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Grand Challenges Canada®
Grands Défis Canada

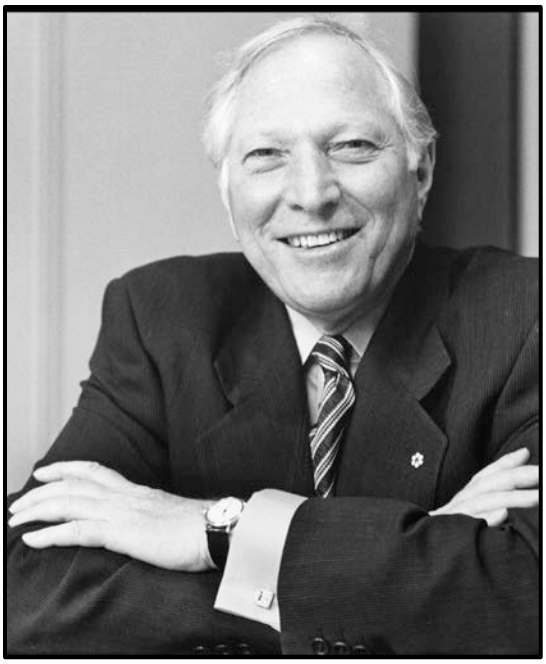
BOLD IDEAS WITH BIG IMPACT®

RESULTS: The First Five Years

ANNUAL REPORT

April 2014 to March 2015

IN MEMORIAM



Mr. Joseph L. Rotman OC
Founding Chairman of the Board

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A Message from the Chair of the Board

The year 2014–2015 has been a year of progress and sorrow for Grand Challenges Canada.

We have faced the unexpected loss of our founding Chairman of the Board, Joseph L. Rotman. At the same time, there was a strong vote of confidence in his vision of Grand Challenges Canada through the announcement of $161M in new funding from the Government of Canada to support our work in maternal, newborn and child health.

Mr. Rotman's passing was both tragic and unexpected. He was a visionary leader in so many fields, devoting the last 25 years of his life to improving the country and communities that he loved. He often said that Grand Challenges Canada was his top priority for the future, and it is my honour to work to ensure that his vision for our organization continues to come to fruition.

Looking forward, I am optimistic. We are beginning to see the results from and impact of our early investments, while recognizing that there is still work to do in sustainably taking them to scale. As our CEO Dr. Peter Singer often says, innovation can be a 10- to 15-year process.

In the coming year, we will be reviewing our Strategic Plan to 2020. We will be reflecting on the lessons we have learned during the first five years and we will be building on the findings and recommendations from the Summative Evaluation of the Development Innovation Fund "DIF" (of which Grand Challenges Canada is the executing body), as well as those from the Grand Challenges Canada Expert Review Panel (both of these reviews occurred this year and are in the final stages of completion). In addition, we will begin to implement our mandate in maternal, newborn and child health. I also look forward to working with the Government of Canada on the renewal of the DIF.

Finally, I would like to thank my fellow Board members for their continued insight and their engagement. I also think it is important to recognize the continued leadership of Dr. Peter Singer and the entire leadership team, management and staff of Grand Challenges Canada. The success of Grand Challenges Canada is a testament to their dedication and excellence.

Best regards,

Guylaine Saucier FCPA, FCA, CM
Chair of the Board of Directors

A Message from the Chief Executive Officer

For Grand Challenges Canada, 2014–2015 was a year of excitement, gratitude and sadness:

- Excitement, as our early projects and investments have begun to save and improve lives
- Gratitude, for the confidence that Government of Canada has shown in our work in maternal, newborn and child health (MNCH)
- Sadness, at the passing of a great man and visionary leader, our founding Chairman of the Board, Joseph L. Rotman.

My theme for 2015 has been results and impact. As I outlined in my Annual Letter released in July 2015, during the past year, I took the opportunity to personally meet some of our innovators and see the impact of our investments on the ground. In these visits, I was particularly eager to meet the families that are living better and healthier lives as a result of innovations supported by Canada. Two young girls stood out for me as exemplars of why our work matters. Through one of our projects in Bihar, India, these two 12-year-old girls had been diagnosed with and treated for visceral leishmaniasis. They have gone from suffering from a potentially fatal disease to dreaming about becoming teachers. That is the power of better health, saving and improving just one life can help to transform communities for the better.

2015 was also an important year for Grand Challenges Canada's future. In May of this year, the Government of Canada gave a strong vote of confidence in our work by announcing $161M in new funding to support our work in maternal, newborn and child health. This will not only strengthen Canada's focus on maternal, newborn and child health, but will also support the renewed Sustainable Development Goals. I could not be more pleased to be able to continue to increase the reach and impact of our work in this critical sector and for the opportunity to further strengthen our role as an Alternative Service Delivery vehicle for the Government of Canada in development innovation.

The most unexpected and saddest event of the year was the passing of our founding Chairman, Joseph L. Rotman. Mr. Rotman was a giant in the innovation community in Canada and around the world, and I feel privileged to have been able to work so closely with him to develop Grand Challenges Canada, which was such a passion for him. His wisdom and leadership will be greatly missed as we continue to work to realize his vision and legacy.

I would like to express my gratitude to the entire Grand Challenges Canada team, led by our Vice Presidents **Karlee Silver** (Programs), **Andrew Taylor** (Investments) and **Jocelyn Mackie** (Operations & General Counsel), who work tirelessly to make our vision—Bold Ideas, Big Impact, A Better World—a reality. I also would like to thank and recognize the continued contribution of our Board of Directors, led by **Guylaine Saucier**, our Investment Committee, led by **Gerhard Pries,** our Audit and Finance Committee, led by **Morris Rosenberg**, and our Scientific Advisory Board, chaired by **Abdallah Daar.** Finally, I want to thank our federal partners, including the Department of Foreign Affairs, Trade and Development, Canada's International Development Research Centre and the Canadian Institutes of Health Research.

I look forward next year to more results and impact, launching the programs under the new maternal, newborn and child health funding, and ensuring that our other programs – in mental health, Stars in Global Health, social finance and innovation diplomacy – continue to flourish.

2015 will be a landmark year, in that the Sustainable Development Goals to guide global action through 2030 will be adopted. I look forward to continuing to show how innovation is critical for reaching these goals and how Canada is a world leader in promoting innovation for international development.

Best regards,

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

SUMMARY OF OUTCOMES AND OUTPUTS 2014–2015

The year 2014–2015 was a watershed one for Grand Challenges Canada, in that our portfolio of projects has matured enough that we can begin to track ultimate outcomes in a meaningful way. Some of our projects have already been completed (with a subset of the most successful projects moving on to the Transition to Scale program) while many more are now far enough along that they can report on interim outcomes.

The following section provides a summary of some the key quantitative and qualitative indicators that we track, including our outcomes and outputs. It is important to frame our results to date by noting that, unlike with programs, most of the impact from investments in innovation will be realized in the future, not over the time period of the projects that are funded. That being said, we are very pleased with the outcomes and outputs that have already arisen, somewhat unexpectedly, from our investments so far.

PRIORITIES AND PROGRAMS

Grand Challenges Canada's strategic priorities are set out in the **Strategic Plan to 2020**. Our primary strategic priority is **enabling innovators to solve critical and significant health challenges in low- and middle-income countries**, including:

1. **Targeted Grand Challenges**: three global health challenges that were identified, validated and approved by Grand Challenges Canada's 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.

2. **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.

These programs have created a pipeline of over 700 global health innovations in over 80 countries. We enable the most promising of these innovations at proof-of-concept to amplify their impact through the **Transition to Scale** program.

OUTCOMES

The following is a summary of Grand Challenges Canada's immediate, intermediate and ultimate outcomes, as of March 2015:

Programs		OUTCOMES		
		Beneficiaries Accessing Innovative Health Products or Services	Lives Improved	Lives Saved
Stars in Global Health	Seed	1,248,122	38,329	948
	Transition-to-Scale	137,898	89,627	80
Saving Lives at Birth		1,233,984	117	7,270
Saving Brains		4,925	3,171	
Global Mental Health		46,488	2,401	
Point-of-Care Diagnostics		1,015,717	3,260	114
Global Health Investment Fund				
TOTAL		**3,687,134**	**136,905**	**8,412**

Based on *interim* results from 47% (299/641) of projects (with many of these not yet complete): 170 Stars in Global Health, 12 Point-of-Care Diagnostics, 16 Transition to Scale, 24 Saving Lives at Birth, 26 Saving Brains and 51 Global Mental Health.

The table is an illustration of a work in progress on measuring impact at Grand Challenges Canada. There are inherent issues of precision and validity with the numbers, which have been self-reported by innovators and checked by Grand Challenges Canada. We continue to develop our monitoring and validation processes, as well as work on future projections. Grand Challenges Canada is also developing and testing an **Impact Dashboard** that projects outcomes to the end of each project's life and out to 2030.

OUTPUTS

Grand Challenges Canada tracks a broad range of outputs and their associated metrics. These outputs are detailed as part of our *Organizational Logic Model,* found in **Annex 3**, and can be summarized as follows:

Output	Metric	2014–2015
1111 Innovative prototypes or service delivery models developed and/or scaled	# innovative prototypes or service delivery models validated	355
1112 Results published and patents filed	# publications and # patents filed	Publications: 246 Patents: 67
1121 Targeted challenge-specific outcome metrics developed	outcome metrics and knowledge management platforms developed	Impact Dashboard Developed

1122 Targeted challenge-specific global partnerships formed	$ leveraged through programs	$180.9M
1123 Targeted challenge-specific communities of innovators formed	# communities formed and engaged	3 formed, 4 in development*
1211 Private sector engaged	# companies supported	84
1212 Funds leveraged by projects	$ leveraged through projects	$88.3M
1221 Canada brand awareness raised	# media mentions	Over 125 original media stories, 18 press releases
1222 Canadian diplomacy enabled	Qualitative reports from ambassadors and other sources	Positive indications of impact in: Thailand, Israel, India, Peru and Brazil
1223 Grand Challenges model adopted and enhanced	# countries adopting Grand Challenges model	7 (Israel, Peru, India, Brazil, United States, Thailand, South Africa)
1231 Lessons learned and outcomes monitored and evaluated	# portfolio reviews approved by Scientific Advisory Board	7
1232 Risks managed	# Audit & Finance Committee meetings held and risk reports approved	4
1233 Efficient operating model maintained	Percentage of gross budget to operations (General & Administration, and Program Support)	10.3%

*In development: African innovation, Menstrual Hygiene Management, Water, Sanitation & Hygiene (WaSH), Innovation Working Group

Our Programs

SAVING LIVES AT BIRTH

The Problem

Globally each year, there are:

- 2.6 million stillbirths
- 2.9 million neonatal deaths
- 287,000 maternal deaths.

The onset of labour marks the start of a high-risk period for both mother and baby that lasts until at least 48 hours after birth. During this short period of time, almost half of maternal and newborn deaths and stillbirths occur.

The Challenge

To develop, validate and scale ground-breaking prevention and treatment approaches for pregnant women and newborns in poor, hard-to-reach communities around the time of birth. The program seeks to accelerate substantial and sustainable gains in maternal and newborn survival, and in the prevention of stillbirths

The Saving Lives at Birth Partnership

To overcome this challenge, USAID, the Government of Norway, the Bill & Melinda Gates Foundation, Grand Challenges Canada and the UK's Department For International Development (DFID) joined together to launch Saving Lives at Birth: A Grand Challenge for Development.[1]

To date, the partnership has committed $47M USD to fund **81 projects over 91 awards (77 proof of concept and 14 transition to scale)** over four rounds. In total, it is anticipated that the partnership will commit **$50M USD** over four rounds, with $10M USD from Grand Challenges Canada.

