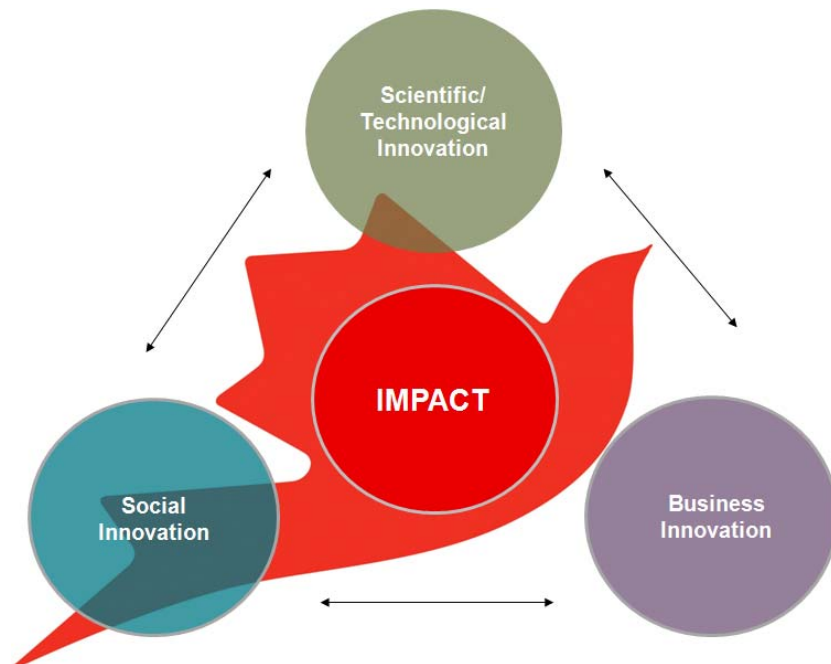
INTEGRATED INNOVATION

A second core element of Grand Challenges Canada is a focus on **Integrated Innovation** to support taking specific innovations to scale and long term sustainability of implementation. Integrated Innovation is the coordinated application of three elements to develop solutions to complex challenges, namely scientific/technological, social and business innovation.

Integrated Innovation recognizes that scientific/technological innovations have a greater chance of going to scale and achieving global impact and sustainability if they are developed from the outset with appropriate social and business innovations. It does not discount the singular benefits of each of these types of innovation alone, but rather highlights the powerful synergies that can be realized by aligning all three.

This idea is at the heart of both Grand Challenges Canada's operating philosophy and the implementation of our programs, and it has been described as our 'DNA'.

The Elements of Integrated Innovation



The three elements of *Integrated Innovation* are:

1. **Scientific/Technological Innovation** – The process of developing new and/or modifying existing products, services, practices or processes. Such innovations can be simple in nature (i.e., they do not have to embody high-tech approaches or processes). Examples would include the development of new point-of-care diagnostics or new and/or modified health services.
2. **Social Innovation** – Ways to bring innovation to scale in specific local and/or regional contexts. Social innovation should consider/address the key components of society that will be necessary to bring the solution to scale in local communities to influence health outcomes. Factors that could impact on social innovation would include health systems, the determinants of health, ethical/social/cultural/legal frameworks, public policies and human resources, among others. Examples would include social practices that influence how health care is sought out and how it is delivered.
3. **Business Innovation** – The development, distribution and delivery of appropriate, high-quality goods and services affordably and sustainably where and when there is great need. A strong focus is placed on defining value proposition/incentives that brings the right players to the table (e.g., payer, policy-makers, industry, etc.) Examples would include novel business/operational models for increased accessibility and financial sustainability, and/or the development of a business case for market where there is presently not a clear value proposition.

The concept of Integrated Innovation serves two critical functions for Grand Challenges Canada:

1. It ensures that grantees consider and prepare to go to scale from the outset of their work. Many innovation programs and initiatives only begin to focus on the issue of how to go to scale once a product or innovation has already been developed. Program Officers work with grantees to ensure that they think and plan, not only for the scientific and technological aspects of their projects, but also for the social and business innovation elements that will be necessary to go to scale.
2. It also provides a coherent and consistent framework through which to put a continual focus on scaling at the outset and over the life of projects. Integrated Innovation is not just a concept that potential grantees must speak to in their proposals, it is an ongoing part of their project milestones and a touchstone for all of their interactions with their Program Officers and colleagues.

Integrated Innovation also plays a central role in the types of grand challenge themes we identify, as well as the specific grand challenges that are chosen within those themes. This, in turn, shapes the requests for proposals that are issued, setting the parameters for the types of project proposals that are received and plays out across our milestone-based approach to project management. Unlike a traditional granting institution, our Program Officers (who are highly trained scientists in their own right) work with funding recipients over the course of the project, both to ensure that they are meeting their

commitments through a set of clear milestones, and to support and connect project proponents with other leading thinkers in their field in both the developed and developing worlds.

From these two core elements, over the past 2+ years Grand Challenges Canada has built a strong platform to support bold ideas with big impact. This platform is supported by a proven system of governance and accountability as outlined in the following chapter.

Our Priorities and Programs

Grand Challenges Canada is driven by three strategic priorities.

Our primary strategic priority is **enabling innovators to solve critical health challenges in low- and middle-income countries**, including:

- **Innovator-Defined Challenges:** a broad range of global health challenges that are identified by the innovators who apply to the *Stars in Global Health* program
- **Targeted Grand Challenges:** three global health challenges that were identified, validated and approved by the Grand Challenges Canada Board of Directors:
 - **Women's and children's survival**, which is addressed through the *Saving Lives at Birth* program
 - **Child development**, which is addressed through the *Saving Brains* program
 - **Global mental health**, which is addressed through the *Global Mental Health* program.

Our secondary strategic priority is to leverage **the Grand Challenges Canada platform to engage strategic partners** in two ways:

- **Testing new models of private investment, blended value and pay-on-results** to mobilize private capital in support of global health innovation. For example, Grand Challenges Canada is currently working with key stakeholders to launch a *Global Health Investment Fund*.
- **Nurturing, supporting and partnering with Grand Challenges organizations in strategic partner countries.** For example, Grand Challenges Canada is currently working with key stakeholders in Israel to design and implement **Grand Challenges Israel**.

Our tertiary strategic priority is to **leverage the Grand Challenges Canada platform to help advance the Government of Canada's priorities**, such as:

- **Mobilizing private investment, blended value and pay-on-results strategies** by leveraging the pilot activities outlined under our secondary strategic priority.
- **Sparking affordable health innovation** by utilizing innovations in the Grand Challenges Canada pipeline that, while designed for global health conditions, could have important applications to improve care or reduce health costs in Canada and in other high-income nations.

During its first two years of operations, Grand Challenges Canada has also made investments in **Point-of-Care Diagnostics**, in partnership with the Bill & Melinda Gates Foundation. This successful program will be integrated as a distinct element of the *Stars in Global Health* program going forward. Grand Challenges Canada has also invested in Canada's contribution to addressing the Global Alliance on Chronic Diseases' initiative on hypertension.

DELIVERING ON OUR PRIMARY STRATEGIC PRIORITY

1. Stars in Global Health

Ultimate Outcome: *Save and Improve lives in low- and middle-income countries*

The *Stars in Global Health* program – which is the ‘venture capital’-like component of our program – funds a large number of small grants for innovators in Canada and low- and middle-income countries. It then invests to help the most successful innovations go to scale to maximize their impact.

