

LIVESTOCK TRANSFERS

Cost-Benefit Analysis



NOTE

This technical summary presents the Livestock Transfer Economic Analysis for projects funded by World Vision Canada from 2019 to 2023, conducted by Limestone Analytics. Updates to this analysis will occur as additional projects are implemented and new evidence is continuously collected. As a result, figures may change to reflect a more accurate understanding of the pathways through which the intervention achieves its effectiveness and efficiency. All dollar values are reported in 2024 USD with a 9 per cent discount rate.

Introduction

World Vision conducts programming in countries around the globe under its livelihoods portfolio, often implementing project models and approaches that feature a common design. Providing livestock and training to families, known as “livestock transfers,” is one such intervention, aiming to increase household income, food security and nutrition.

Between fiscal years 2019 and 2023, World Vision Canada (WVC) implemented 14 livestock transfer projects across nine countries, including Bolivia, Cambodia, Democratic Republic of the Congo, India, Malawi, Mauritania, Nicaragua, Rwanda and Zambia.

Consulting firm Limestone Analytics was engaged to conduct an economic analysis of this portfolio. Using data from the livestock transfer projects, Limestone applied a cost-benefit analysis to determine the impacts of these investments, derive lessons learned and inform future investments.

The results show that overall, WVC’s livestock transfer portfolio has been an effective use of funds, generating positive real impact™ and value through economic benefits for families and improved nutrition for young children.

Highlights (2019-2023)

- 23,103 households reached through 14 projects in nine countries
- \$2 in economic and health benefits for every \$1 invested, on average¹
- 353 lives saved and 4,074 disability-adjusted life years averted among children under five
- Participating families receive \$1,101 in benefits, on average, thanks to increased income and improved nutrition

Livestock Transfers Intervention

Livestock transfers deliver animals such as pigs, goats, sheep and cattle to participating families. These animals provide the families with vital nutrition and extra income. The livestock are acquired locally and distributed along with feed, training and support for participants. Livestock transfer interventions include training in agriculture and livestock management techniques, including food production, livestock health and handling, climate-smart practices and post-harvest storage methods.

Methodology

A cost-benefit analysis (CBA) framework was used to evaluate 14 livestock transfer (LT) projects funded by WVC and implemented across nine countries between 2019 and 2023. The model estimates both the material and health benefits of these interventions, alongside their socioeconomic costs.

The model was populated using WVC data on participating households and project costs. Where household-level data was unavailable, estimates were derived from participant counts or the number of livestock assets distributed. Benefit estimates were supplemented with evidence from peer-reviewed literature and nationally representative surveys. The benefits were modeled over a three-year period, based on findings from relevant studies.

Benefits and costs were evaluated across three main stakeholder groups:

- Households receiving livestock and related training
- Children under five benefiting from improved nutrition
- WVC as the funder and implementer

There are multiple noted benefits of livestock transfers, including but not limited to improved social status, greater economic security and resilience, and enhanced agency among women participants. The analysis focused on two key benefit channels that could be effectively quantified: (1) increased household income from productive use of livestock and (2) improved nutritional outcomes for children under five, leading to averted mortality and morbidity. Costs include WVC's direct implementation expenses and the opportunity cost of time for participants engaged in new income-generating activities.

Portfolio-Level Results

In total, the WVC-funded LT projects implemented from 2019–2023 are estimated to have reached **23,103** households in nine countries. The total estimated benefits of these LT projects are **\$25.4 million**, or **\$1,101 per household**, on average. Overall, WVC-funded LT projects incurred costs of **\$10.1 million**, or **\$437 per household**, of which WVC direct implementation costs were **\$129 per household**. The portfolio has an overall benefit-cost ratio (BCR) of **2.52**, meaning that every \$1 invested in the livestock transfer implementations generated an

estimated **\$2.52¹** worth of benefits. WVC's investments in this portfolio have saved an estimated **353** lives and have averted morbidity² equivalent to **4,074** disability-adjusted life years³ (DALYs).

Table 1. Headline results at the portfolio level

Present Value of Benefits (\$ millions)	Present Value of Costs (\$ millions)	Net Present Value (NPV) (\$ millions)	Benefit-cost Ratio (BCR)	Participating Households	Deaths Averted	DALYs Averted
\$25.4	\$10.11	\$15.33	2.52	23,103	353	4,074

Figure 1 shows each benefit and cost category contributing to the total impact of the LT projects. The total benefits are estimated to be **\$25.4 million**, of which the total estimated income benefits are **\$25.1 million (99 per cent)** of total benefits) and the total value of all nutritional health benefits is just **\$0.4 million (1 per cent)** of total benefits).⁴ The most significant cost is the opportunity cost of time for LT participants, who spend their leisure time engaged in more productive activities as a result. This makes up **71 per cent** of the total costs. WVC direct implementation costs account for **29 per cent** of the costs.

¹ See conclusion for details on why WVC uses \$2 and not \$2.52 for the ratio when communicating externally.

² Morbidity is the condition of having a disease or illness.