Grand Challenges Canada has also committed **$7.6M CAD to 30 proof-of-concept projects and 6 transition to scale** projects aligned with Saving Lives at Birth over seven rounds of Stars in Global Health.

Portfolio Results to Date

Two promising projects in the Saving Lives at Birth portfolio are described below.

[1] Saving Lives at Birth announced a new partnership with the Korea International Cooperation Agency (KOICA) on July 23, 2015.

Chlorhexidine (John Snow International (JSI))

- *The risk of newborn death can be decreased by 23% in Nepal through the use of chlorhexidine on the newborn's umbilical cord stump, when applied within the first 24 hours of life.*
- *The Saving Lives at Birth partners' investment in the novel use of chlorhexidine by JSI/Chlorhexidine Navi Care Program (CNCP), the Ministry of Health and Population (MOHP) and partners enabled more than 1,200,000 newborns in Nepal to receive the antiseptic, saving more than 7,000 lives[2].*
- *Looking forward, the continued implementation of this strategy in Nepal alone could save at least an additional 10,000 lives by 2020, should circumstances remain the same.*

Almost three million babies die each year in the newborn period and roughly 28% of all newborn deaths are a result of infection.[3] A freshly-cut umbilical cord can be the entry point for life-threatening systemic infections. In Nepal, it was once common practice to apply ash, mustard seed oil, dung and other such materials to the umbilical cord stump, in the belief that these were protective. JSI, through an investment from the Saving Lives at Birth partners, has pioneered the use of chlorhexidine (CHX) in Nepal as an alternative to other materials applied to the umbilical cord stump, shown to decrease risk of newborn death by 23%.[4]

JSI/CNCP, with the Government of Nepal and partners, has incorporated the use of CHX immediately after cord cutting as a part of essential newborn care for both home and facility deliveries. For community promotion and distribution, Female Community Health Volunteers (FCHVs) have been trained, supported and provided with CHX, along with counselling and promotional materials to support CHX distribution and use. CHX is provided to pregnant woman during their eighth month of pregnancy, either from the FCHV or during their antenatal care visit at the health facility. The program currently includes 49 of 75 districts, and will be implemented nationwide within the next two to three years. In addition, CNCP has assisted the MoHP in building a sustainable program, with inclusion of CHX in in-service and pre-service training curricula; local production of high-quality product; incorporation of CHX in the national data collection forms and the country's essential drug list; and has supported the development of the government's multi-year procurement plan.

JSI spearheaded the creation of the CHX Working Group in Nepal and contributes to the global CHX Working Group, sharing lessons and best practices to encourage other countries to initiate this program. The advocacy work of the group saw CHX selected as one of top 13 commodities by the United Nations Commission on Life-Saving Commodities for Women and Children in 2012. In addition to Nepal, CHX is now being scaled up in six countries. JSI/CNCP is serving as a living university, hosting teams from over 20 countries, to learn about program implementation in Nepal. Should current trends in Nepal continue, an additional 10,000 lives could be saved by 2020.

[2] Previously reported estimate of 7,500 lives saved has been revised [August 2015] to ~7,200 based on data newly acquired by the project team that shows a slightly lower ratio of tubes used per tubes distributed
[3]Saving Lives with CHX.: www.jsi.com/JSIInternet/Resources/publication/display.cfm?txtGeoArea=INTL&id=14875&thisSection=Resources
[4] Imdad A, Mullany LC, Baqui AH, Arifeen SE, Tielsch JM, Khatry SK, et al. The effect of umbilical cord cleansing with chlorhexidine on omphalitis and neonatal mortality in developing country communities: a meta-analysis

Home-based Pregnancy Care Model (Jacaranda Health)

- *The implementation of a novel home- or phone-based care model makes new mothers 40% more likely to return to healthcare facilities for follow-up care after the birth of their child. Mothers who receive home visits are twice as likely to return for a post-partum visit as mothers who receive no post-partum follow-up care.*
- *The Saving Lives at Birth partners provided support to Jacaranda Health to test such a model, providing services to 249 mother–baby pairs in Nairobi. Jacaranda is currently exploring strategies to roll their high-quality, low-cost care model out across Kenya.*
- *Increasing equitable access to quality of care has been named as the number one means through which countries like Kenya (who have newborn mortality rates averaging between 15 and 30 per 1,000 live births) can prevent newborn and maternal deaths.*

A large proportion of maternal and newborn deaths occur in the first 48 hours after birth. Despite the critical importance of this period for mothers and their newborns, postnatal care attendance is often minimal in low-resource countries. Over half (52.6%) of Kenyans do not have any postnatal check-ups. This figure jumps to 64.6% among Kenya's poorest quintile.[5]

Jacaranda Health, a chain of maternity clinics in peri-urban Nairobi, is working to increase the number of poor women receiving perinatal care, by focusing on maintaining high standards of care while also reducing costs through innovation. With the support the Saving Lives at Birth partners, they developed a checklist-driven, home-based postpartum care model, led by community health workers. This model demonstrated that women who received home visits were twice as likely (and those who received phone calls 40% more likely) to return to facilities for follow-up care, with better knowledge of newborn care practices (92% versus 50%) and with a plan to take up a specific contraceptive (86%) at six weeks postpartum.

Increasing equitable access to quality of care has been named as the number one means through which countries like Kenya can prevent newborn and maternal deaths[6]. Jacaranda is working to scale up its facilities and to share its clinical best practices with others (including the Government of Kenya) to improve quality of care. Jacaranda has signed contracts to pilot the transfer of its quality improvement best practices to three government facilities in Kiambu County.

[5] Kenya National Bureau of Statistics (KNBS) and ICF Macro. 2010. Kenya Demographic and Health Survey 2008-09. Calverton, Maryland: KNBS and ICF Macro.
[6] Dickson KE, Simen-Kapeu A, Kinney MV, et al, for The Lancet Every Newborn Study Group. Health-systems bottlenecks and strategies to accelerate scale-up in countries. Lancet 2014; published online.

SAVING BRAINS

The Problem

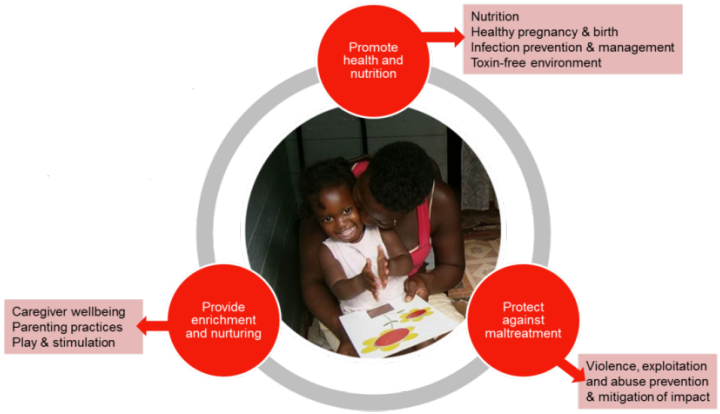
As many as 200 million children fail to reach their full potential, and children in poverty have a higher chance of adversity that could risk disrupting brain development. This is a devastating waste of human capital that leaves the next generation ill equipped to solve the enormous challenges that lock individuals, communities and societies in poverty.

The Challenge

The Saving Brains Grand Challenge is to unlock the potential of children by developing and scaling up products, services and policies that protect and nurture early brain development in an equitable and sustainable manner, thereby providing an exit strategy from poverty.

Our Approach

The approach of the Saving Brains program is to support bold ideas to improve early child development in low- and middle-income countries, with a focus on three components of healthy development, as illustrated below:



The Saving Brains Partnership

One of the most exciting developments in 2014–2015 was the continued expansion and development of the Saving Brains partnership. Saving Brains is a partnership of Grand Challenges Canada, Aga Khan Foundation Canada, Bernard van Leer Foundation, Bill & Melinda Gates Foundation, Maria Cecilia Souto Vidigal Foundation, Norlien Foundation and World Vision Canada.[7]

Program Overview

To date, Grand Challenges Canada has committed almost **$31.8M** to support **53 projects**. Grand Challenges Canada has also committed **$5.5M to 53 proof-of-concept projects** aligned with Saving Brains over seven rounds of Stars in Global Health, and $1.2M to support the Saving Brains platform to accelerate and track impact against the challenge.

[7] Saving Brains announced a new partnership with UBS Optimus Foundation on May 28, 2015.

Portfolio Results to Date

Promising innovations in the Saving Brains portfolio are described in more detail below.

Transforming the trajectory of young children through early childhood care (Kidogo)

- *Many working mothers living in urban slums face the difficult decision of whether to leave their child at home unattended, in the care of an older sibling, or at overcrowded and poor quality, home-based "baby care" centres.*
- *In response, Kidogo built and operates best-practice community baby care centres and supports the improvement of local home-based care centres.*
- *Only six months into the project, the team is running two best-practice centres serving about 100 children, with one centre already at operational break-even.*
- *Kidogo is now working to improve existing home-based baby centres and to show the impact of Kidogo centres on child cognitive outcomes.*

Mothers living in urban slums often face a difficult decision of whether to leave their child at home unattended, in the care of an older sibling, or at a local "baby care" centre, where conditions are often very poor.

Kidogo Early Years is a social enterprise that seeks to transform the trajectory of young children living in East Africa's urban slums by providing high-quality, affordable, early childhood care and education through a "hub-and-spokes" model. The team builds and operates best-practice community centres or "hubs," which provide young children (six months to six years) with a holistic early child development (ECD) intervention, including a safe and stimulating physical environment, nutritious meals, a play-based curriculum and well-trained, supportive caregivers. Kidogo also supports the improvement of local baby care centres ("spokes"), providing training, materials and ongoing support to improve the quality of community-based childcare.

Thus far, 60 children in Kibera and 40 children in Kangemi are receiving care at the two best-practice centres. The Kangemi centre passed operational break-even in its second month, and Kibera has experienced a 100% growth in numbers from third term in 2014 to first term in 2015. The innovators report that they are attracting parents from outside their immediate catchment area because parents heard "Kidogo is the best school in all of Kibera". Parents tell them their kids don't cry any more before coming to school because they love coming to Kidogo.

Over the course of the grant, they expect 180 children to regularly attend one of Kidogo's hub or spoke centres, and to demonstrate that this has led to improved development in at least half these children. Kidogo will demonstrate that improving child development by providing high-quality, affordable, early childhood care and education is possible, even in impoverished, informal, urban settings.

Father's Clubs (Hanoi School of Public Health, Vietnam)

- *Fathers in Vietnam have traditionally played a minor role in the parenting of young children, but more involved fathering can improve children's cognitive competence and empathy, and can reduce sex-stereotyped beliefs.*
- *This team has started Father's Clubs in Vietnam to involve fathers more directly in the cognitive and emotional development of their infants, and to have fathers encourage breastfeeding exclusivity and duration.*
- *Through this project, almost 400 new fathers are receiving small group counselling, and individual prenatal and post-birth home visits that will help them find their own unique ways of being an engaged member of the parenting team; participating families have already achieved earlier breastfeeding and higher exclusively breastfeeding rates.*
- *By the end of the project, the team will establish the full impact of Father's Clubs on father–child interaction, attachment and child development outcomes.*

Fathers in Vietnam have traditionally played minor roles in the parenting of young children, but more involved fathering can improve children's cognitive competence and empathy, and can reduce sex-stereotyped beliefs.

Hanoi's School of Public Health aims to mobilize more fathers in the cognitive and emotional development of their children through Father's Clubs. One very important role of these fathers will be to support their wives to breastfeed exclusively for the first six months. Fathers are being taught to help their wives resist the cultural norm of expressing and discarding colostrum in the first days and of giving the baby other liquids. Fathers Clubs are being developed in collaboration with the local authorities, health workers, Farmers Association and Youth/ Women Unions to provide peer support. Posters hung in each community health centre, a pamphlet given to each father and a weekly community broadcast message will reinforce the message that fathers should support exclusive breastfeeding and why this is so important.