In the *Stars in Global Health* program, innovators submit a short written proposal, along with a two-minute video that explains the challenge to be addressed, the idea and its potential for transformative impact. The innovative peer review process includes reviewers with knowledge and experience in scientific/technological, social and business innovation, reflecting our strong focus on Integrated Innovation.

The *Stars in Global Health* program has three phases:

- Phase I focuses on identifying bold ideas with the potential for big impact and supporting innovators to take these ideas to the proof-of-concept stage, while applying an Integrated Innovation approach.
- Phase II focuses on the further development of a grantee’s proven Phase I innovation by validating the innovation through user response and engagement with potential stakeholders and/or investors. Innovations with commercial potential will move through a private channel to achieve a blended social and economic benefit, while innovations without commercial potential will move through a public channel to achieve primarily social benefits. Grand Challenges Canada’s focus, through a scaling platform approach, is on helping successful innovations overcome barriers along their path to scale.
- Phase III focuses on developing the infrastructure to support the growth of the commercial offering, prototype or pilot program. In the private channel, this phase has similarities to a private equity approach, while in the public channel it is similar to a health systems financing approach.

By the end of the third phase, the innovations are intended to be sustainable without further input or support from Grand Challenges Canada. This program supports a wide range of grants from drug discovery through health services. It also funds a broad range of institutions, including for-profit companies, not-for-profit organizations and academic institutions.

Grand Challenges Canada has awarded over 100 proof-of-concept grants to date, each at \$100,000 CAD⁴.

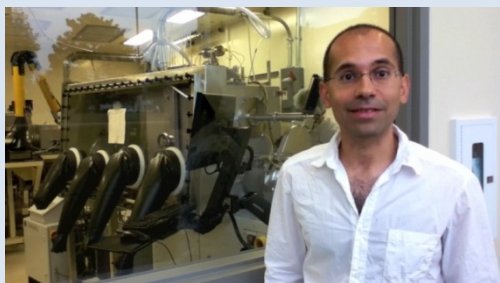
⁴ Does not include overhead. Also note that grants from Indonesia in the first round of the competition were funded at 50%.

An additional source for innovations under our *Stars* program is the Grand Challenge Explorations Phase II awards of up to \$1M, where Grand Challenges Canada and the Bill & Melinda Gates Foundation co-fund principal investigators from low- and middle-income countries. This partnership not only offers leverage, but also a highly selective pipeline of innovations that has previously been de-risked by an earlier proof-of-concept investment by the Bill & Melinda Gates Foundation. As of September 2012, Grand Challenges Canada has made five such awards.

Cheap digital X-ray machine brings TB screening to the developing world

Tuberculosis (TB) *affects a large part of the world and is highly contagious*; it must be detected so it can be treated and to prevent it from spreading. Traditional methods of detecting TB make use of complicated analog film x-rays that take too long to use, are too inaccurate and are too expensive for many low- and middle-income countries. **Dr. Karim Karim**, an electrical engineer at the University of Waterloo and funded by Grand Challenges Canada's *Stars* Program, is building a fast, accurate and cheap digital x-ray to overcome these challenges.

This *inexpensive technology can be transformative* because it enables the production of inexpensive, mobile machines for use in TB clinics located in rural and remote locations, not just in a few city-based hospitals as is currently the case. By opening up access to TB screening for millions of patients at risk in poor countries, this innovation will transform how we address the massive TB problem around the world.



Stars in Global Health grantee
Dr. Karim Karim

Grand Challenges Canada's first grants were made in the area of Point-of-Care Diagnostics, in conjunction with the Bill & Melinda Gates Foundation. Going forward, these projects will be part of the *Stars in Global Health* program but will be monitored separately and linked to the larger point-of-care diagnostics community of innovators that includes grantees from the Bill & Melinda Gates Foundation.

Future Plans

Competitions in this program will be launched every six months, with approximately 50 awards per cycle (i.e., 100 per year). We estimate 15 awards from Canada and 35 from low- and middle-income countries, subject to demand and quality of proposals. By 2020, more than 1,000 innovations will have been supported through this program, including 800 at proof-of-concept with 200 (or about 20%) of these transitioning to scale. We will implement a scaling platform to help innovators present their ideas to investors (public and private) at Phase II and link innovators to investors.

Point-of-Care Diagnostics

This program seeks to create a new class of point-of-care diagnostics that captures a number of key benefits, including ease-of-use, low cost and multiplexed capacity to assess disease stage and provide information on prognosis.

New integrated way of tackling TB and HIV in poor countries

HIV and tuberculosis (TB) co-infections *kill 500,000 people each year* but can be effectively treated if the infections are identified early. **Wendy Stevens** and **Lesley Scott** from South Africa are developing a model for testing, diagnosing and treating HIV and TB infections in an integrated way. This model is a new approach to implementing cutting-edge computer technology that allows for testing of multiple infections and takes place where the patient is located, rather than at a central laboratory that could be very far away.

This point-of-care approach has the potential to be *transformative* by providing faster and more cost-effective diagnosis, greatly enhancing the prospects for early and successful treatment. It could, along with other similar programs, also provide valuable information for government policymakers about how best to tackle HIV and TB, in order to save lives.



Dr. Wendy Stevens is developing an innovative model for testing, diagnosing and treating HIV and TB infections

Working with the Bill & Melinda Gates Foundation, Grand Challenges Canada undertook a Request for Proposals process that identified 10 grantees in low- and middle-income countries. These grantees have been integrated into a single community of innovators with high-income country grantees funded through the Bill & Melinda Gates Foundation. The announcement of the successful grantees occurred on December 13, 2011. Grand Challenges Canada has also funded a direct grant to look at the regulatory approval process for diagnostics.

Future Plans

This initiative sets out a two-phased approach to develop a single integrated point-of-care diagnostics platform. In years one to three, the focus will be on the development of innovative point-of-care diagnostic components in sample collection, concentration, and preparation; amplification and detection technologies; readout and signal transduction; and enabling technologies. In years four and five, integrators will assemble best-in-class components into one or more flexible but standard platform architectures that support a menu of tests of different types from different manufacturers.

2. Saving Lives at Birth

Ultimate Outcome: *Save and improve women and children's lives at birth in low- and middle-income countries*

Infant mortality is arguably the most needless loss of life in low- and middle-income countries. Around the time of birth, death rates for women and their newborns are astonishingly high compared to those in developed countries. For this reason, a great deal of the energy and expertise at Grand Challenges Canada is dedicated toward unleashing actions to transform the health of women and children in low- and middle-income countries.

Saving Lives at Birth, a partnership among Grand Challenges Canada, USAID, the Bill & Melinda Gates Foundation, the Government of Norway and the UK's Department for International Development, seeks to accelerate substantial and sustainable progress in maternal and newborn health where it is most needed. The program places special emphasis on targeted solutions aimed at improving outcomes at the time of birth, when women and their newborns are at their most vulnerable.

The first two rounds of this program each received over 600 applications from across the globe – including from non-profit organizations, faith-based organizations, universities and private enterprises – spanning a wide range of solutions. To date, the partners together have funded 34 projects.