³ Disability-adjusted life year (DALY) measures the total burden of disease. One DALY represents one year of healthy life lost due to illness, disability or early death. It combines years of life lost and years lived with disability to estimate the total impact on population health.

⁴ These figures reflect benefits adjusted for double-counting. We take the larger of the two major benefit categories—income (B1) or nutritional health (B2 + B3 + B4)—on a project-by-project basis so the income benefits and the health benefits do not add up to the total value of benefits. The total income benefits before adjustment for double counting are \$25.4 million and the total value of health benefits are \$12.1 million.

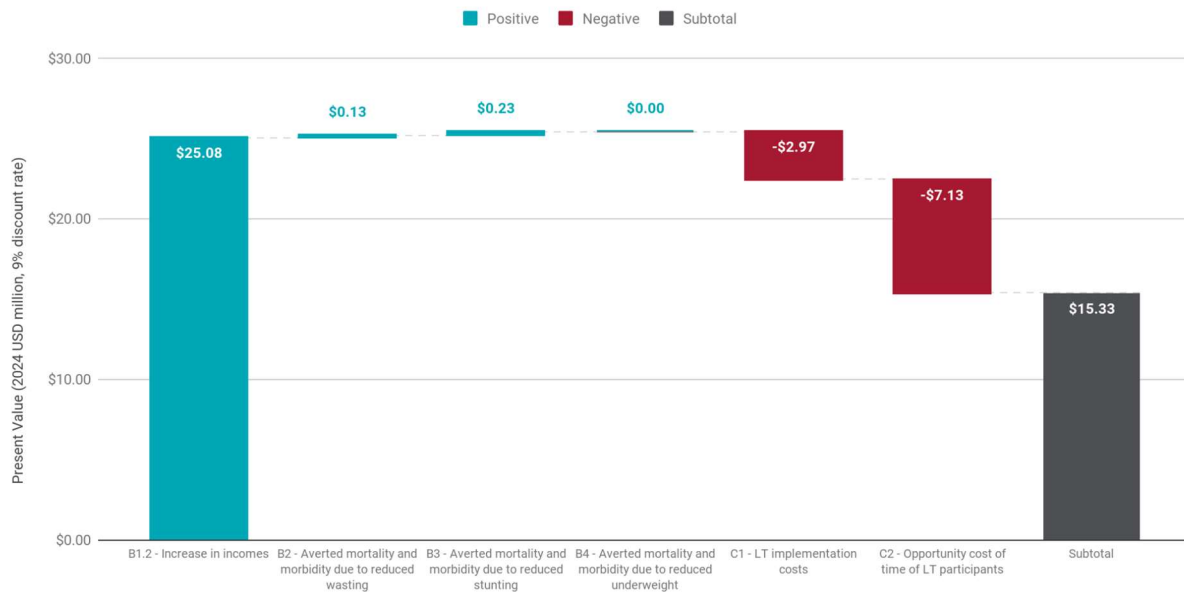


Figure 1. Present value of benefits and costs for WVC-funded LT projects⁵

Figure 2 disaggregates the present value of the benefits and costs across the different perspectives involved in the LT portfolio. Participating households collectively experience the most significant magnitude of impact, benefiting from **\$24.9 million** in income. Across all participating households, adults face costs of **\$7.1 million** to undertake more work with the LT intervention. Within households, children under five receive an incremental health benefit worth **\$12.1 million**. However, only a fraction of these benefits (**\$0.4 million**) have been included in the final present value of benefits once we adjust for double-counting, because income benefits outweighed all health benefits in nearly every project. WVC incurred net costs of approximately **\$3.0 million**.

⁵ This chart includes underweight (B4) because Marquis et al. (2014) found an impact, although the baseline study, Rawlins et al. (2014), did not.



Figure 2. Net present value of benefits and costs for WVC-funded LT projects by perspective

Although the total benefit-cost ratio (BCR) across all LT projects was **2.5**, **two of the 14** projects had a negative net present value⁶ (NPV) (see **Figure 3**), while **two** more just broke even. There was a strong geographic clustering of projects, with Rwanda appearing to be an outlier that drove much of the result. The high BCR for projects in Rwanda is primarily explained by the low implementation costs reported there: WVC reported direct implementation costs of less than **\$25 per household** participating in LT projects in Rwanda as compared to an average implementation cost of **\$829 per household** for other LT projects. Excluding the four outlier projects, the portfolio-level BCR drops to **1.7**.

⁶ Net present value is a way to determine how much money something will make or cost in the future by accounting for the time value of money. It is calculated by subtracting the present value of the costs from the present value of the benefits.