Almost 400 new fathers are now receiving small group counselling, and individual prenatal and post-birth home visits that have helped them find their own unique ways of being an engaged member of the parenting team. Compared to a control group of families in another district, 12% more mothers started breastfeeding within an hour of birth, and almost 25% more mothers had exclusively breastfed for the first month of their babies' lives. Fathers in the intervention district were more knowledgeable about exclusive breastfeeding and parents reported that intervention fathers were more involved in and supportive of breastfeeding.

By the end of the project, the team will show the full impact of Father's Clubs, including improved father–infant interaction, attachment and improved child development outcomes. This project can serve as a model for improving the role of fathers in early child development.

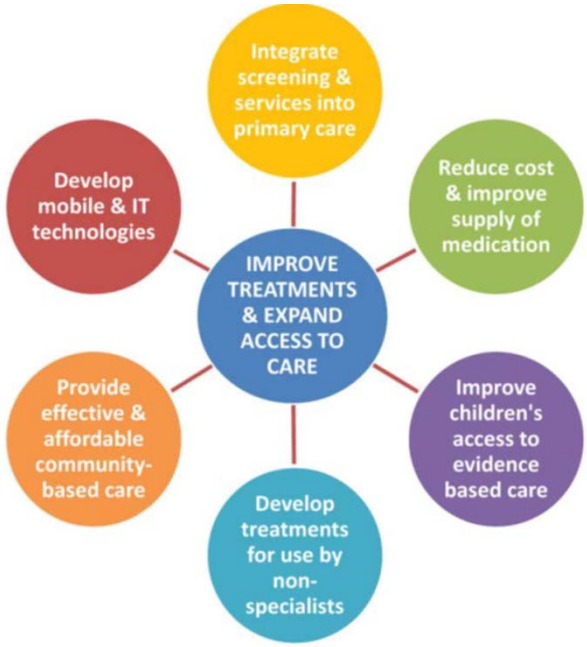
GLOBAL MENTAL HEALTH

The Problem

Mental disorders contribute to 13% of the global burden of disease worldwide. Almost three quarters of this burden occurs in low- and middle-income countries, where scarce resources and a shortage of trained professionals mean individuals living with mental disorders have limited access to evidence-based treatments and face widespread stigmatization.

The Challenge

To improve treatments and expand access to care for mental disorders through transformational, affordable and cost-effective innovations that have the potential to be sustainable at scale, with a specific focus on several key approaches:



Program Overview

To date, Grand Challenges Canada has committed **$28.5M to 51 projects (43 proof-of-concept and 8 transition-to-scale projects)**. Grand Challenges Canada has also committed **$1.4M to 12 proof-of-concept projects** aligned with Global Mental Health, over seven rounds of Stars in Global Health, and $1.7M to support the **Mental Health Innovation Network**, which launched its online presence in June 2014.

Portfolio Results to Date

Promising projects in our Global Mental Health portfolio follow.

Integrated Care Pathways for Critical Mental Health Challenges (Zanmi Lasante)

- *A community-based model to deliver mental health services using both lay and formal health workers can help to overcome a profound deficit in formal mental health workers in low-resource countries.*
- *Grand Challenges Canada supported Zanmi Lasante to test such a model in 11 primary care facilities throughout Haiti, which has enabled over 5,000 individuals to receive treatment for a range of mental disorders, of which an estimated 2,325 have experienced improved health outcomes.*
- *Going forward, the team is also working to incorporate psychiatric training into medical residency programs and the nursing college curricula.*

Many low-resource countries have a significant deficit in mental health infrastructure and human resources. Mental health infrastructure in Haiti (pop. 10M), for example, is limited to one psychiatric hospital and one health centre in Port au Prince. These facilities are severely under-resourced and characterized by poor sanitation, lack of medication and excessive use of physical restraints.

To address this gap, with funding from Grand Challenges Canada, Zanmi Lasante is integrating care pathways for depression, epilepsy, psychosis, and child and adolescent disorders in 11 primary care facilities throughout rural Haiti. Through this community-based model, lay and formal health workers are being trained to deliver mental health services and to use new information management systems to improve quality of care. As a result of these efforts, 5,086 people are currently receiving treatment for a range of mental health disorders and an estimated 2,325 are experiencing improved health outcomes. As implementation of the project continues, the number of persons benefiting from these services is expected to grow. To ensure sustained impact at scale, the team is also working to incorporate psychiatric training on care pathways into medical residency and nursing programs.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The Friendship Bench (University of Zimbabwe)

- *A brief, task-shifted, cognitive behavioural therapy intervention has proven to be an effective strategy for addressing common mental disorders in low-resource settings.*
- *This model, which was developed and tested by the Zimbabwe Aids Prevention Program with funding from Grand Challenges Canada, has been implemented in 24 clinics in Harare, with 2,960 individuals screened for depression to date, of whom 288 are currently receiving the intervention.*
- *If taken to scale, this innovation would ensure that the entire population of Harare has access to treatment for common mental disorders through primary health clinics.*

Shortages of trained mental health workers are an issue that is endemic to many low-resource countries and regions. For example, in Harare, an estimated 30% of primary care users suffer from mental health disorders, yet there are only three mental health specialists serving the city's 33 clinics, who receive upwards of 600 referrals per month.

To overcome this challenge, Dr. Dixon Chibanda of the University of Zimbabwe and his colleagues have developed a brief, task-shifted, cognitive behavioural therapy intervention to address common mental disorders. The intervention is delivered by supervised lay health workers on a wooden bench within the grounds of municipal clinics, and includes a participant income generation activity through the creation and sale of purses and other totes made from plastic bags ("Zeebags"). In a pilot study funded by Grand Challenges Canada, 81% of people suffering from depression and anxiety disorders displayed a pronounced reduction in symptoms after three sessions of this therapy, compared to 26% who did not receive the therapy. A randomized control trial (RCT) is underway to further validate the health outcomes and to determine the feasibility of expanding into other municipalities and target populations (for example, HIV-positive pregnant mothers).

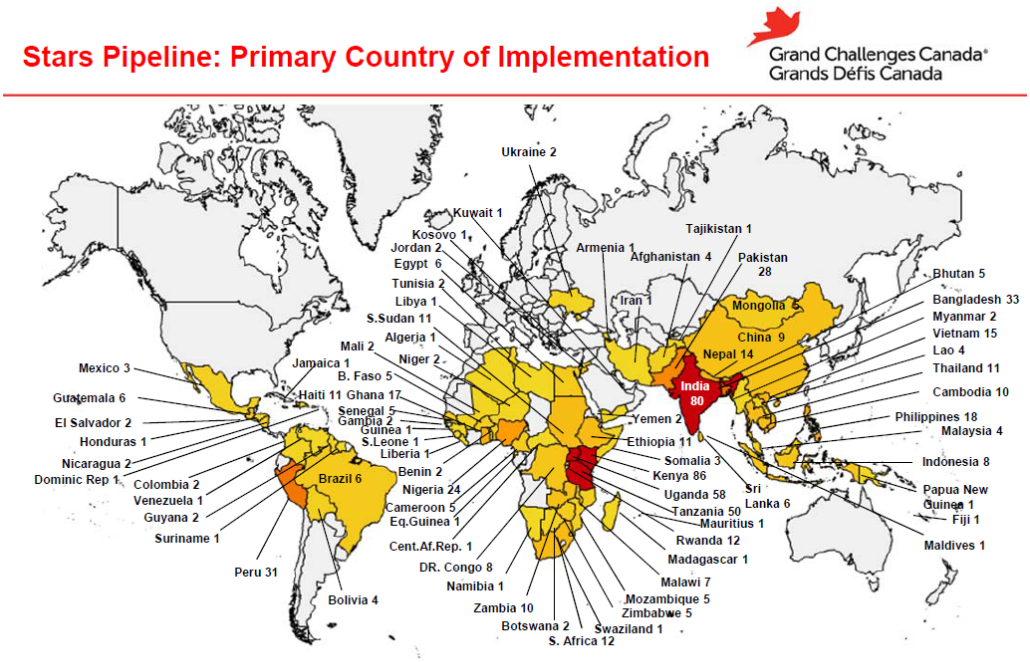
To date, 2,960 people have been screened for depression across 24 public health clinics in Harare and 288 people are currently receiving the cognitive behavioural therapy in the intervention arm of the RCT. The sale of Zeebags created by these participants has helped generate personal income and many have been further empowered to begin their own small enterprises (e.g., soap and dressmaking). To oversee the delivery of the intervention, the city health department created and supports eight new permanent posts for study supervisor managers. Dr. Chibanda and his team intend to expand the Friendship Bench program within Harare and to the cities of Chitungwiza (pop. 350,000) and Gwero (pop. 150,000), by integrating this approach into existing programming for the prevention of mother-to-child transmission of HIV.

STARS IN GLOBAL HEALTH

Program Overview

The Stars in Global Health program supports **Bold Ideas with Big Impact®** from the best and brightest scientists and innovators, both in low- and middle-income countries and in Canada, to address some of the most pressing global health challenges. It provides funding to explore transformative ideas at proof-of-concept that bring together scientific/technical, social and business innovation.

To date, Grand Challenges Canada has committed **$52.1M to 473 proof-of-concept projects** through seven rounds of Stars in Global Health. These grants have been made to institutions in 37 low- and middle-income countries and Canada. The proof-of-concept projects are being implemented in 81 low- and middle-income countries, as highlighted in the following map.



Our Approach

The goal of the Stars in Global Health program is to support bold ideas to develop solutions to global health problems from innovators in Canada and in low- and middle-income countries. We seek novel, bold, innovative, transformational and 'outside-the-box' ideas that could be easily implemented in developing countries to save and improve lives. Innovations that are identified as bold ideas with big impact are awarded proof of concept projects, each at $100,000 CAD, and innovators are given 12–18 months to demonstrate proof of concept.

Innovators who complete a minimum of nine months of their Grand Challenges Canada grant, complete their proof-of-concept projects (including a final report) and have solutions that are ready to transition to scale are invited to submit a **Transition to Scale** Letter of Intent.

Portfolio Results To-Date

Given the nature of the Stars in Global Health portfolio, there are a broad range of projects focused on myriad different challenges. One of the more successful projects is described below.

Strengthening street food safety in Bangladesh (icddr,b)

- *This project tested the quality of street food sold in Bangladesh and found that the majority of this food was contaminated with fecal* E.coli*.*
- *The team carried out a food safety education program with a healthcare package that can improve food safety knowledge, attitude and practices among street food vendors.*
- *The team's work led to the implementation of the Safe Food Act 2013 to protect public health by making food safer, followed by passing of the 'Formalin Control Act-2015' by Parliament.*

Street food is a substantial contributor to the urban food supply in 74% of World Health Organization member states and is an important source of nutrition for people with low income. Bacterial contamination in street food is a significant cause of enteric disease in these countries. Unpublished reports from Bangladesh suggest that there is poor perception of food safety among street food vendors and a high level of fecal contamination of street food.

This project tested the quality of food items from 115 street vendors in Dhaka between December 2013 and October 2014, and found that 50% of these items were contaminated with fecal *E.coli.*

As a result of this study, a food safety education program was launched with an aim to improve food safety knowledge, attitudes and practices among street food vendors. After 12 weeks, significant changes were found in vendors' hygiene behaviours, and the amount of *E. coli* found in their foods was reduced. Moreover, the results of the study led rapidly to the implementation of the Safe Food Act 2013 to protect public health by making food safer, followed by passing of the 'Formalin Control Act, 2015' by Parliament. The Health Officer of Dhaka is now considering different options, such as providing improved food carts and registering the vendors, to facilitate improved hygiene behaviours and improve accountability.