Future Plans

As a founding member of this partnership, Grand Challenges Canada will continue to fund successful applicants in low- and middle-income countries in subsequent annual rounds of the competition, and will work with the initiative's partners to develop and implement strategies to help successful projects overcome barriers to going to scale. The ultimate impact of this program is that fewer women and children will die from largely preventable causes around the time of birth.

Innovative approach expands access to better health care during pregnancy and birth

For many women in the developing world, financial barriers and lack of awareness make them *unable to access quality health care* around the time of birth. **Changamka**, a health care insurance provider in Africa, has developed a unique approach to increase women's awareness of healthcare services, and to help cover the costs of using them during pregnancy and birth. The system provides vouchers delivered by mobile phones that women can exchange for healthcare services or for transportation to hospital.

The Changamka approach could have a significant impact in Kenya and beyond because it harnesses existing mobile phone use and innovatively combines the use of public and private funds, while at the same time empowering women and their families to access quality care during pregnancy and birth.



*A voucher provided by
Changamka*

Simple mobile phone application identifies dangerous high blood pressure in pregnancy

Dr. Mark Ansermino from the British Columbia Children's Hospital, along with his colleagues in southern Africa, have developed a *simple mobile phone application* with a device that measures oxygen levels in the blood (called an oximeter). This phone application records the oxygen measurement, determines whether the woman is at risk of developing complications from dangerous high blood pressure, and tells the health worker how to treat the woman and whether she needs to be referred to a local hospital. Where there is a cellular connection, the phone oximeter application can also connect this information directly to the hospital to facilitate treatment.

The phone oximeter application could be transformative because it provides life-saving information fast, is low cost, portable, accessible (nearly half of Africa's population has a mobile phone), and it doesn't require advanced clinical skills, so health workers can use it in rural and remote areas where many women live but don't have easy access to doctors and hospitals. When implemented, this mobile phone application could help to prevent some of the 50,000 annual maternal deaths worldwide from hypertension.



***Dr. Mark Ansermino's** phone
oximeter application*

3. Saving Brains

Ultimate Outcome: *Improve human capital by eliminating threats to children's brain development in their first 1,000 days*

The *Saving Brains* program focuses on effective solutions to nurture brain development, promoting early childhood development and long-term human capital formation in the face of poverty. There are currently two programs under this initiative: *Determine the economic impact of poverty-related risk factors for cognitive development and human capital* and *Identify early life interventions that promote the fulfillment of human capital*.

Requests for proposals have been finalized and competitions conducted in both of the program areas. In fall 2012, Grand Challenges Canada will announce 13 projects related to determining economic impact and identifying early-life interventions that promote fulfillment of human capital.

**Grand Challenges Canada
is honoured to have
Mrs. Laureen Harper as the
Honourary Chair of the
Saving Brains program.**

Future Plans

Going forward, Grand Challenges Canada will lead annual competitions to scale effective solutions that promote brain development. We also plan to support a platform that will develop core metrics and theories of change, and will provide leadership training to enhance the ability to evaluate progress and impact from investments in saving brains. We are exploring partnerships on this topic with key Canadian and international organizations, including the Alberta-based Norlien Foundation. The ultimate impact of this program will be to enable effective new early childhood programs to reach children in low- and middle-income countries, in order to set the next generation on a trajectory for healthy and productive lives. Finally, a third program, focused on delivering effective solutions to promote brain development, is currently in development.

4. Global Mental Health

Ultimate Outcome: *Improve the lives of those affected by mental health conditions in low- and middle-income countries*

The *Global Mental Health* program focuses on innovative solutions for improving treatments and expanding access to mental health care in low- and middle-income countries. The ultimate impact of this program will be to ensure that effective health service delivery models for improved awareness, identification, management, treatment and care of mental health disorders are more broadly available to those who need them.

In July 2011, Grand Challenges Canada dedicated \$20M in funding for bold solutions that take an Integrated Innovation approach, have the potential for significant impact and demonstrate a path to scale. This represents the single largest investment in global mental health innovation in low- and middle-income countries – positioning Canada as a global leader in the area – and enables enormous social and economic impacts.

Grand Challenges Canada's investment is the largest single investment ever in global mental health innovation

We received 97 submissions from the global community to this call for proposals. Through a competitive process, 32 finalists were invited to attend a Proposal Development Workshop. On October 10, 2012, Grand Challenges Canada announced \$19.4M in support of 15 proposals with the most promising innovations that focus on enhanced access, improved treatment and addressing stigma in low- and middle-income countries.

Future Plans

Current plans include annual Request for Proposals in global mental health. We also plan to support a platform to develop core outcome metrics and theories of change, and to provide leadership training to ultimately create and enhance a learning community with the ability to evaluate progress and impact in global mental health. We are working in close cooperation with the U.S. National Institutes of Mental Health to explore further partnerships.

Buyiswa's story: Global Mental Health

As difficult as it can be to overcome global health challenges that are well understood and recognized, those that for cultural or other reasons are overlooked can be even more daunting to overcome. The impact of mental health challenges in countries such as Canada, where treatments are comparatively accessible and affordable, can be devastating both for individuals and for their families. In the developing world, however, these conditions are often overlooked and untreated, compounding their already profound impact.

An example of this can be seen in the story of Buyiswa, a mother in Khayelitsha, South Africa, who suffers from depression and bipolar disorder and who is the subject of a short documentary by filmmaker Delaney Ruston. Even in a comparatively rich country like South Africa, it can be difficult for women like Buyiswa to get access to professional mental healthcare. Instead, they often rely on herbal medications from traditional healers or remain untreated.

Because Buyiswa was able to access the medical care and medication she needed, there has been a measurable improvement in her quality of life and her children's lives. Unfortunately, this outcome is all too rare. Globally, mental health is among the most neglected of the neglected diseases. Mental health truly is a global epidemic, which is responsible for an estimated 13% of the entire global burden of disease, and the need is particularly evident in the developing world.



Screen-capture of **Buyiswa** taken from the video "Go Away Evil"
Available for viewing at: <http://www.grandchallenges.ca/news/videos/>

Hypertension

High blood pressure, also called hypertension, is a key reversible risk factor for stroke, one of the main non-communicable diseases. Nearly 80% of non-communicable disease deaths worldwide, equivalent to 29 million people, occur in low- and middle-income countries. Canada, led by the Canadian Institutes of Health Research with support from the International Development Research Centre, Canadian Stroke Network and Grand Challenges Canada, will invest over \$5M in innovative models of hypertension service delivery in low- and middle-income countries. All of this will occur as part of the broader \$25M initiative on hypertension implementation research of the Global Alliance for Chronic Diseases.

Future Plans

As part of Grand Challenges Canada's contribution to this program, we will be announcing six grants in the fall of 2012.

DELIVERING ON OUR SECONDARY STRATEGIC PRIORITY

Our secondary strategic priority is to leverage **the Grand Challenges Canada platform to engage strategic partners.**

1. Testing new models of Private Investment, Blended Value and Pay-on-Results

Mobilizing private capital to help overcome global health challenges is of vital importance and a core priority of Grand Challenges Canada. Our approach to scaling impact uses public funds to de-risk private investments, progressively decreasing the proportion of public funding as innovations move along their development pathway to market. In our current funding envelope, we are conducting pilots that include mobilizing private capital and pay-on-results strategies.

