2021 PROGRAM HIGHLIGHT:
ENRICH PROGRAM COST-BENEFIT ANALYSIS

About ENRICH

The *Enhancing Nutrition Services to Improve Maternal and Child Health in Africa and Asia* (ENRICH) program worked to improve the health and nutrition status of mothers, newborns and children in select regions of Bangladesh, Kenya, Myanmar and Tanzania.*

Running from 2016 to 2021, the program was funded by Global Affairs Canada with a total of $52 million and implemented in partnership with Nutrition International, Harvest Plus, the Canadian Society for International Health and the University of Toronto.

The goal for ENRICH was **reducing maternal and child mortality** by addressing critical health issues for mothers, newborns and young children.

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* ENRICH was also implemented in Pakistan until 2018, when World Vision was one of 18 international NGOs ordered to leave the country. Because the Pakistan project did not continue through 2021, its results are not included in this cost-benefit analysis.

Cost-benefit analysis approach

In line with our strategic approach, World Vision is beginning to systematically review and analyze our program data. This will provide a better understanding of our portfolio performance, and the insights will help to:

1. Improve data-led decision making and program designs
2. Demonstrate change and impact to our supporters

With ENRICH closing in 2021, a cost-benefit analysis (CBA) was conducted by [Limestone Analytics](#) to learn more about the program's benefits for the women and children, communities and wider societies it reached.

The analysis revealed that the ENRICH program was "very cost-effective" at improving health outcomes, under defensible and conservative assumptions using the World Health Organization's (WHO) definition for cost-effectiveness.

The CBA examined ENRICH interventions within the following three categories, which worked together to achieve the goal of reducing child and maternal mortality.

- Capacity building
- Promotion of high impact, low-cost nutritional practices
- Provision of micronutrients supplements

Lesson Learned

While the program used some interventions outside these categories, such as the promotion of biofortified crops and sexual and reproductive health and rights (SRHR) training, it was difficult to accurately measure their impact and they were excluded from the estimation of benefits.

For future program designs, the indicators we track should be compatible with the CBA methodology to ensure their contributions are captured.

Using modeling to measure impact

ENRICH was designed with matching control areas to allow for a complete impact evaluation at the end of the program, but the pandemic prevented us from collecting data in those areas. In situations like this, data modeling provides an alternative for estimating a program's impact.

Instead of using one single model, it was decided that a range of assumptions would provide a more comprehensive analysis. Five models were selected, each relying on different assumptions to model the accrual of benefits and their impact.[*] On top of that, a best-practice sensitivity analysis of the main model provided more confidence in the final results.

These models are not perfect, but they attempt to bridge a gap, helping us to see how the same investment into different interventions—or group of interventions—can accomplish varied results in different fields. By using them in our analysis, they help to uncover the **efficiency and effectiveness** of our programs.

These are the main costs and benefits, including their impact channels, that were included in the analysis.

COSTS AND BENEFITS INCLUDED IN ANALYSIS

COSTS

C1 – Program implementation

C2 – Operations and maintenance

C3 – Opportunity cost of volunteers' time

BENEFITS

B1 – Neonatal mortality prevented
- Increased births attended by a skilled provider
- Increased Early Initiation of Breastfeeding
- Increased birth at health facilities

B2 – Under five mortality prevented
- Increased WASH practices
- Increased Exclusive Breastfeeding

B3 – Maternal mortality prevented
- Increased births attended by a skilled provider
- Increased Iron Folic Acid Consumption (during pregnancy)

B4 – Child morbidity prevented
- Increased WASH practices
- Increased consumption of micronutrient powders

B5 – Maternal morbidity prevented
- Increased Iron Folic Acid Consumption (during pregnancy)

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[*] Models include combinations between baseline and evaluation data with similar projects' impact found in published literature, assumptions related to how benefits of multiple interventions positively or negatively interfere with each other, and the use of modeled control areas through available secondary data.