Although the Stars in Global Health program does not explicitly target innovations in areas that we fund through our Targeted Challenges, there are a number of Stars in Global Health projects that are contributing to our efforts to address these challenges, such as:

A culturally sensitive group support psychotherapy model to treat depression among HIV-positive individuals (Makerere, Uganda)

- *The project developed a culturally sensitive group support psychotherapy (GSP) intervention to treat and prevent depression.*
- *A Randomized Controlled Trial (RCT) was conducted to compare a group support psychotherapy (GSP) intervention to group HIV education (GHE) on depression symptoms among persons living with HIV/AIDS in post-conflict Northern Uganda.*
- *Results, published by* The Lancet HIV *in 2015, showed, for the first time in sub-Saharan Africa, that GSP that integrates culturally acceptable, simple cognitive behavioural techniques with training in basic livelihood skills is an effective treatment for major depression in persons living with HIV.*

Studies have shown that depression may interfere with the ability to acquire and/or use information about HIV/AIDS and its treatment regimens. Early recognition and treatment of depression will lead to better uptake of behaviour change messages, a decrease in HIV transmission risk behaviours, and enhanced adherence to anti-retroviral therapy (ART) which may result in improved clinical effectiveness of first-line ART regimens, reducing the likelihood of development of drug resistance. The World Health Organization recommends psychological therapies as first-line treatments for depression but they are non-existent in Northern Uganda.

Implemented in Northern Uganda, the goal of this project was to develop a culturally sensitive group support psychotherapy (GSP) intervention to treat and prevent depression. They conducted a Randomized Controlled Trial (RCT) of the GSP intervention for depressed, HIV-infected adults in post-conflict Northern Uganda and compared the effect of GSP and that of group HIV education (GHE) on depression symptoms. The primary outcomes were depression symptoms and functioning level. The secondary outcomes were perceived social support and self-esteem.

Results, published by *The Lancet HIV* in 2015, showed for the first time in sub-Saharan Africa that GSP that integrates culturally acceptable, simple cognitive behavioural techniques with training in basic livelihood skills is an effective treatment for major depression in persons living with HIV. Participants in GSP recorded faster reduction in depression symptoms than those receiving GHE, such that there was a significant difference in the mean depression scores at the six-month assessment between the two interventions.

POINT-OF-CARE DIAGNOSTICS

In 2014–2015, Grand Challenges Canada wrapped up its formal Point-of-Care Diagnostics program. Through this program, Grand Challenges Canada and the Bill & Melinda Gates Foundation invested over $55M to develop a panDx strategy aimed at revolutionizing the diagnostics industry for the developing world, by setting "plug-and-play" standards for component elements that would enable innovators to develop urgently-needed tests capable of running on a universal platform. Grand Challenges Canada provided $12.4M in funding to 12 innovations (one of which was terminated early).

The decision to end the formal component of our work in point-of-care diagnostics was driven by several factors. First, almost a quarter of all Grand Challenges Canada projects fall in the category of diagnostics, including 130 Stars in Global Health grants. As such, it was felt that the program was somewhat redundant. Similarly, because of the level of global interest in the field, it was felt that Canada no longer filled a unique niche and that it was unlikely that continued investment would lead to transformative impact.

To date, the panDx strategy has not yet lived up to its potential and promise. Likely reasons for this include the ambitious program design (which encountered major technical challenges in setting device and test specifications/standards, and in integrating component pieces) and the lack of critical mass from this $55M project compared to a global multi-billion dollar diagnostics industry.

Nonetheless, individual projects supported by Grand Challenges Canada have enjoyed considerable success, including significant health outcomes, as well as promising new technologies that may ultimately fulfill the programmatic vision of delivering cost-effective multiplex diagnostics to meet the needs of those living in developing countries. Examples include:

Flocked Swab for Collecting Stool Specimens in Children with Gastroenteritis in Botswana (Botswana–UPenn Partnership)

- *A flocked swab performs better and allows for more rapid and reliable stool sample collection than traditional bulk stool culture methodologies when used to test for diarrheal diseases in children.*
- *With support from Grand Challenges Canada, a team from Botswana, in collaboration with McMaster University, collected and analyzed samples from over 1,000 children under the age of five to determine the cause of their diarrhea. The vast majority of cases were caused by rotavirus. Based on the data collected, the Government of Botswana decided to fast-track approval of a national rotavirus vaccine program.*
- *The flocked swab is currently being validated in other low- and middle-income countries, as well as for rural and remote areas in high-income countries, including in Nunavut, Canada.*

Diarrheal disease represents the second leading cause of death in children, accounting for ~760,000 deaths in children under five per year (according to the World Health Organization), with significant impact on cognitive development in those who survive. Diarrhea is potentially treatable but the cause often remains undiagnosed, due to difficulty obtaining adequate and timely stool specimens. The current standard is to culture stool samples, which can be difficult to produce and collect (particularly from young children) and which pose a significant biohazard risk. The collection of these samples poses a particular challenge in low-resource settings, where samples may need to be sent great distances for analysis at lab facilities.

To address this challenge, Dr. David Goldfarb of the Botswana–U Penn Partnership, together with colleagues in Gabarone and McMaster University, tested a novel flocked swab that was developed in conjunction with Copan Italia S.P.A. for use in collecting stool samples from children. They demonstrated that the flocked swab is more sensitive than traditional swabs and bulk stool samples and, when paired with rapid diagnostics, allows for same-day diagnosis to inform treatment. In 2012, as a result of the analysis of data that was collected through this project that confirmed a rotavirus disease outbreak, the Government of Botswana fast-tracked approval of a national rotavirus vaccine program – three years earlier than planned. The program has since vaccinated over 100,000 children and, for 2013 and 2014, analysis of data from four Botswana hospitals in the post-vaccine era reveals a 55% decrease in all-cause diarrhea-related infant mortality during rotavirus season, a 28% decrease in all-cause diarrhea mortality overall, and a 14% decrease in all-cause diarrhea hospitalizations.

The flocked swab is currently being validated in Botswana, Namibia, Tanzania, the U.S. and Canada. In Canada, it is being used in a large gastroenteritis clinical trial in Alberta, and for rotavirus surveillance and outbreak management in Nunavut.

Point-of-Care Diagnosis of Visceral Leishmaniasis (Rajendra Memorial Research Institute of Medical Sciences)

- *There is more visceral leishmaniasis – a potentially fatal disease – in Bihar, India, than anywhere else in the world.*
- *This innovative project pushes visceral leishmaniasis detection into villages by training women known as Accredited Social Health Activists (ASHAs) who are living in endemic villages, using a point-of-care diagnostic test and treatment performed in primary health centres. This model has increased referral rates for this disease by nearly 50% and almost 200 lives have been saved.*
- *This approach is now being rolled out to accelerate the elimination of this disease. It is being implemented across endemic districts of Bihar state in Northern India, supported by the government, and in Nepal and Bangladesh supported by the World Health Organization. This innovation has the potential to save or improve over 215,000 lives in these regions. The ultimate goal is elimination of the disease in the region.*

Visceral leishmaniasis (VL) is a deadly but curable infectious disease that is endemic in Bihar, India. The current bottleneck to elimination of this disease is the timely identification of infected individuals for treatment (which is provided for free in the public health system). Untreated infected individuals act as reservoirs for the disease, spreading it to family members. Early identification and treatment is proven to save lives and to reduce further transmission of the disease.

Dr. Pradeep Das, of the Rajendra Memorial Research Institute of Medical Sciences, and his colleagues developed a new model for active case detection, using trained village Accredited Social Health Activists (ASHAs) to identify potentially infected individuals and refer them for diagnosis and treatment in primary health centres. The team demonstrated that the point-of-care diagnostic test can be performed on blood instead of serum, making diagnosis possible in villages and primary health centres rather than at district hospitals with labs capable of isolating serum from blood.

The project trained more than 1,000 ASHAs in case identification, reaching approximately 1M villagers in the most highly endemic regions on Bihar. ASHA referrals of suspected VL cases for diagnosis at public health centres increased more than seven-fold, from 7% to close to 50%, with one primary health centre showing an increase in referral of 64%. In terms of lives saved, 171 people were identified to have VL, persuaded to complete a full course of treatment, and were followed up at six-month intervals for 24 months, wherein they were shown to be free of disease. Importantly, the time from symptom display to treatment could be reduced from 30 days to about 14 days, which minimizes disease transmission.

The National Vector Borne Disease Control Programme of India has now recommended that ASHA training be conducted in all endemic districts in Northern India, and have directed Dr. Das and his colleagues to train ASHAs in the Vaishali district to facilitate VL elimination. Moreover, the World Health Organization is adopting processes and materials developed in this project for training village health workers in VL case identification in neighbouring Nepal and Bangladesh.

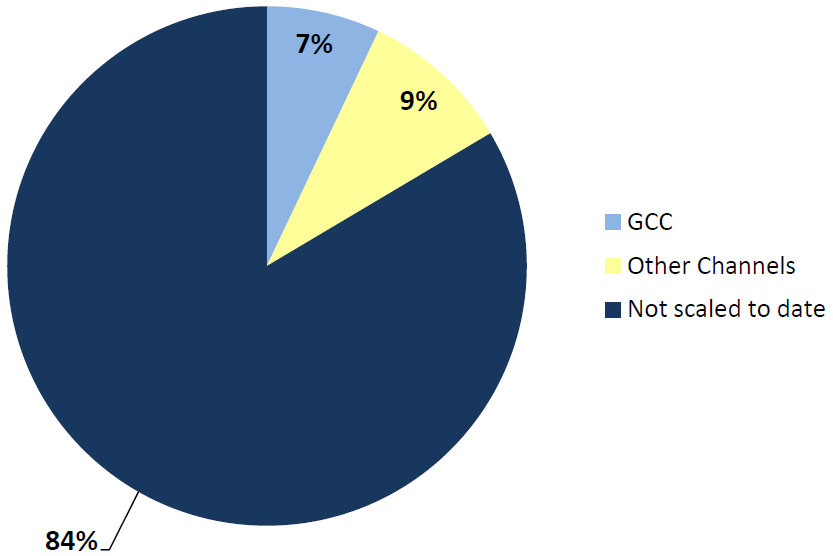
TRANSITION TO SCALE

The goal of this program is to support Grand Challenges Canada-funded innovators from Canada and from low- and middle-income countries who are positioned to take their bold ideas to big impact in the area of global health.

Program Overview

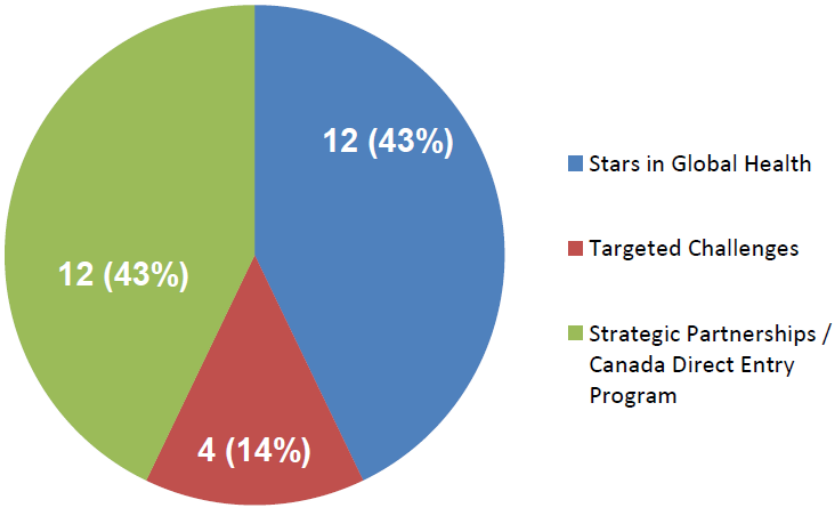
The Transition to Scale program began with investments in point-of-care diagnostics in 2011 (in conjunction with the Bill & Melinda Gates Foundation), in Canadian and in low- and middle-income country innovators through the Grand Challenges Explorations program at the Bill & Melinda Gates Foundation. The Transition to Scale program for our own, internal proof-of-concept pipeline was launched in spring 2013. Since then, our Investment Team has worked to develop and refine a rigorous review process – centred on our Investment Committee – and scaling platform to enable results.