2. Nurturing and Supporting Grand Challenges Organizations in Strategic Partner Countries

Grand Challenges Canada is committed to nurturing sister organizations in other strategic partner countries. Grand Challenges Canada is working with the Bill & Melinda Gates Foundation to develop and implement Grand Challenges Brazil, India and China. Grand Challenges Canada is also working closely with Israel in an effort to help launch **Grand Challenges Israel**. This initiative further extends Canada's influence worldwide in the field of health innovation, replicating our exciting model and underscoring the shared commitment to leadership in this field by both Prime Ministers Harper and Netanyahu.

Grand Challenges Israel

As part of its activities to **brand Canada as a leader in global health innovation**, Grand Challenges Canada is working to help develop and implement **Grand Challenges Israel**, in partnership with the Government of Israel.

In this respect, Grand Challenges Canada is providing Israel with support in their work developing and operating a Grand Challenges Israel program, as well as supporting bilateral Canadian-Israeli collaboration on research and development on international development challenges in fields related to global health – broadly defined to also include agricultural and water innovations with health outcomes. There is also the opportunity for Canada to benefit from the know-how of Israel on financial innovation.

PROGRAM REACH

As part of its results orientation, Grand Challenges Canada focuses on engaging and mobilizing innovators and entrepreneurs in low- and middle-income countries. Their deep knowledge and understanding of the opportunities and barriers specific to individual countries and communities unlocks impressive potential. Through this engagement, Grand Challenges Canada connects these innovators with a broader global community of innovators and entrepreneurs who can both help them to develop their bold ideas and to think through the necessary social and business innovations to sustainably bring their ideas to scale.

Almost 80% of Grand Challenges Canada's funding goes to innovators in low- and middle-income countries

Almost 80% of Grand Challenges Canada's funding goes to innovators in low- and middle-income countries, with the remainder going to Canadian innovators with bold ideas that can have a transformative impact in these countries.

The reach of Grand Challenges Canada's programs is demonstrated graphically below. The exact number and diversity of applications, as of June 2012, is as follows:

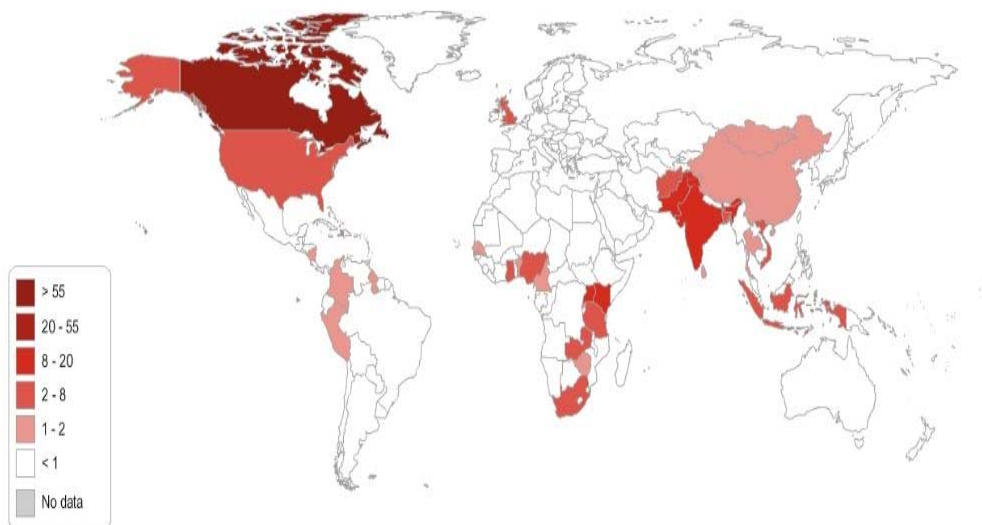
Summary of Program Reach

Program	Letters of Intent Received	Applicants	Grants Approved for Funding
<i>Stars in Global Health</i>	n/a	399	102
<i>GCE Stars in Global Health</i>	n/a	n/a	5
<i>Point-of-Care Diagnostics</i>	205	24	11
<i>Saving Lives at Birth</i>	1100+	142	11
<i>Saving Brains</i>	51	24	11
<i>Saving Brains Economics</i>	n/a	4	2
<i>Global Mental Health</i>	97	32	15
<i>Hypertension</i>	n/a	n/a	6
<i>Innovations to Scale</i>	n/a	n/a	n/a
TOTAL	1469+	625	163 (to date)

Location of Operations

Grand Challenges Canada operates programs in Canada, and in developing and emerging markets.

Location of Current Grand Challenges Canada Grantees



Corporate Profile

Grand Challenges Canada is a federally incorporated, not-for-profit organization. It receives funds from the Canadian government as part of a funding agreement with the International Development Research Centre. These funds, in turn, are provided through the Development Innovation Fund announced in the Federal Budget 2008.

GOVERNANCE

Grand Challenges Canada has a strong and highly engaged volunteer Board of Directors, chaired by Mr. Joseph L. Rotman. The Board and its Chair make a significant contribution to both the strategic and operational success of Grand Challenges Canada.

For a complete list of members of the Board of Directors, see **Annex 2**.

Advice and guidance are also provided by the Scientific Advisory Board, which consists of a group of esteemed scientists, public health experts and business professionals from across the globe. The purpose of the Scientific Advisory Board has been to:

- Identify and endorse the selection of Grand Challenges
- Provide scientific oversight and leadership.

For a complete list of members of the Scientific Advisory Board, see **Annex 3**.

Important governance and accountability milestones in our first two years of operations include:

- Signed memorandum of understanding with consortium partners (the International Development Research Centre and the Canadian Institutes of Health Research)
- Developed and approved a *Learning, Monitoring and Evaluation Framework*
- Developed and implemented best-in-class accountability policies and approaches, including a results-based management accountability framework.

OPERATIONS

During the first two years of operations, Grand Challenges Canada has been in start-up phase with a strong focus on strategy development. In addition to the work of establishing the physical infrastructure of Grand Challenges Canada, which is hosted at the Sandra Rotman Centre, we have focused on these core areas of operations:

1. Human Resources
2. Communications
3. Risk Management
4. Grant Management.

Important milestones in our first two years of operations are summarized in the following table:

Components	Details
Develop Governance Plan <ul style="list-style-type: none"> Board of Directors nominated Scientific Advisory Board recruited 	Completed
Develop Management Plan <ul style="list-style-type: none"> Executive and staff recruited 	Completed
Develop Strategic Plan <ul style="list-style-type: none"> Strong focus on strategy development 	Completed
Establish Financial System	Completed
Establish Grant Management System	Completed
Establish Evaluation and Accountability Frameworks <ul style="list-style-type: none"> Develop and implement reporting plans 	Completed
Develop Partnership Plan <ul style="list-style-type: none"> Identify and engage partners for program 	Completed
Establish IT System	Completed
Secure office space <ul style="list-style-type: none"> Through host organization (the Sandra Rotman Centre) and through the University Health Network 	Completed
Human Resources Management System <ul style="list-style-type: none"> Through host organization (Sandra Rotman Centre and University Health Network) 	Completed

Human Resources

Over its first two years of operations, Grand Challenges Canada has placed a strong emphasis on establishing the appropriate corporate culture through a hiring process that focuses on finding individuals who fit both in terms of capability and attitude. We believe the extra effort taken to ensure that the right people were hired will pay long-term dividends to our organization. A complete organization chart can be found in **Annex 4**.