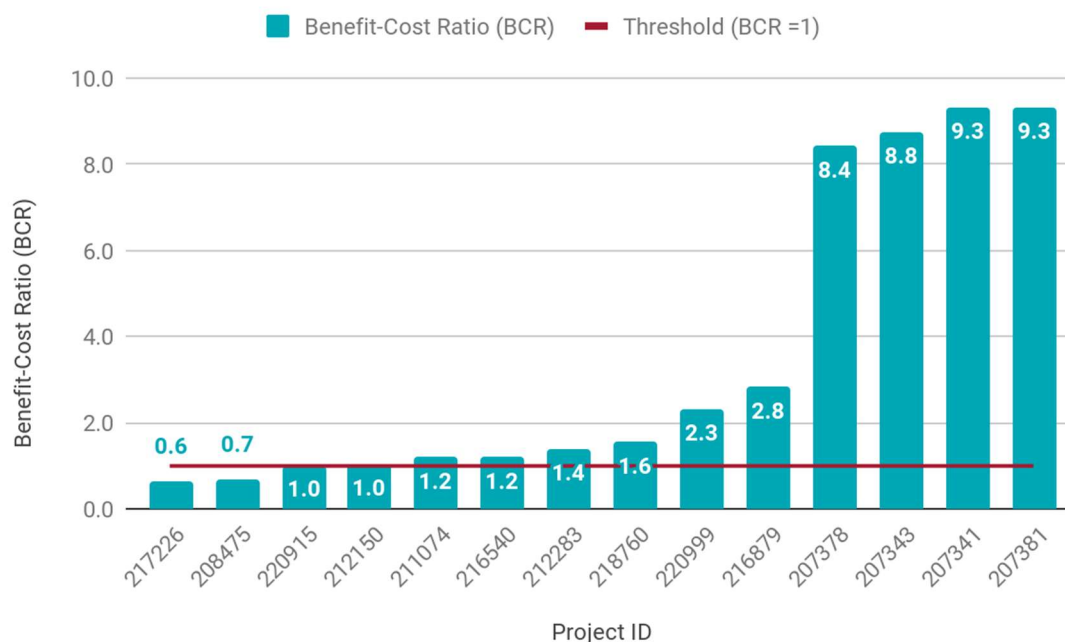


Figure 3. Benefit-cost ratio of WVC-funded LT projects

Conclusions and Recommendations

The cost-benefit analysis reveals that, overall, the investments in World Vision Canada's livestock transfer portfolio have been an effective use of Canadian funds. The projects have generated over \$25 million in benefits for participants with a positive benefit-cost ratio of 2.52. In addition, the portfolio has saved the lives of an estimated 353 children over five years—this averages to one life saved per week.

While the portfolio-level results are strongly informed by the positive performance of four interventions in Rwanda, when these projects are excluded from the analysis the BCR remains positive, at 1.7. This has prompted WVC to use a conservative assumption when communicating externally, rounding the final ratio to 1:2 rather than 1:2.52, or: "For every dollar invested, \$2 is generated in benefits to society."

The analysis highlights several considerations and recommendations for WVC regarding future research and investments in LT programming.

Results of the analysis are particularly sensitive to the assumed changes in consumption, assets and income, as well as the opportunity cost of time for adults from participating households. Additional evidence could be useful to confirm that changes in the former outweigh changes in the latter, ensuring that participants' involvement in LT projects is worthwhile given their own significant time investment.

This analysis of WVC's investments in LT also reveals areas in which WVC's monitoring and evaluation of development investments, as well as financial reporting, could be expanded to support future analysis.

- **Report consistent data by household for LT projects that include training and other supports.** LT projects are most effective when participating households receive adequate support, particularly for training in the skills needed to benefit from new assets or livestock. Given the great importance of training and skills development, WVC should consistently track whether households of LT projects receive beneficial training or support to ensure that they have the best chance of success when the program ends.
- **Collect outcomes-based data on consumption, assets, income and time use.** Monitoring data for LT projects focuses primarily on input- and output-based data, such as the number of participants in savings groups or the number of households receiving assets. However, WVC should track outcomes-based indicators (e.g., value of household consumption, assets and incomes, hours spent in training or working with the project) over time so that they can estimate the net impact of programs on participants' welfare.
- **Address evidence and knowledge gaps on nutritional health outcomes.** The analysis suggests that health outcomes are an important secondary benefit for LT projects. WVC should consider including intermediate monitoring indicators on nutritional health outcomes like the number of meals missed or the diversity of food eaten, or outcome indicators such as the rates of wasting, stunting and underweight among children under five within households participating in LT. These indicators would help WVC examine if the LT projects lead to better health outcomes, as predicted by the literature.
- **Collect demographic details on households to support gender analysis.** Generally, WVC has collected monitoring data at the household level. In order to estimate impacts by gender, WVC would need to collect more data about the demographics within households, such as the age and gender of children and adults, to be able to assign benefits and costs by gender. This would also need to include the gender of adults participating in the program to understand the division of labour within households. Previous research on LT interventions has also reported beneficial impacts for women's empowerment, such as greater women-led decision making. In order to estimate the impact of LT interventions on women's empowerment, WVC would need to collect data on women's empowerment outcomes.

Overall, WVC-funded investments in the LT livelihoods programs appear to be a generally, though not universally, effective use of development funds. The benefits of WVC-funded LT projects appear to outweigh the costs at the portfolio level. WVC could advance toward its goal of evidence-informed decision-making by collecting more outcomes-based data on welfare, nutritional health and time use across programs that use this intervention.