Disability-adjusted life year

A cost-benefit analysis relies on the ability to value both costs and benefits through monetary means. In this field, very complex and continued thought is put into creating modeling mechanisms that can better analyze and compare data. Through this work, economists try to assign value to both tangible and intangible results. For example, *how much benefit would one more year of schooling bring for a girl? Or, how much would it benefit her to never be malnourished, or anemic?*

Following WHO guidelines, the health benefits in this CBA were described in terms of their "overall burden of disease," meaning the analysis did not only account for the mortality the program tried to prevent, but also for morbidity.[*] The overall burden of disease is assessed using a metric called disability-adjusted life year (DALY), a time-based measure that combines reduction in life expectancy and diminished quality of life. To improve the clarity of what this abstract metric means, the results of the ENRICH analysis are presented not only in terms of DALYs prevented, but also showing specific burdens that were prevented through the program's impact.

Findings[**]

The analysis found that **for every Canadian dollar invested by stakeholders through ENRICH, five dollars were generated back to society in health benefits from 2016 until the end of 2021.** And because the program's interventions focus on long-term, sustainable change, the benefits should continue far beyond 2021, with strengthened health systems and families equipped with new knowledge and habits.

- 1,024 deaths, 5,334 cases of stunting, 13,685 cases of child anemia and 18,755 cases of maternal anemia were prevented between 2016 and the end of 2021.

- Using moderate assumptions about the program's sustainability, we expect ENRICH's efforts to prevent another 3,192 deaths over the next 15 years.

> ### *Why does "stunting" matter?*
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> *Stunting results from poor nutrition and other factors during pregnancy and a child's early years.*
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> *Stunted children are often a few inches shorter. Many experience cognitive damage and weakened immune systems, leaving them susceptible to diseases.*
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> *The effects of stunting are usually permanent.*

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[*]   While mortality refers to death, morbidity is the condition of having a disease or illness.

[**]   Results for Myanmar, Bangladesh and Tanzania are presented together using the Ex-Post Moderate Model (Model#4). Results from Kenya are presented using the Ex-Ante Conservative Model (Model#1) because delays due to COVID-19 prevented the analysis from being finalized before the conclusion of this report.

The following chart shows how positive changes in maternal and child health across all four countries contributed to decreased deaths and health conditions, including stunting and anemia, and an ultimate prevention of 9,344 DALYs.

9,344 DALYS PREVENTED

MORTALITY
7,721 DALYs prevented

MORBIDITY
1,623 DALYs prevented

311 neonatal deaths prevented	**538 deaths of children under five prevented**	**175 maternal deaths prevented**	**5,334 stunting cases prevented**	**13,685 child anemia cases prevented**	**18,755 maternal anemia cases prevented**
In Tanzania, newborns being put on the breast within an hour of birth increased from 69% to 83%. In Myanmar, births being attended by skilled health professionals increased from 57% to 91%.	In Tanzania, infants under 6 months who are exclusively breastfed increased from 73% to 83%. In Myanmar, children aged 6–23 months receiving minimum dietary diversity and meal frequency increased from 10% to 64%.	In Bangladesh, mothers who delivered their last child in a health facility increased from 47% to 59%. In Myanmar, mothers of children under 2 and their babies receiving postnatal care within two days of delivery increased from 41% to 79%.	In Myanmar, the level of stunting for children aged 6–23 months decreased from 25.5% to 18%. In Tanzania, the level of stunting for children aged 6 months to 5 years old decreased from 31.5% to 26%.	In Bangladesh, health facilities providing basic child nutrition services increased from 42% to 84%. In Myanmar, children aged 6–23 months who received the recommended course of micronutrient powder in the past year increased from 36.5% to 57%.	In Myanmar, mothers of infants under 6 months who consumed iron and folic acid supplements for at least 90 days during their last pregnancy increased from 63% to 96.5%. In Bangladesh, mothers of infants under 6 months who consumed iron and folic acid supplements for at least 90 days during their last pregnancy increased from 33% to 49%.