FINANCIAL SUMMARY

The following are the Financial Statements for Grand Challenges Canada for fiscal year 2011–2012, with comparative figures for fiscal year 2010–2011:

GRAND CHALLENGES CANADA

Statement of Financial Position

March 31, 2012, with comparative figures for 2011

	2012	2011
Assets		
Current assets:		
Cash	\$ 14,477,224	\$ 8,813,168
Accounts receivable	51,603	5,616
Prepaid expenses and deposits	25,733	127,042
	<u>14,554,560</u>	<u>8,945,826</u>
Capital assets (note 2)	145,944	75,382
	<u>\$ 14,700,504</u>	<u>\$ 9,021,208</u>
Liabilities and Net Assets		
Current liabilities:		
Due to University Health Network (note 3)	\$ 172,918	\$ 1,014,473
Accounts payable and accrued liabilities	447,185	116,822
Deferred grant revenue	14,080,401	7,889,913
	<u>14,700,504</u>	<u>9,021,208</u>
Net assets	—	—
Commitments (notes 6 and 7)		
	<u>\$ 14,700,504</u>	<u>\$ 9,021,208</u>

See accompanying notes to financial statements.

On behalf of the Board:

 Director

 Director

GRAND CHALLENGES CANADA

Statement of Operations and Net Assets

Year ended March 31, 2012, with comparative figures for 2011

	2012	2011
Revenue:		
Grant (note 4)	\$ 13,812,263	\$ 2,391,419
Interest	45,907	—
	<u>13,858,170</u>	<u>2,391,419</u>
Expenses:		
General administration:		
Personnel	1,199,351	848,063
Materials and supplies	92,320	154,327
Equipment and infrastructure	147,523	124,113
Business development	317,941	440,077
	<u>1,757,135</u>	<u>1,566,580</u>
Program support:		
Personnel	974,609	237,129
Materials and supplies	31,636	19,760
Equipment and infrastructure	134,086	17,669
Business development	1,017,986	106,024
	<u>2,158,317</u>	<u>380,582</u>
Research program:		
Issued grants	9,229,960	250,775
Research support activities	712,758	193,482
	<u>9,942,718</u>	<u>444,257</u>
	<u>13,858,170</u>	<u>2,391,419</u>
Net assets, beginning of year	—	—
Net assets, end of year	<u>\$ —</u>	<u>\$ —</u>

See accompanying notes to financial statements.

GRAND CHALLENGES CANADA

Statement of Cash Flows

Year ended March 31, 2012, with comparative figures for 2011

	2012	2011
Cash provided by (used in):		
Operating activities:		
Amortization of capital assets	\$ 30,451	\$ 30,451
Change in non-cash operating working capital:		
Decrease (increase) in accounts receivable	(45,987)	243,052
Decrease (increase) in prepaid expenses and deposits	101,309	(126,478)
Increase (decrease) in due to University Health Network	(841,555)	714,432
Increase in accounts payable and accrued liabilities	330,363	47,417
Increase in deferred grant revenue	6,190,488	7,889,913
	5,765,069	8,798,787
Investing activities:		
Addition to capital assets	(101,013)	(105,833)
Disposal of capital assets	—	6,136
	(101,013)	(99,697)
Increase in cash	5,664,056	8,699,090
Cash, beginning of year	8,813,168	114,078
Cash, end of year	\$ 14,477,224	\$ 8,813,168

See accompanying notes to financial statements.

GRAND CHALLENGES CANADA

Notes to Financial Statements

Year ended March 31, 2012

Grand Challenges Canada (the "Organization") is dedicated to supporting bold ideas with big impact in global health. It is funded by the Government of Canada through the Development Innovation Fund announced in the 2008 Federal Budget. The Organization funds innovators in low and middle income countries and Canada. The Organization works with the International Development Research Centre ("IDRC"), the Canadian Institutes of Health Research ("CIHR") and other global health foundations and organizations to find sustainable long-term solutions through integrated innovation - bold ideas which integrate science, technology, social and business innovation. The Organization is hosted at the Sandra Rotman Centre.

The Organization was incorporated as Grand Challenges Canada on March 19, 2008 under the Canada Corporations Act as a not-for-profit organization without share capital. The Organization is a registered not-for-profit organization within the meaning of the Income Tax Act (Canada).

1. Significant accounting policies:

The financial statements of the Organization have been prepared by management in accordance with Canadian generally accepted accounting principles for non-for-profit organizations.

(a) Revenue recognition:

The Organization follows the deferral method of accounting for revenue. Restricted contributions are recognized as revenue in the year in which the related expenses are incurred. Funds received or receivable under donor partnership agreements are recorded as deferred revenue if the amount to be received can be reasonably estimated and collection is reasonably assured. Unrestricted contributions are recognized as revenue in the year received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.

(b) Grant payments:

All contractual grant payments are subject to the provision of funds by donor partners. They are recorded as an expense in the year they come due under the terms and conditions of the agreements. Refunds on previously disbursed grant payments are credited against the current year expenses when the project is active or to other income when the project is closed.

GRAND CHALLENGES CANADA

Notes to Financial Statements (continued)

Year ended March 31, 2012

1. Significant accounting policies (continued):

(c) Capital assets:

Capital assets are recorded at cost and amortized over their estimated useful lives on a straight-line basis. The estimated useful life of each asset class is as follows:

Software	5 years
Website development	3 years
Leasehold improvements	Lesser of remaining term of lease or useful life

(d) Financial instruments:

Cash and accounts receivable are categorized as held-for-trading which is carried at fair value. Accounts payable and accrued liabilities and due to University Health Network are classified as other liabilities and are also carried at fair value.

(e) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the year. Actual results could differ from those estimates.

2. Capital assets:

			2012	2011
	Cost	Accumulated amortization	Net book value	Net book value
Software	\$ 101,013	\$ —	\$ 101,013	\$ —
Website development	69,636	46,424	23,212	46,424
Leasehold improvements	36,197	14,478	21,719	28,958
	\$ 206,846	\$ 60,902	\$ 145,944	\$ 75,382

GRAND CHALLENGES CANADA

Notes to Financial Statements (continued)

Year ended March 31, 2012

3. Due to University Health Network:

The Organization has entered into an agreement with the University Health Network for the following: (a) occupation of offices and work space at the University Health Network's premises and (b) personnel, human resources services, and other administrative services and resources provided by the University Health Network. The settlement of accounts between the University Health Network and the Organization is done on a regular and timely fashion.

4. Grant revenue:

In the 2008 federal budget, the Government of Canada announced the creation of the Development Innovation Fund ("DIF"). The Government of Canada is committing \$225 million over five years to the DIF.

The DIF will be reviewed by the Organization working with the IDRC and the CIHR. As a result of this, a grant agreement with the IDRC for \$219,295,000 was signed on February 3, 2010. The Organization is depending on this funding to carry out its mandate.

5. Fair values of financial assets and financial liabilities:

The carrying values of cash, accounts receivable and accounts payable and accrued liabilities approximate their fair values due to the relatively short periods to maturity of these financial instruments or because they are payable on demand.

6. Grant commitments:

The Organization is committed to making payments during the next three years, subject to funding being provided by the Government of Canada and subject to compliance by grantees with the terms and conditions of grant agreements.