In 2014–2015, the Investment Committee convened four times and reviewed 19 transition-to-scale proposals. Based on the recommendations of the Investment Committee, in 2014–2015 Grand Challenges Canada invested **$**16.8M in 19 transition-to-scale deals. To date, about 16% of Grand Challenges Canada's Stars in Global Health projects have transitioned to scale, with about half being supported by Grand Challenges Canada and half supported by other scaling partners and channels, as illustrated in the following chart:



To date, the pipeline for the Transition to Scale program sourced innovations as follows:

Pipeline sources for the Transition to Scale Program



In terms of the types of investment, for-profit entities have received over half the funding in this program and make up one third of the transactions:

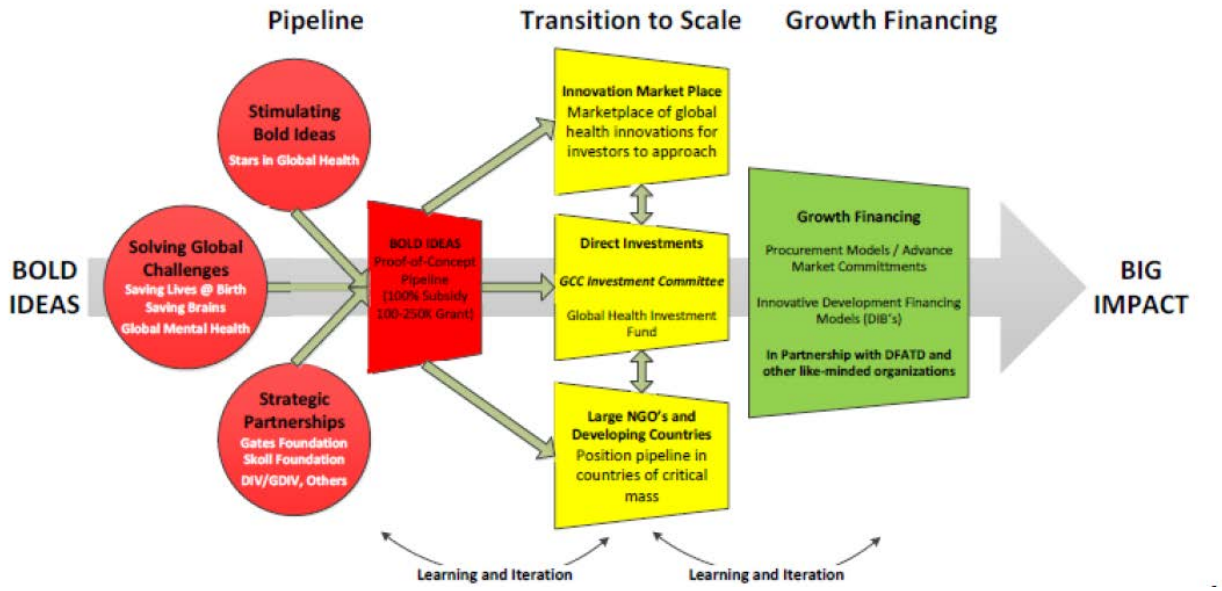
As we refine our approach in the Transition to Scale program, the pace of investment has increased and our investments have shifted towards non-grant vehicles (e.g., low-interest loans for social enterprises). This is demonstrated in the following chart, which compares the number of deals that have been undertaken in the past six months (and the comparative size of these deals) with the number and size of deals that had been undertaken previously.

Our Approach

To be eligible for the Transition to Scale program, innovators must have met a number of key milestones (i.e., completion of a minimum of nine months of their Grand Challenges Canada grant, completion of their proof-of-concept projects and submission of final technical and financial reports), and have solutions that are ready to sustainably go to scale. They must also secure matching funds through "smart" partnerships (i.e., partnerships with individuals or organizations with the resources and expertise to help them successfully increase the scale and scope of their innovation).

Given the complexity of the problems in global health and the low-resource settings in which our innovations are implemented, we do not expect to take our grantees from initial funding through to scale-up, and to eventual commercialization and dissemination of transformative innovations ourselves. Instead, in order to successfully scale up proven innovations from grantees, Grand Challenges Canada seeks to enable partnerships with a number of actors, including social angel investors, small and medium-sized companies, multinationals, foundations, philanthropists, not-for-profits, multilateral organizations and public sector entities, including departments and agencies.

Our approach to the Transition to Scale program is summarized in the following diagram:



Portfolio Results to Date

Two of our more promising innovations in the Transition to Scale program are:

1. A Point-of-Care Ebola Diagnostic
2. A Low-Cost Blood Glucose Monitor.

Each of these innovations is discussed in more detail below.

A Point-of-Care Ebola Diagnostic (Makerere University)

- *A point-of-care diagnostic for the detection of Ebola would be a critical tool in identifying and containing potential outbreaks, by rapidly identifying and enabling the treatment of infected individuals.*
- *A team at Makerere University has been developing an Ebola Rapid Diagnostic Test that is currently being validated.*
- *The impact of a rapid diagnostic for Ebola could be game-changing, as such a test would be a critical tool for preventing future outbreaks of Ebola from becoming epidemics.*

In 2014, the largest outbreak of Ebola in history occurred, resulting in over 8,000 deaths from 21,000 cases in West Africa by December. This was and continues to be a humanitarian catastrophe. Ebola is a deadly virus that is highly infectious, with very high fatality rates. Early detection of Ebola is critical, both in improving the chances of patient survival and, more importantly, in preventing the spread of the disease once a patient has been infected. Currently, however, there is no low-cost, point-of-care diagnostic test for this disease. Often, the only intervention that is available is to quarantine all patients with a high fever or other symptoms.

Over the past 16 months, Grand Challenges Canada has supported Dr. Misaki Wayengera (Makerere University) and his bold idea of developing an Ebola Rapid Diagnostic Test (RDT) that can be deployed in the field, resulting in quick diagnosis of infected individuals and, through rapid diagnosis, preventing the spread of the disease and increasing the chances of patient survival. This test would be available at a very low cost ($1–$2), which would greatly increase its affordability and, by extension, its accessibility in low-resource countries. Dr. Wayengera has built an ecosystem of partners that includes Astel Diagnostics Ltd. (a global and regional leader in RDT research and development); GeneCust of Luxemburg (a partner for peptide and antibody (PABs and MAbs) synthesis); the Uganda Virus Research Institute (UVRI/CDC Labs) at Entebbe (as the designated EBOV and MARV laboratories in Uganda); and the Uganda Ministry of Health and the National Institute for Communicable Diseases BSL4 facility in Johannesburg (one of two accredited World Health Organization/Centers for Disease Control facilities in Africa), to help accelerate development of a rapid diagnostic. The test is expected to be rolled out at the end of 2015 as a simple, paper-based, lateral flow strip that can be used in field conditions, reducing the need for complex laboratory tests.

Although this test may not be available in time to have a significant impact on the current epidemic, in the future, it would be a critical tool in preventing new outbreaks of Ebola from turning into epidemics. The key to preventing future epidemics is to have a test that can be administered rapidly at the level of a clinic or a referral hospital. Such a test would also free up critically needed healthcare workers who have come in contact with Ebola patients, rather than requiring them to be quarantined for the mandatory 21 days as a precaution.

A Low-cost Blood Glucose Monitor (Jana Care)

- *A novel sensor platform can turn a regular camera phone into a blood glucose monitor at a fraction of the cost of traditional monitors.*
- *With support from the Stars in Global Health program, Jana Care tested and validated this innovation to meet industry standards.*
- *When taken to scale, this innovation is aiming to reach 3M diabetic patients in low-resource settings within three years.*

There are an estimated 250M people in developing countries who suffer from diabetes, most of whom lack an affordable glucose monitoring solution. An estimated 4.6M of these individuals die each year as a result of their disease, and it now ranks in the top 10 causes of disability and death worldwide. Although standard treatment for diabetes is widely available, the development of a low-cost glucose monitoring solution is a critical first step to enable the longer term management of this disease in low-resource settings.

Jana Care's DXPhone sensor platform uses advanced computer vision techniques to turn any camera phone into a glucose monitor, thus enabling patients to test blood glucose at a fraction of the current cost. With Grand Challenges Canada's Stars in Global Health funding, Jana Care validated the design and accuracy of the device to meet industry standards.

Building on their success at proof-of-concept, in December 2014, an investment round was closed that provided Jana Care with up to $2M in funding from a partnership between Grand Challenges Canada, Unitus Impact Fund and a number of angel investors. As of July 31, 2015, Jana Care has reached 5,500 patients and intends to reach 25,000 additional patients by November 2015. This will translate to 30,000 lives improved. In the next three years, this project aims to reach 1M diabetic patients using the DXPhone for self-management, and another 2M patients screened and managed through government programs and hospitals.

Summary of Transition to Scale Investments in 2014–2015
The following is a list of Transition to Scale projects undertaken in 2014-15:

Innovator/Enterprise	Project – Health Platform
Monash University	Inhaled Oxytocin
Basic Needs	Community-based Mental Health Treatment
Ayzh, Inc.	JANMA – Clean Birth Kit
JanaCare, Inc.	Glucometer
LionsGate Technologies	Phone Oximeter
Konbit Sante	Household Toilets
Mobile Creches	Early Childhood Education
Makerere University	Ebola Diagnostic
Espoir Pour La Santé	Schistosomiasis control
ZanaAfrica Group Limited	Sanitary Pads
Changamka Microhealth Limited	E-Voucher and Health Insurance
McGill University/Sympact-x	HIV Self-test Diagnostic
World Wide Hearing International Foundation/Hearing Access World Inc.	Hearing Loss Diagnostic Kit
Samagra Sanitation Pvt. Ltd.	Toilet Blocks in Urban Slums
Africa Mental Health Foundation	Multisectoral Mental Health Intervention
Clearwater Clinical	Hearing Diagnostic
Fondation Kole Zepol	Community Health Workers
Kangaroo Foundation	Kangaroo Mother Care for Infants
Jacaranda Health Ltd.	Quality Improvement in Clinics

GLOBAL HEALTH INVESTMENT FUND

- *Grand Challenges Canada is the anchor investor in the $108M USD Global Health Investment Fund (GHIF).*
- *This fund was created to overcome a critical market failure: the lack of availability of investment capital to take promising global health innovations to scale in low-income countries.*

- *To date, the fund has made two investments and is actively evaluating additional potential investments.*

Announced in September 2013, GHIF is a $108M impact investment fund. Through a pioneering group of investors – including anchor support from Grand Challenges Canada (funded by the Government of Canada), the German Ministry for Economic Cooperation and Development (acting through KfW) and the Children's Investment Fund Foundation – the Global Health Investment Fund will help advance promising interventions to fight challenges in low-income countries, such as malaria, tuberculosis, HIV/AIDS, and maternal and infant mortality. The target for this fund is innovations that may struggle to meet traditional risk/return standards for purely commercial investment but that offer potentially transformative global health outcomes. The Bill & Melinda Gates Foundation and the Swedish International Development Cooperation Agency have provided a first loss provision to attract investors to the fund.

To date, two investments have been announced and a strong pipeline of opportunities is progressing:

- **Epistem:** a UK biotechnology company that is initiating pivotal field trials of its new point-of-care molecular diagnostic device.
- **EuBiologics:** a South Korean life sciences company that is developing the capacity to become the second World Health Organization prequalified supplier of an oral cholera vaccine that is suitable for global health applications.

