

Some of Canada's programming partners bring their own particular contributions to innovation. For instance, Canada supports the Digital Opportunity Trust (DOT), an Ottawa-based youth-led movement of social innovators. DOT aims to reduce the gender digital divide by addressing women's access to and use of digital tools and technology for their own economic and social development. For example, DOT supports Pwani Teknowgalz, a social enterprise that empowers young Kenyan women to innovate in the STEM fields. DOT's training methodology sharpens women participants' skills in public speaking and innovation. Since its founding in 2015, Pwani Teknowgalz has reached over 400 girls in coastal Kenya to encourage and educate them in STEM.

Canada contributes to innovation through research by working with Canada's research organizations, universities and other civil society organizations to address gender-equitable, nutrition-sensitive and climate-smart agriculture. Creative partnerships with their international and developing country networks have resulted in the leveraging of additional funds and expertise. They have also resulted in the scaling-up of promising new technologies, processes and models.

For example, researchers in Canada, India and Sri Lanka have developed nine breakthrough innovations for preventing spoilage of mangoes and other soft fruits. This enables farmers to demand a premium price for their goods and avoid losses. The \$4.2-million project was jointly funded between 2014 and 2018 by IDRC and Global Affairs Canada through the Canadian International Food Security Research Fund. The research team, located in the Tamil Nadu region of India, tested applications of a natural plant extract called hexanal. Spraying mango orchards with hexanal was shown to slow fruit ripening by three weeks and increase fruit shelf life by up to 17 days. The technology has resulted in increased employment opportunities for women and the production of new food products for market, which has increased household savings by between \$4.70 and \$5.40 per month. The commercial production of the hexanal nanotechnology is expected to be made available to soft fruit farmers across the globe.

In India, the University of Toronto has worked with JVS Foods Pvt Ltd, which has invested its own funds to set up a state-of-the-art, \$1.2-million commercial scale pre-mix plant in India. The company's investment complements the \$1.4-million funding provided by the Canadian International Food Security Research Fund to test and validate innovative technologies aimed at the double fortification of salt with iodine and iron. With its ability to combat iodine and iron deficiencies, this salt product would be a strong contender in the health products market. It's estimated that the plant will have a capacity of 1,500 tons per year. Other partners include:

- the State Government of Uttar Pradesh, which is subsidizing the distribution of the double fortification of salt to the poorest and most vulnerable in 10 districts, reaching more than 10 million women, girls, boys and men;

- Tata Trusts;
- Barometer Research;
- St. John's Research Institute; and
- Bill and Melinda Gates Foundation.

The technology has been validated and the evidence base for impact on iron deficiency and anemia reduction is underway. Now, this innovation has potential application in other developing countries. There is already interest from Bangladesh, Nigeria and Tanzania to scale up double fortification of salt in those countries.

The Global Health Institute (GHI) at the American University of Beirut is finding solutions for challenges such as conflict medicine, refugee health and nutrition. The first of its kind in the Middle East and North Africa Region, the institute was launched in July 2017 with support from Canada's IDRC. The institute also launched its GHI Academy in November 2017. The academy delivers locally relevant and cutting-edge global health knowledge to researchers and practitioners. As of May 2018, the academy has supported 675 students, of whom 75% were women. It has emphasized improving health practices in fragile and humanitarian settings.

The Canadian Foodgrains Bank, supported by Canadian farmers who are monetizing grain production on behalf of the project, and Global Affairs Canada have implemented a conservation agriculture project in Ethiopia, Kenya and Tanzania. It has demonstrated increased productivity, better soil health and better climate resilience on smallholder farms. Conservation agriculture is a farming system that favours using a permanent soil cover, doing minimum soil disturbance and diversifying plant species. As a result, 24,718 farmers are practicing two of three conservation agriculture principles on their smallholder farms, with 12,945 of these farmers being female. At the same time, conservation agriculture is to be introduced into the curriculum of agricultural universities in Ethiopia.