Grants are payable to various organizations in the fiscal years ending March 31 as follows:

2013	\$ 4,962,000
2014	3,431,000
2015	539,000
	<u>\$ 8,932,000</u>

GRAND CHALLENGES CANADA

Notes to Financial Statements (continued)

Year ended March 31, 2012

7. Lease commitments:

Future minimum annual rental payments for premises under operating leases are as follows:

2013	\$ 89,000
2014	91,000
2015	94,000
2016	98,000
2017	67,000
	<u>\$ 439,000</u>

8. Comparative figures:

Certain comparative figures have been reclassified to conform with the financial statement presentation adopted in the current year.



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INDEPENDENT AUDITORS' REPORT

To the Board of Directors of Grand Challenges Canada

We have audited the accompanying financial statements of Grand Challenges Canada, which comprise the statement of financial position as at March 31, 2012, the statements of operations and net assets and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian generally accepted accounting principles, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of Grand Challenges Canada as at March 31, 2012, and its results of operations and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.



Chartered Accountants, Licensed Public Accountants

June 21, 2012
Toronto, Canada

KPMG LLP is a Canadian limited liability partnership and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. KPMG Canada provides services to KPMG LLP.

Annex 1: Summary of Grants

Grand Challenge	Grand Challenge Program	Round/ Phase	Institution	Country	Title of Project	Total Envelope
Stars in Global Health	Grand Challenges Explorations Partnership - Low- and Middle-Income Countries (LMIC) Stars in Global Health	N/A	McGill University	Canada	Drugs That Target Multiple Receptors for Anthelmintics	
			Ifakara Health Institute	Tanzania	Outdoor mosquito control as a complementary strategy to accelerate malaria elimination in Africa	
			International Centre for Genetic Engineering and Biotechnology, New Delhi	India	Electronic nose to smell tuberculosis from breath VOCs	
			Grand Challenges Explorations Partnership Total			\$1,112,701
	Canada's Rising Stars in Global Health	Round 1	McGill University	Canada	A low-cost, multiplexed, point-of-care test for extra-pulmonary tuberculosis	
			University of Western Ontario	Canada	Development of Non-invasive Diagnostic Device for Diabetes	
			University of Alberta	Canada	Paper as Enabling Platform for Cell-Based Assays for Basic Research and Medical Diagnostics in Resource-Limited Environments	
			University of Alberta	Canada	Revamping an old tool: point-of-care molecular diagnostics in blood capillary tubes	
			Hospital for Sick Children	Canada	The Fetal Heart Monitor project – Human Energy to save lives	
			University of Toronto	Canada	Water and Power: Energy-efficient water purification developed for point of care and scaled for public health	

Stars in Global Health (continued)	Canada's Rising Stars in Global Health (continued)	Round 1 (continued)	Hospital for Sick Children	Canada	Integration of pulse oximetry into the routine assessment of sick young infants at first-level clinics in Karachi, Pakistan – Maternal and Child Health	
			University of Toronto	Canada	mHealth for Maternal and Newborn Health: Using mobile phones to support community health workers in Kenya	
			Élisabeth Bruyère Research Institute	Canada	Saving Mothers: Preventing Maternal Mortality in Rural Africa	
			Ottawa Hospital Research Institute	Canada	Using mobile phone text messaging to reduce maternal and infant deaths in remote areas in China	
			McGill University	Canada	The use of a permanent make-up (or tattoo) device to target drug delivery against cutaneous leishmaniasis	
			University of British Columbia	Canada	New therapeutic drug combinations for tuberculosis treatment.	
			University Health Network	Canada	PPAR-gamma agonists for the treatment of cerebral malaria – tweaking the host response to save brains	
			Women's College Hospital	Canada	Development and evaluation of a tablet-based, community health worker-delivered HIV/STI prevention intervention for women living in internally displaced persons camps in Leogane, Haiti	
			McGill University	Canada	To develop a synergistic, innovative implementation strategy for self-testing for HIV in South Africa	
			McGill University	Canada	A primary care toolkit to tackle child labour and promote health equity	
			University of Toronto	Canada	Kumasi & Accra Project to Prevent AIDS (KAPPA): A Social Network-Based Intervention to Prevent HIV among Men who have Sex with Men	
			Simon Fraser University	Canada	The world's first free university	
			Ottawa Hospital Research Institute	Canada	Egg-Free Production of Influenza Vaccines Using Viral Sensitizer Technology: A Reliable and Affordable Solution for Developing Countries	

Stars in Global Health (continued)	Canada's Rising Stars in Global Health (continued)	Round 2	University of British Columbia	Canada	The Camera Oximeter – Pulse Oximetry Embedded on a Mobile Phone for the Diagnosis of Pneumonia	
			Governors of The University of Alberta	Canada	Point-of-Care Technology for the Diagnosis of Multiple Diseases: A Solution to the Disease Overtreatment Problem	
			Université Laval	Canada	Plant virus-based nanoparticles as an adjuvant for the development of an efficient and low-cost vaccine against malaria	
			University of Waterloo	Canada	TB_View 1000: Low cost digital x-ray for tuberculosis screening	
			Governors of The University of Alberta	Canada	Filters from poultry feathers for removal of arsenic from contaminated drinking water in developing countries	
			McGill University	Canada	A Low-Cost, Paper-Based Diagnostic Device for Point-of-Care Immunoassays in Resource-Limited Settings	
			Institut national de la recherche scientifique	Canada	Electricity-free device for infectious disease diagnosis in poor resource settings	
			Holland Bloorview Kids Rehabilitation Hospital	Canada	A novel artificial knee joint for lower-limb amputations: a functional and affordable technology for low- and middle-income countries	
			Women's College Hospital	Canada	Mobile Health Solutions for Breast Cancer Case-Finding, Referral and Navigation in Rural Bangladesh	
			Governors of The University of Alberta	Canada	The Kibera Medical Record Initiative	
			McGill University and Institute of Tropical Medicine	Canada	Filling the Gap: A Low-Cost, Non-Invasive Test for Visceral Leishmaniasis	
			University Health Network	Canada	Saving Lives: Cancer Pathology in Africa	
			University of British Columbia	Canada	WeiTel: Moving Evidence to Action for Patient-Centred mHealth	

Stars in Global Health (continued)	Canada's Rising Stars in Global Health (continued)	Round 2 (continued)	Governors of The University of Alberta	Canada	Preventing and Treating Avoidable Blindness from Glaucoma in Sub-Saharan Africa	
			Governing Council of the University of Toronto**	Canada	Portable Cell Analyzer for Global Health/HIV Monitoring	
			Canada's Rising Stars in Global Health Total			
					Stars in Global Health TOTAL	\$4,954,701

Grand Challenge	Grand Challenge Program	Round/Phase	Institution	Country	Title of Project	Total Envelope
Point-of-Care Diagnostics	Point-of-Care Diagnostics	Component Builder	Achira Labs Private Limited	India	Fabric Chips: A versatile platform for low-cost, rapid and multiplexed diagnostics (Topic 4)	
			Bigtec Private Limited	India	Sample Preparation/Nucleic Acid Extraction from Biological Samples	
			Makerere University	Uganda	Multi-Pathogen Point-of-Care Diagnostics (MPDx) in East Africa	
			National Hospital for Tropical Diseases	Vietnam	Sample collection and processing for multiplexed, blood-based point-of-care analysis	
			Rajendra Memorial Research Institute of Medical Sciences	India	Implementation research for point-of-care diagnosis of visceral leishmaniasis in India	