ACTIVE LEARNING

Grand Challenges Canada is a learning organization. One of the most important opportunities for learning in an innovation organization is around 'failures' or, put differently, projects that learn through their proof-of-concept investigations that their approach will not succeed at scale. Grand Challenges Canada embraces these opportunities and the following are several examples of important learning opportunities over the past year.

Proof-of-Concept

An example of using the design process as a decision-making tool in this portfolio is **Comet: Effective, compact and low-cost phototherapy to treat newborn jaundice**, undertaken by D-Rev. This project set out to address the challenge of pathological jaundice, which affects nearly half a million newborns annually, with the burden falling most heavily on low- and middle-income countries. Without access to an intervention, these newborns risk brain damage (kernicterus) or death. In fact, currently one in five will die. Phototherapy, a viable and low-risk intervention, has been proven to effectively treat newborns for jaundice, reducing the chances of disability or death. However, in low-resource clinics and hospitals, existing phototherapy options—if they exist—are often ineffective, costly, difficult to maintain and improperly used.

The team designed a low-cost (<$200), high-performance and easy-to-install jaundice treatment device, called Comet, targeted for use in rural and limited-infrastructure clinics in low-resource settings. Comet integrates a small physical footprint, low power consumption and high-intensity blue LEDs with a 10-year lifespan to provide phototherapy.

During field tests, the team delivered and installed 13 fully-functional Comet prototypes across 12 sites in India, Nepal and Kenya, treating 137 newborns; 117 of those newborns would not have received effective care without Comet, and of those 117, two would have died or suffered from disabilities without Comet. In addition to helping the team identify 19 design changes, user feedback gathered during field tests aided the team in realizing that rural clinics may not be ideal recipients of Comet. The lack of multi-day inpatient care required for treatment, the level of training required for operation, the necessity of a reliable power source for operation, and baby warming challenges collectively meant that larger, public and private hospitals with regular power are more suitable customers for a phototherapy device at this time.

D-Rev concluded that introducing phototherapy to rural clinics in the near future would not have measurable impact and could, in fact, have negative consequences. The team absorbed all of the lessons learned from the process to discontinue work on Comet as an independent product and fold those lessons learned into its primary phototherapy product, Brilliance.

Transition to Scale

The role of 'smart partners' is essential in Grand Challenges Canada's Transition to Scale program. The challenges in global health are too big to be solved by any one organization or sector alone. Like-minded people, committed to important social outcomes, can find common causes across sectors. A key component of partnerships and a critical lesson learned is the importance of ensuring the alignment of values across partners within a particular investment.

In a number of our investments, we are catalyzing a 'dual market' strategy where a particular product or service innovation is applicable to both developed and developing world markets. Grand Challenges Canada is focused on developing world markets to optimize impact at scale (saving and improving lives) in a sustainable manner, whereas other partners are either focused on developed markets and/or share the same values as Grand Challenges Canada and its mandate.

In some investments – especially those with a dual market strategy – there are circumstances when the values of partners shift over time. In one particular deal, there were challenges in terms of the dual market strategy and the ability to raise additional funds for expansion. This led to a management change within the company. It was at this point that the dual market strategy was put into question by the original private investors. At the time, Grand Challenges Canada had a board seat on the investee, and had sufficient rights and a global access framework to mitigate the risk of the company moving away from their developing world mission. The company is now on a positive path forward with a more defined dual market strategy.

Grand Challenges Canada has developed a number of strategies to ensure that our investments lead to impact in the developing world. These include global access strategies, distribution agreements that set the price and quantity of products to be distributed in the developing world, other legal provisions that require Grand Challenges Canada's approval if a significant change occurs that will potential deviate from the developing world mission of the company, and governance mechanisms (such as board and/or observer seats) that will ensure that Grand Challenges Canada is at the table when important discussions and decisions are made.

Corporate Profile

Grand Challenges Canada is a federally incorporated, not-for-profit organization. We are an Alternative Service Delivery mechanism for the Government of Canada, focused on managing the risks associated with funding innovation in development, with a particular focus on global health. We work closely with our partners, Canada's **International Development Research Centre** (IDRC), the **Canadian Institutes of Health Research** (CIHR) and the **Department of Foreign Affairs, Trade and Development**.

We receive the majority of our funding from the Government of Canada through the Development Innovation Fund in Health, which is administered by the International Development Research Centre (IDRC), as well as through a scaling partnership with the Department of Foreign Affairs, Trade and Development.

GOVERNANCE

It is with great sadness that, in January 2015, Grand Challenges Canada marked the passing of our founding Chairman of the Board of Directors, **Joseph L. Rotman**. The current Chair of the board, **Guylaine Saucier** was confirmed in February 2015; she leads a thoughtful and engaged volunteer Board of Directors. For a complete list of members of the Board of Directors, please see **Annex 1**.

There are three sub-committees of the Board of Directors:

- **Audit & Finance Committee**, chaired by Morris Rosenberg
- **Nominating & Governance Committee**, chair is currently open
- **Compensation Committee**, chaired by Guylaine Saucier.

The Scientific Advisory Board continues to provide exceptional advice and guidance to the Board of Directors through portfolio-specific sub-groups that analyze, review and provide feedback on the outcomes of each portfolio. Each of these sub-groups consists of leading experts in the subject area, both from Canada and abroad. For a complete list of members of the Scientific Advisory Board by sub-group, please see **Annex 2**.

ACCOUNTABILITY

At Grand Challenges Canada, we are focused on two primary areas of accountability. First, we continue to have a determined focus on **results**. Our results reporting is based on our Organizational Logic Model (included as **Annex 3**). A summary of our outcomes and outputs for the year are found in the **Highlights 2014–2015** section of this report.

We have also maintained a strong focus on **risk management**, to identify and mitigate the risks associated with our programs and operations. The tools that we use in our risk management processes include monitoring project progress through milestones, project visits and stringent commitments to proper use of funds, coupled with spot-check audits.

We also take a conservative approach to financial risk management, with various processes that are overseen by the Audit & Finance Committee of our Board of Directors. Any material risk occurrences that come to the attention of the organization are reported to, and discussed with, the Audit & Finance Committee of our Board of Directors on a quarterly basis (more frequently if needed). The organization's Corporate Risk Profile is also updated so that recurring risks can be monitored and appropriate proactive mitigation measures implemented.

In FY 2014–2015, six risk occurrences were reported to, and discussed with, the Audit & Finance Committee; five out of the six risk occurrences have been resolved without any known negative consequences to the organization to date and one of the six is in the final stages of resolution. Based on guidance from the Audit & Finance Committee, internal processes have been adjusted to mitigate the risk occurrences, where possible.

An independent Summative Evaluation of the Development Innovation Fund (DIF) was underway at the time that this Annual Report was prepared. This evaluation will feed into ongoing discussions on the renewal of DIF-H. In addition, an Expert Review Panel (chaired by Marie-Lucie Morin) was commissioned by the Board of Directors to provide advice and guidance to Grand Challenges Canada looking forward to 2020.

OPERATIONS

As it continues to mature as an organization, Grand Challenges Canada has continued to refine and streamline operations to ensure that they enable us to deliver on our strategic priorities. Our three core areas of operations are:

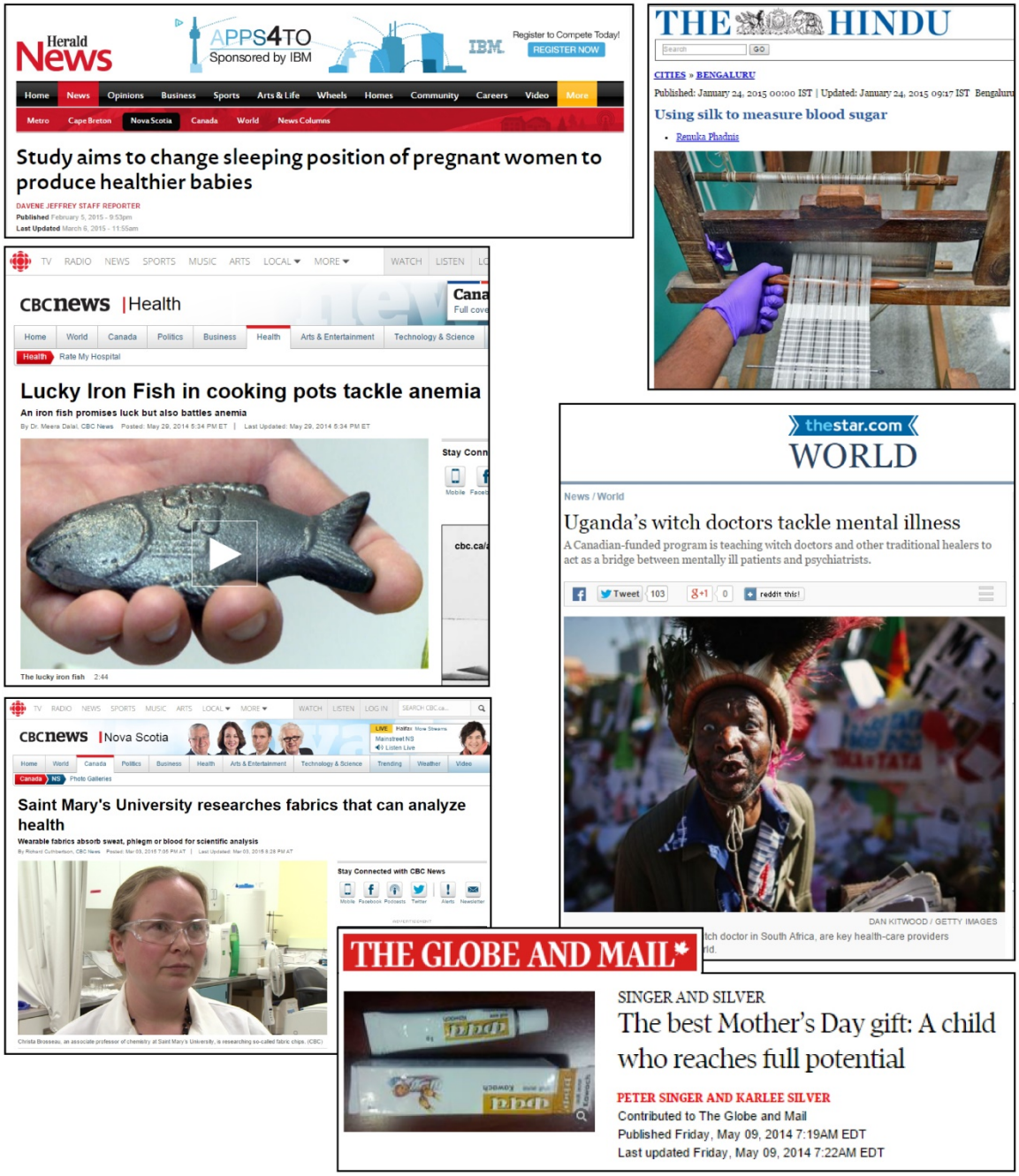
1. Human Resources
2. Communications
3. Administration.

Human Resources

The significant change in human resources at the end of 2014–2015 was the creation of a single programs group that includes both the Targeted Challenges and the Stars in Global Health programs. **Shane Green** was hired to be the Director of Programs, reporting to **Karlee Silver**, Vice President of Programs. An organization chart reflecting this change can be found at **Annex 3**. In FY 2014-2015, Grand Challenges Canada had 25.9 full-time equivalent staff.

Communications

In the fiscal year 2014–2015, Grand Challenges Canada was featured in over 125 original media stories and issued 18 press releases. Some of the highlights of this media coverage are captured in the following collage.



Administration

Grand Challenges Canada aims to maintain our operating expenses (General Administration and Program Support) at around 10% of our total expenditures. For 2014–2015, our operating expenses were 10.3% of total expenditures.