Point-of-Care Diagnostics	Point-of-Care Diagnostics	Component Builder (continued)	Wits Health Consortium (Proprietary) Limited	South Africa	Investigating the feasibility of a multi-disciplinary point-of-care laboratory in an active HIV treatment clinic and determining the impact of POC testing on patient outcomes	
			Universidad Peruana Cayetano Heredia	Peru	Brighter Futures	
			University of Botswana	Botswana	Optimization and evaluation of flocked swab transport systems for the identification of enteric pathogens	
			University of Cape Town	South Africa	Development of a hand-held, DNA aptamer-based Surface Enhanced Resonance Raman Scattering (SERS) biosensor for direct identification and quantitation of biomarkers and pathogens in complex biological samples at point of care	
			Ustar Biotechnologies (Hangzhou) Ltd.	China	Development of a Rapid, Inexpensive, Equipment-Free Nucleic Acid Extraction System; Development of a Rapid, High Sensitivity Isothermal Amplification Platform for Detection of Multiple Pathogens	
						Point-of-Care Diagnostics Component Builder Total
Point-of-Care Diagnostics	Point-of-Care Diagnostics	Regulation	London School of Hygiene and Tropical Medicine	England	Improving regulatory oversight of in-vitro diagnostics in the developing world: the affordable access project	
					Point-of-Care Diagnostics Regulation Total	\$497,183
					Point-of-Care Diagnostics TOTAL	\$11,301,671

Grand Challenge	Grand Challenge Program	Round/ Phase	Institution	Country	Title of Project	Actual Approved Grant Budgets
Women's and Child's Health	Saving Lives at Birth	Round 1	Healthpoint Services India Private Limited	India	Applying Low-Cost Health and Information Technologies at the Community and Clinic Level for Integrated Maternal/Child Health Delivery in Rural India	
			Moi University	Kenya	Addressing the Fourth Delay: Improving community-based accountability for Maternal-Neonatal Health	
			Zoe Alexander Ltd.	Kenya	Use of mobile technology and pay-it-forward business model to create scenarios that incentivize the proliferation of sharing of life-saving audio information pertaining to maternal and newborn heath	
			Fincon	Pakistan	Micro Health Franchise System	
			Changamka Microhealth Limited	Kenya	Mobilizing Maternal Health In Rural Kenya With E-Vouchers And Information Technology	
			Development Research and Projects Center	Nigeria	From Opposition to Champions of Maternal and Neonatal Health: A Project in Transformational Leadership Among Community and Religious Leaders	
			University of British Columbia	Canada	PIERS on the move: Pre-eclampsia Integrated Estimate of RiSk assessment on a mobile phone	
			Hospital for Sick Children	Canada	Prenatal calcium to prevent pre-eclampsia and preterm birth in resource-poor rural settings: can a novel differential time-release microencapsulated powder overcome barriers to adherence and scale-up?	
						Saving Lives at Birth Total

Women's and Child's Health (continued)	Saving Brains	Focus Phase	Human Development Research Foundation-Pakistan (HDRF)*	Pakistan	Perinatal Depression Treatment and Child Development: A follow-up of the Thinking Healthy Programme	
			Fundación Canguro*	Columbia	Randomized, open, controlled trial on Kangaroo Mother Care versus traditional care for low birth weight infants; patient-centered outcomes at the age of 18 years	
			Mahidol University*	Thailand	Early treatment with rectal artesunate to halt disease progression and reduce disability in survivors: a neurocognitive assessment of Study 13 child	
			Aga Khan University*	Pakistan	Early Childhood Cognitive Stimulation and Successful Transition to Preschool in a Disadvantaged Population in Rural Pakistan	
			International Centre for Diarrhoeal Disease Research, Bangladesh*	Bangladesh	Effect of maternal and newborn Vitamin A supplementation on cognitive development of school-aged children in rural Bangladesh	
			University of KwaZulu-Natal*	South Africa	The effect of an exclusive breastfeeding support intervention on subsequent development of children in the context of HIV	
			Makerere University*	Uganda	Saving Brains in Uganda and Burkina Faso (PROMISE SB)	
			Aga Khan University*	Pakistan	Follow-up of three cohorts of recipients of maternal and infant nutrition interventions in rural and urban Pakistan: a follow-up evaluation of health and developmental outcomes	
			University of Stellenbosch*	South Africa	Thula Sana: The long-term impact on cognitive and socio-emotional functioning of an intervention to enhance the mother-infant relationship	

Women's and Child's Health (continued)	Saving Brains (continued)	Focus Phase (continued)	Yayasan Institut Pengembangan Suara Mitra*	Indonesia	An investigation of the impact of maternal multiple micronutrient supplementation on the health, cognitive, motor and socio-emotional function of school-age children in Indonesia	
			CEL Ventures Private Limited*	India	Effect of a package of community-based essential newborn care, including skin-to-skin care, on neurodevelopmental status at 7–9 years of age	
					Saving Brains - Focus Phase Total	\$11,818,518
					Women's and Child's Health TOTAL	\$13,978,518

Grand Challenge	Grand Challenge Program	Round/ Phase	Institution	Country	Title of Project	Total Envelope
Non-Communicable Diseases	Hypertension				DREAM-GLOBAL: Diagnosing hypeRtension - Engaging Action and Management in Getting LOwer Bp in Aboriginal and LMIC – A Research Proposal*,**	
					Utilizing HIV/AIDS infrastructure as a gateway to chronic care of hypertension in Africa*,**	
					Developing an innovative strategy for hypertension detection, treatment and control in two middle-income countries (Hypertension Outcomes Prevention and Evaluation: HOPE-4)*,**	
					Hypertension Total	\$1,917,669
					Non-Communicable Diseases TOTAL	\$1,917,669

GRAND CHALLENGES CANADA TOTAL	\$32,694,195
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*Pending the signing of the grant agreement

**Pending final negotiations of the Grant Agreements, Also note that the total includes an additional \$833,834 CAD that Grand Challenges Canada will manage on behalf of the International Development Research Centre