Financial Summary

Over its first five years, Grand Challenges Canada has been very successful at leveraging its core funding from the Government of Canada. We leveraged funds at three levels:

1. **Organization** – Funding to support our ongoing operations
2. **Program** – Funding to support and/or extend our work in a specific program area of challenge
3. **Project** – Funding associated with specific projects.

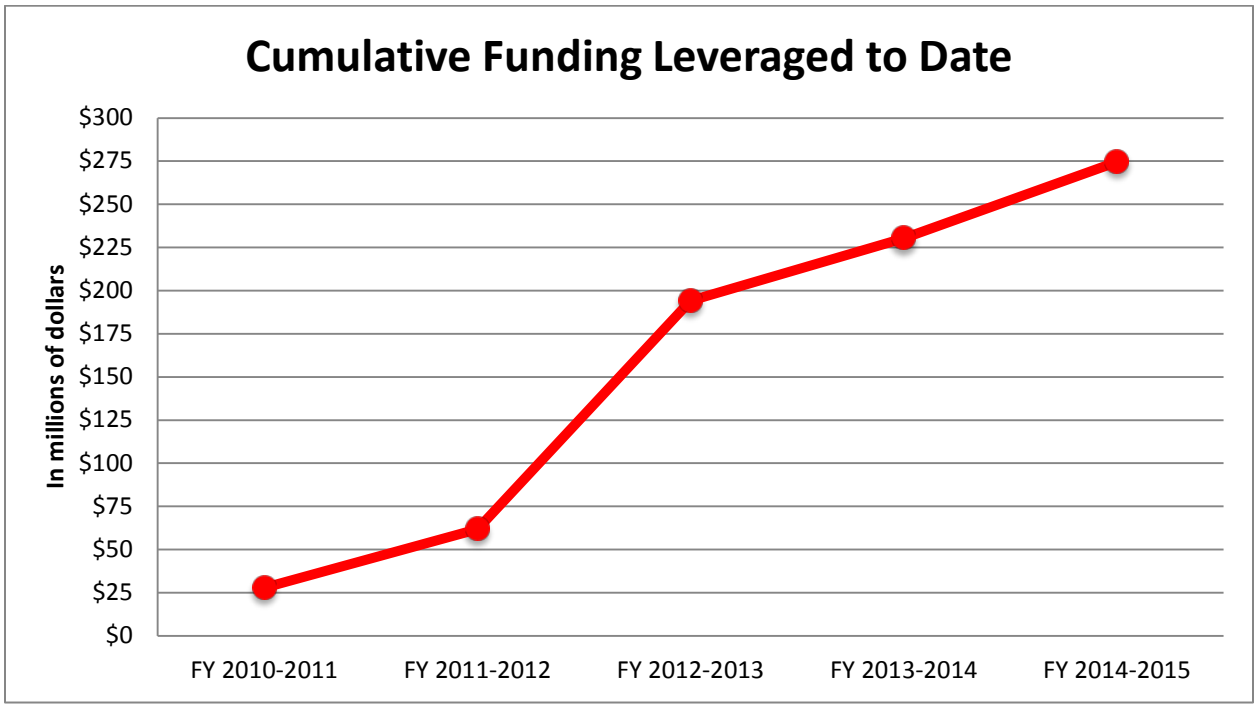
Total funds leveraged over our first five years are as follows:

Organization	
Rotman Family Foundation[8]	$5.3M
Program	
Saving Lives at Birth	$42.8M
Saving Brains	$0.9M
Global Mental Health	$0M
Targeted Challenges – Other[9]	$4.0M
Stars in Global Health	N/A[10]
Transition To Scale	N/A[11]
Global Health Investment Fund	$96.4M
Point-of-Care Diagnostics	$36.8M
Project	
Saving Lives at Birth	$1.5M
Saving Brains	$5.8M
Global Mental Health	$1.3M
Stars in Global Health	$23.3M
Transition to Scale	$36.2M
Grand Challenges Explorations[12]	$3.4M
Point-of-Care Diagnostics	$17.0M

[8] This represents financial support from the Rotman Family Foundation for the Sandra Rotman Centre since 2004. The Sandra Rotman Centre currently houses, and originally incubated, Grand Challenges Canada.
[9] This includes six Hypertension grants that Grand Challenges Canada manages as part of Canada's contribution to the Global Alliance for Chronic Diseases challenge in this area.
[10] All leverage in the Stars in Global Health program is at the level of individual projects.
[11] All leverage in the Transition to Scale program is at the level of individual projects.
[12] Jointly funded with the Bill & Melinda Gates Foundation and included as part of the Transition to Scale portfolio

TOTAL	**$275M**

The following chart highlights the growth in our cumulative funding over Grand Challenges Canada's first five years of operations.



FINANCIAL STATEMENTS

The Financial Statements for Grand Challenges Canada for fiscal year 2014–2015 follow, with comparative figures for fiscal year 2013–2014.

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, 2015, and the statements of operations and changes in net assets and cash flows for the year then ended, and 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 accounting standards for not-for-profit organizations, 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 the auditors' 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, the auditors 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.

EY
A member firm of Ernst & Young Global Limited

Opinion
In our opinion, the financial statements present fairly, in all material respects, the financial position of **Grand Challenges Canada** as at March 31, 2015 and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations.

Ernst & Young LLP

Toronto, Canada
June 22, 2015

Chartered Professional Accountants
Licensed Public Accountants

EY
A member firm of Ernst & Young Global Limited

GRAND CHALLENGES CANADA

STATEMENT OF FINANCIAL POSITION

As at March 31

	2015 $	2014 $
ASSETS		
Current assets		
Cash	**7,682,349**	10,744,810
Accounts receivable	**308,265**	82,581
Prepaid expenses and deposits	**54,820**	68,035
Total current assets	**8,045,434**	10,895,426
Capital assets, net *[note 3]*	**187,624**	61,238
	8,233,058	10,956,664
LIABILITIES AND NET ASSETS		
Current liabilities		
Accounts payable and accrued liabilities	**5,581,923**	7,641,793
Due to University Health Network *[note 4]*	**112,531**	16,040
Deferred contributions *[note 5]*	**2,538,604**	3,298,831
Total current liabilities	**8,233,058**	10,956,664
Net assets	—	—
	8,233,058	10,956,664

See accompanying notes

On behalf of the Board:

Director

Director

GRAND CHALLENGES CANADA

STATEMENT OF OPERATIONS AND CHANGES IN NET ASSETS

Year ended March 31

	2015 $	2014 $
REVENUE		
Grant *[notes 5 and 6]*	**50,419,560**	54,387,217
Interest *[notes 5 and 6]*	**121,376**	118,239
	50,540,936	54,505,456
EXPENSES		
General administration		
Personnel	**963,654**	1,213,451
Materials and supplies	**71,531**	77,665
Equipment and infrastructure	**132,593**	130,541
Business development	**289,536**	360,815
	1,457,314	1,782,472
Program support		
Personnel	**2,538,481**	1,709,018
Materials and supplies	**64,856**	66,312
Equipment and infrastructure	**262,490**	233,996
Business development	**887,250**	866,749
	3,753,077	2,876,075
Programs		
Issued grants	**40,111,416**	47,551,495
Non-grant projects *[note 7]*	**3,071,000**	150,000
Research support activities	**2,148,129**	2,145,414
	45,330,545	49,846,909
	50,540,936	54,505,456
Excess of revenue over expenses for the year	**—**	—
Net assets, beginning of year	**—**	—
Net assets, end of year	**—**	—

See accompanying notes

GRAND CHALLENGES CANADA

STATEMENT OF CASH FLOWS

Year ended March 31

	2015 $	2014 $
OPERATING ACTIVITIES		
Excess of revenue over expenses for the year	—	—
Add non-cash items		
Amortization of capital assets	**38,580**	34,239
Changes in non-cash operating working capital balances		
(Increase) decrease in accounts receivable	**(225,684)**	41,641
Decrease in prepaid expenses and deposits	**13,215**	13,306
(Decrease) increase in accounts payable and accrued liabilities	**(2,059,870)**	1,463,205
Increase (decrease) due to University Health Network	**96,491**	(682,519)
Decrease in deferred contributions	**(760,227)**	(137,813)
Cash (used in) provided by operating activities	**(2,897,495)**	732,059
INVESTING ACTIVITIES		
Additions to capital assets	**(164,966)**	—
Cash used in investing activities	**(164,966)**	—
Net (decrease) increase in cash during the year	**(3,062,461)**	732,059
Cash, beginning of year	**10,744,810**	10,012,751
Cash, end of year	**7,682,349**	10,744,810

See accompanying notes

GRAND CHALLENGES CANADA

NOTES TO FINANCIAL STATEMENTS

March 31, 2015

1. PURPOSE OF THE ORGANIZATION

Grand Challenges Canada (the "Organization") is dedicated to supporting **Bold Ideas with Big Impact®** in global health. The Organization is funded primarily by the Government of Canada and it funds innovators in low- and middle-income countries and Canada. The bold ideas that are supported integrate science and technology, social and business innovation – called **Integrated Innovation®**. The Organization focuses on bringing successful innovation to scale, catalyzing sustainability and impact. The Organization has a determined focus on results, and saving and improving lives.

The Organization works closely with Canada's International Development Research Centre (IDRC), the Canadian Institutes of Health Research (CIHR) and the Department of Foreign Affairs, Trade and Development Canada (DFATD) to catalyze scale, sustainability and impact. The Organization also works with other Global Health foundations and organizations. 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 corporation without share capital. The Organization continued its incorporation under the Canada Not-for-profit Corporations Act on January 29, 2014. The Organization is a not-for-profit organization within the meaning of the Income Tax Act (Canada).

2. SIGNIFICANT ACCOUNTING POLICIES

These financial statements are prepared in accordance with Part III of the Chartered Professional Accountants of Canada Handbook – Accounting which sets out generally accepted accounting principles for not-for-profit organizations in Canada and includes the significant accounting policies summarized below.

Revenue recognition

The Organization follows the deferral method of accounting for contributions, which include grants. Contributions are recognized in the accounts when received or receivable if the amount to be received can be reasonably estimated

GRAND CHALLENGES CANADA

NOTES TO FINANCIAL STATEMENTS

March 31, 2015

2. SIGNIFICANT ACCOUNTING POLICIES (continued)

and collection is reasonably assured. Restricted contributions are deferred when initially recorded in the accounts and recognized as revenue in the year in which the related expenses are recognized.

Grant payments

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

Allocation of expenses

Personnel costs are allocated between general administration and program support based on the time spent by personnel.

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:

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

Financial instruments

Financial instruments, including accounts and loans receivable and accounts payable, are initially recorded at fair value and subsequently measured at amortized cost, net of any provision for impairment.

GRAND CHALLENGES CANADA

NOTES TO FINANCIAL STATEMENTS

March 31, 2015

3. CAPITAL ASSETS

	2015		
	Cost $	Accumulated amortization $	Net book value $
Tangible			
Leasehold improvements	**36,197**	**36,197**	**—**
Intangible			
Software	**106,591**	**79,591**	**27,000**
Work in progress – software	**138,916**	**—**	**138,916**
Website	**95,686**	**73,978**	**21,708**
	377,390	**189,766**	**187,624**

	2014		
	Cost $	Accumulated amortization $	Net book value $
Tangible			
Leasehold improvements	36,197	28,958	7,239
Intangible			
Software	106,591	52,592	53,999
Website	69,636	69,636	—
	212,424	151,186	61,238

4. 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, and other administrative services and resources provided by the University Health Network. The settlement of accounts between the University Health Network and

GRAND CHALLENGES CANADA

NOTES TO FINANCIAL STATEMENTS

March 31, 2015

4. DUE TO UNIVERSITY HEALTH NETWORK (continued)

the Organization is done on a regular and timely fashion. Amounts are non-interest bearing.

5. DEFERRED CONTRIBUTIONS

Deferred contributions represent unspent resources externally restricted for expenses in future years. Changes in the deferred contributions balance are as follows:

	2015 $	2014 $
Balance, beginning of year	**3,298,831**	3,436,644
Amounts received during the year	**49,659,333**	54,249,404
Interest earned on funds received in advance	**121,376**	118,239
Amounts recognized as revenue during the year		
Grant revenue	**(50,419,560)**	(54,387,217)
Interest	**(121,376)**	(118,239)
Balance, end of year	**2,538,604**	3,298,831

6. GRANT REVENUE

In the 2008 federal budget, the Government of Canada announced the creation of the Development Innovation Fund ["DIF"]. The Government of Canada initially committed $225 million over five years to the DIF.

The terms of the DIF were reviewed by the Organization working with the IDRC and the CIHR. As a result of this review, a second amended grant agreement with the IDRC for $220,141,134 was signed on January 28, 2014 covering the period from January 10, 2010 to March 31, 2017. The Organization is depending on this funding to carry out its mandate.

GRAND CHALLENGES CANADA

NOTES TO FINANCIAL STATEMENTS

March 31, 2015

6. GRANT REVENUE (continued)

In fiscal year 2013-2014, DFATD entered into a contribution agreement with the Organization for a maximum of $9,975,000 for the Scaling Health Initiative. The agreement is effective from October 2, 2013 to October 2, 2015.

In fiscal year 2013-2014, the Department for International Development – UK (DFID) committed to grant the Organization with a maximum of £2,000,000 for the Saving Lives at Birth (SLAB) portfolio. The grant is effective from April 1, 2013 to March 31, 2017. The terms of the agreement were reviewed by the Organization and the DFID. As a result of this review, a first amended grant agreement with the DFID was signed on May 20, 2014, for an additional amount of £500,000, and a second amended grant agreement was signed on June 25, 2014, to extend the effective period to March 31, 2018.

In fiscal year 2014-2015, the Bernard van Leer Foundation (BVLF) committed to grant the Organization with a maximum of $50,000 USD for the Saving Brains (SB) platform. The agreement is effective from September 17, 2014 to May 17, 2015.

Grants and interest earned on funds received in advance that is recognized as revenue in the year is from the following sources:

[note 5]	**2015 $**	**2014 $**
DIF	**44,363,533**	52,297,833
DFATD	**4,961,593**	950,000
DFID	**1,154,535**	1,257,623
BVLF	**61,275**	—
	50,540,936	54,505,456

GRAND CHALLENGES CANADA

NOTES TO FINANCIAL STATEMENTS

March 31, 2015

7. NON-GRANT PROJECTS

In addition to issuing grants, the Organization provides funding for projects in the form of loans receivable. Loans are advanced to borrowers in tranches, subject to the satisfaction of certain terms and conditions, including milestone events. Loans are repayable at maturity or a later specified date, and may bear interest.

For interest bearing loans, interest is only payable to the interest beneficiary as defined in the agreement, and not to the Organization.

Certain loan agreements include a provision that permits the Organization to convert the outstanding principal amount of the loan into authorized equities of the borrower, at the Organization's sole discretion. The Organization has not yet exercised any of these conversion rights.

While the Organization may receive some returns from these non-grant projects in the future, due to the start-up nature of the projects being funded and long duration of repayment terms, it is difficult to place a fair valuation on the Organization's loans and potential equity instruments. As a result, the Organization has expensed these investments.

In addition to these non-grant projects, in 2013 the Organization made an investment contribution to the Global Health Investment Fund, a partially guaranteed fund designed to catalyze investment activity that can deliver new technologies to address urgent global health challenges and improve livelihoods around the world. Since there is no certainty about the timing of the return of invested capital, no value was attributed to the investment when made in 2013 and the contribution was expensed.

GRAND CHALLENGES CANADA

NOTES TO FINANCIAL STATEMENTS

March 31, 2015

8. FUNDING COMMITMENTS

The Organization is committed to making payments, subject to funding being provided by the Government of Canada and other donor partners and to compliance by recipients with the terms and conditions of funding agreements.

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

	$
2016	16,784,000
2017	3,145,000
2018	673,000
	20,602,000

9. LEASE COMMITMENTS

Future minimum annual lease payments for operating leases are as follows:

	$
2016	145,000
2017	150,000
	295,000

10. COMPARATIVE FIGURES

Certain reclassification of March 31, 2014 amounts have been made to facilitate comparison with the current year.

Annex 1: Board of Directors

GRAND CHALLENGES CANADA Members of the Board of Directors	
Name	**Affiliations**
Alain Beaudet	• President, Canadian Institutes of Health Research (CIHR)
Daniel J. Carucci	• 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
Charles Field-Marsham	• President of Kestrel Capital Management Corp. • Founder and Executive Chairman of Panafrican Group • Chairman of Kenya Fluorspar Company • Member of the Board of Healthy Kids International
Mohamed H.A. Hassan	• 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)
Jean Lebel	• President of the International Development Research Centre (IDRC)
Gerhard Pries	• Chair of the Investment Committee, Grand Challenges Canada • Management Partner and CEO, Sarona Asset Management
Allan Ronald	• 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
Morris Rosenberg	• Former Deputy Minister of the Department of Foreign Affairs, Trade and Development • President and CEO, The Pierre Elliott Trudeau Foundation
Guylaine Saucier	• **Chairman of the Board of Directors of Grand Challenges Canada** • 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	• Chief Executive Officer, Grand Challenges Canada • Director, Sandra Rotman Centre • Officer of the Order of Canada

Annex 2: Scientific Advisory Board

Name	Title	Sub-Committee Participation
Dr. Abdallah Daar, Chair	Senior Scientist, Sandra Rotman Centre Professor of Public Health Sciences and of Surgery, University of Toronto	Global Mental Health
Ms. Jane Aubin	Chief Scientific Officer/Vice President of Research, Canadian Institutes of Health Research	Stars in Global Health
Dr. Lorne Babiuk	Vice President, University of Alberta, Grand Challenge in Global Health Initiative Grantee	Stars in Global Health
Sir John Bell	Regius Professor of Medicine, University of Oxford	Stars in Global Health
Dr. Michel G. Bergeron	Professor, Founder and Director of the Centre de Recherche en Infectiologie (CRI) of Université Laval, Québec City	Stars in Global Health
Dr. Zulfiqar Bhutta	Co-director and research head of Global Child Health Centre, SickKids Founding chair of the Division of Women and Child Health, and the Husein Laljee Dewraj Professor at The Aga Khan University, Karachi, Pakistan	Women and Children's Health
Dr. Cedric Bisson	Venture Partner, Teralys Capital	Investment Committee
Dr. Jane Cardosa	Former Director, Institute of Health and Community Medicine, Universiti Malaysia	Stars in Global Health
Dr. Pamela Collins	Director of the Office for Research on Disparities and Global Mental Health & the Office of Rural Mental Health Research at the U.S. National Institute of Mental Health	Global Mental Health
Dr. Christine Debouck	Former Sr. VP, Genetics Research, GlaxoSmithKline	Stars in Global Health
Mr. Tim Draimin	Executive Director of Social Innovation Generation	Stars in Global Health
Mr. Paul Dufour	Fellow, Institute for Science, Society and Policy at the University of Ottawa, and Principal, PaulicyWorks	Investment Committee
Mr. Darrell Elliot	CEO, Isuma Strategies Inc. / Chairman and CEO of Calyx Bio-Ventures	Investment Committee

Dr. Nirmal K. Ganguly	Past Director, Indian Council of Medical Research	Stars in Global Health
Mr. Kiyoshi Kurokawa	Former Science Advisor to the Cabinet of Japan	Stars in Global Health
Dr. Charles Larson	Director, Centre for International Child Health / Senior Associate Clinician Scientist, Child & Family Research Institute	Investment Committee
Dr. Joy Lawn	Director of Maternal, Reproductive and Child Health Centre, London School of Hygiene & Tropical Medicine	Women and Children's Health
Dr. Crick Lund	Director of the Alan J Flisher Centre for Public Mental Health	Global Mental Health
Dr. Mwele Ntuli Malecela	Acting Director General, National Institute for Medical Research, Tanzania	Women and Children's Health
Dr. Anita McGahan	Associate Dean of Research, Rotman School of Management, University of Toronto	Stars in Global Health, Investment Committee
Stephen McGurk	Representative from IDRC	TBD
Dr. Hassan Mshinda	Director General of the Tanzania Commission for Science and Technology (COSTECH)	Stars in Global Health
David O'Brien	Representative from IDRC	TBD
Dr. Vikram Patel	Professor of International Mental Health and Wellcome Trust Senior Research Fellow in Clinical Science at the London School of Hygiene & Tropical Medicine	Global Mental Health
Dr. Frank Plummer	Professor of Medicine and Medical Microbiology, University of Manitoba	Stars in Global Health

Gerhard Pries	Founder, Managing Partner and CEO, Sarona Asset Management Inc. / Founding Director and Vice Chairman, MicroVest General Partner Holdings	Investment Committee
Dr. Shekhar Saxena	Director of the Department of Mental Health and Substance Abuse at the World Health Organization	Global Mental Health
Dr. Jack Shonkoff	Julius B. Richmond FAMRI Professor of Child Health and Development at the Harvard School of Public Health and the Harvard Graduate School of Education, Professor of Pediatrics, Harvard Medical School and Boston Children's Hospital. Director, Center on the Developing Child at Harvard University	Women and Children's Health
Dr. Kishor Wasan	Associate Dean of Research and Graduate Studies, Faculty of Pharmaceutical Sciences / Distinguished University Scholar / Director, Neglected Global Diseases Initiative	Stars in Global Health
Dr. Yongyuth Yuthavong	Former Minister of Science and Technology, Thailand	Stars in Global Health

Annex 3: Organizational Logic Model

ULTIMATE OUTCOME

1000 Lives saved and improved in low- and middle-income countries

INTERMEDIATE OUTCOMES

1100 Increased use of innovative health products and/or services by target population	1200 Increased use of innovative health products and/or services by families, communities, health providers in developing countries

IMMEDIATE OUTCOMES

1110 Increased access to innovative health products and/or services by target populations in developing countries	1120 Increased adoption of innovative health policies, regulation, or legislation contributing to solving global challenges in developing countries	1210 Increased jobs created related to innovative health products and/or services in developing countries	1220 Increased knowledge and awareness of positive international Canada brand	1230 Improved development innovation platform for Canada

OUTPUTS

1111 Innovative prototypes or service delivery models developed and/or scaled	1121 Targeted challenge-specific outcome metrics developed	1211 Private sector engaged	1221 Canada brand awareness raised	1231 Lessons learned and outcomes monitored and evaluated
1112 Results published and patents filed	1122 Targeted challenge-specific global partnerships formed	1212 Funds leveraged by projects	1222 Canadian diplomacy enabled	1232 Risks managed
	1123 Targeted challenge-specific communities of innovators formed		1223 Grand Challenge model adopted and enhanced	1233 Efficient operating model maintained

ACTIVITIES

1111 Support innovative projects	1121 Support platforms to develop logic models and performance management frameworks for targeted challenges and knowledge management for all programs	1211 Engage private sector	1221 Communicate projects supported and results	1231 Conduct portfolio reviews and prepare annual reports for Scientific Advisory Board validation and Board approval + engage in joint learning with partners
1112 Monitor and validate project outputs and outcomes	1122 Engage partners around targeted challenges	1212 Engage smart partners on specific deals	1222 Engage with Canadian diplomats	1232 Conduct risk management with Board Audit & Finance Committee
	1123 Support communities of innovators around targeted challenges		1223 Work with countries to adopt and enhance Grand Challenges model	1233 Maintain high-performing team

Annex 4: Organization Chart