Annex 2: Board of Directors

GRAND CHALLENGES CANADA Members of the Board of Directors	
Name	Affiliations
Joseph L. Rotman	<ul style="list-style-type: none"> • Chairman of the Board of Directors of Grand Challenges Canada • Chairman, Roy-L Capital Corporation • Director, Clairvest Group Inc. • Member, Board of Directors, MaRS • Chairman, Canada Council • Officer of the Order of Canada
Robert Bell	<ul style="list-style-type: none"> • President and Chief Executive Officer, University Health Network • Former Regional Vice President, Clinical Council of Cancer Care Ontario
Alain Beaudet	<ul style="list-style-type: none"> • President, Canadian Institutes of Health Research (CIHR)
Daniel J. Carucci	<ul style="list-style-type: none"> • Former Vice President for Global Health, United Nations Foundation • Former Director, Grand Challenges in Global Health Initiative at the Foundation for the National Institutes of Health • Former Director, Malaria Program at the Naval Medical Research Center
Abdallah S. Daar	<ul style="list-style-type: none"> • Chief Science Officer, Grand Challenges Canada • Chair, Grand Challenges Canada's Scientific Advisory Board • Senior Scientist, Sandra Rotman Centre • Professor of Public Health Sciences and of Surgery, University of Toronto
Elizabeth Dowdeswell	<ul style="list-style-type: none"> • President and CEO of the Council of Canadian Academies • Past Executive Director of the United Nations Environment Program and Undersecretary General of the United Nations • Founding President and CEO of Canada's Nuclear Waste Management Organization • Officer of the Order of Canada
Alan E. Gotlieb	<ul style="list-style-type: none"> • Former Canadian Ambassador to the United States • Former Chairman of the Canada Council • Companion of the Order of Canada
Mohamed H.A. Hassan	<ul style="list-style-type: none"> • Co-Chair of IAP, the global network of science academies • Chairman of the Council of the United Nations University • Past President, African Academy of Sciences • Past Executive Director, Academy of Sciences for the Developing World (TWAS)
David Malone	<ul style="list-style-type: none"> • President of the International Development Research Centre (IDRC)
Allan Ronald	<ul style="list-style-type: none"> • Distinguished Professor Emeritus, University of Manitoba • Visiting lecturer, Makerere University, Uganda, Africa • Founding member of the University of Manitoba/University of Nairobi/WHO Research and Training Program on Sexually Transmitted Diseases • Officer of the Order of Canada

GRAND CHALLENGES CANADA Members of the Board of Directors	
Guylaine Saucier	<ul style="list-style-type: none"> • Former Chairman of the Board of Directors of the Canadian Broadcasting Corporation • Former Director of the Bank of Canada • Former Chair of the Canadian Institute of Chartered Accountants (CICA)
Peter A. Singer	<ul style="list-style-type: none"> • Chief Executive Officer, Grand Challenges Canada • Director, Sandra Rotman Centre • Officer of the Order of Canada

Annex 3: Scientific Advisory Board

GRAND CHALLENGES CANADA Members of the Scientific Advisory Board	
Name	Affiliations
Abdallah S. Daar	<ul style="list-style-type: none"> • Chief Science and Ethics Officer, Grand Challenges Canada • Chair, Grand Challenges Canada's Scientific Advisory Board • Senior Scientist, Sandra Rotman Centre • Professor of Public Health Sciences and of Surgery, University of Toronto
Jane Aubin	<ul style="list-style-type: none"> • Chief Scientific Officer/Vice President of Research and Knowledge Translation at the Canadian Institutes of Health Research • Professor of Molecular Genetics, University of Toronto
Lorne Babiuk	<ul style="list-style-type: none"> • Vice President (Research), University of Alberta • Director, Vaccine and Infectious Disease Organization • Grantee, Grand Challenges in Global Health Initiative
Sir John Bell	<ul style="list-style-type: none"> • Regius Professor of Medicine, University of Oxford • Chairman, Office for the Strategic Coordination of Health Research • Chairman, Board of Trustees, Oxford Health Alliance
Michel G. Bergeron	<ul style="list-style-type: none"> • Professor, Founder and Director of the Centre de Recherche en Infectiologie (CRI) of Université Laval • Chairman, Infectio Diagnostic Inc. • Member of the Science Advisory Board of Health Canada
Timothy Brewer	<ul style="list-style-type: none"> • Director, Global Health Programs, McGill University Medical School
Jane Cardosa	<ul style="list-style-type: none"> • Former Director, Institute of Health and Community Medicine, Universiti Malaysia • Scientific Advisory Board, Grand Challenges in Global Health Initiative
Michael W. Clarke	<ul style="list-style-type: none"> • Director, Global Health Policy, IDRC • Director, Research on Health Equity and Information and Communications Technologies for Development, International Development Research Centre • Former Director of eCurriculum in Faculty of Medicine, University of Ottawa • Former Board of Directors, Procyon Biopharma
Christine Debouck	<ul style="list-style-type: none"> • Former Senior Vice President, Division of Genomic & Proteomic Sciences in the Genetics Research Directorate at GlaxoSmithKline • Scientific Advisory Board, Grand Challenges in Global Health Initiative
Tim Draimin	<ul style="list-style-type: none"> • Executive Director of Social Innovation Generation (SiG) • Chair of CAUSEWAY Social Finance • Founding CEO of Tides Canada Foundation • Assembled and Coordinated the Canadian Task Force on Social Finance

Nirmal K. Ganguly	<ul style="list-style-type: none"> • Former Director General, Indian Council of Medical Research • President, Jawaharlal Institute of Postgraduate Institute of Medical Education and Research (JIPMER) • Distinguished Biotechnology Research Professor, National Institute of Immunology
Kevin Kain	<ul style="list-style-type: none"> • Director, Centre for Travel and Tropical Medicine at Toronto General Hospital • Senior Scientist, Sandra Rotman Centre for Global Health • Professor of Medicine, University of Toronto
Kiyoshi Kurokawa	<ul style="list-style-type: none"> • Professor, National Graduate Institute for Policy Studies • Science Advisor to the Cabinet of Japan • Commissioner, WHO Commission on Social Determinants of Health • Former President, Science Council of Japan
Mwele Ntuli Malecela	<ul style="list-style-type: none"> • Chief Research Scientist, Acting Director General and Director of Research Coordination and Promotion of the National Institute for Medical Research, Tanzania • Director of the Tanzania Lymphatic Filariasis Elimination Programme • PhD in Parasitology from the University of London, London School of Hygiene and Tropical Medicine
Anita McGahan	<ul style="list-style-type: none"> • Associate Dean of Research, Rotman School of Management, University of Toronto • Rotman Chair in Management, Rotman School of Management, University of Toronto • Professor at the Rotman School of Management and Munk School of Global Affairs, University of Toronto • Senior Institute Associate, Harvard Business School
Hassan Mshinda	<ul style="list-style-type: none"> • Director General of the Tanzania Commission for Science and Technology (COSTECH) • Former Director, Ifakara Health Institute, Tanzania • Member, Regional task force of Maternal Newborn and Child Partnership AFRO/WHO
Frank Plummer	<ul style="list-style-type: none"> • Professor of Medicine and Medical Microbiology, University of Manitoba • Scientific Director General, National Microbiology Laboratory, Public Health Agency of Canada • Chief Science Officer, Public Health Agency of Canada • Grantee, Grand Challenges in Global Health Initiative • Officer of the Order of Canada
Odile Puijalon	<ul style="list-style-type: none"> • Chef de Laboratoire at the Institut Pasteur, Paris • Member, Strategic Scientific Advisory Committee of the UNDP/World Bank/World Health Organization Special Program for Research and Training in Tropical Diseases • Scientific Advisory Board, Grand Challenges in Global Health Initiative
Yongyuth Yuthavong	<ul style="list-style-type: none"> • Senior Researcher, National Center for Genetic Engineering and Biotechnology (BIOTEC) • Former Minister of Science and Technology for the Kingdom of Thailand • Past President, Thai Academy of Science and Technology • Member, Grand Challenges in Global Health's Scientific Advisory Board
Kishor Wasan	<ul style="list-style-type: none"> • Associate Dean of Research and Graduate Studies, Faculty of Pharmaceutical Sciences • Distinguished University Scholar and Director, Neglected Global Diseases Initiative

Annex 4: Organization Chart

