

(BFBH)

BETTER FOOD, BETTER HEALTH PROJECT

Timor-Leste | Impact Brief
(2017–2022)



About this report

This brief summarises the results from an end-of-project evaluation of World Vision Timor-Leste's BFBH project (2017-2022), completed by Katy Cornwell (independent consultant) in collaboration with World Vision Timor-Leste's Domingos Maia Bிக, Nuno Alves and Evangelita Pereira, between November 2021 and February 2022. Evaluation design, data analysis and technical review of the draft report were supported by Saba Mebrahtu Habte, Evidence Building Advisor; Rob Kelly, Senior Advisor Food Security & Resilience; Sarah McKenzie, Senior Climate Advisor; Diana Johannis, Economic Development Advisor; Cashelle Dunn, Disability Advisor; and Shirantha Perera, Country Impact Manager for Timor-Leste, World Vision Australia.

Better Food Better Health (BFBH) Project was supported by the Australian Government through the Australian NGO Cooperation Program (ANCP).

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Front cover photo: Natalia and family growing superfoods in her kitchen garden.



World Vision





Alarico (centre back), a community health volunteer, identified baby Azelia as malnourished and supported her mother Mariana (left) to improve her daughter's health.

CONTEXT

Timor-Leste has one of the highest rates of undernutrition globally.

According to the most recent Demographic and Health Survey (DHS, 2016), the national prevalence of stunting,¹ wasting² and underweight³ among children 0-59 months was 46%, 24% and 40%, respectively, while the prevalence of anaemia⁴ among children 6-59 months was 40%. These rates all fall into the World Health Organization's (WHO) most severe category for public health significance. Undernutrition, particularly during pregnancy and the first two years of life, has been shown to have a devastating and irreversible impact on child health and development, the effects of which have ongoing ramifications on health,

education, and livelihoods in adulthood. A growing young population coupled with severe rates of undernutrition places a heavy burden on Timor-Leste's national health system and future economic development. Timor-Leste has officially joined the global Scaling Up Nutrition (SUN) movement,⁵ which is an indication of their strong commitment to improve nutrition for the growth and development of the country. According to studies, for every US\$1 invested in nutrition, US\$16 is returned to the local economy.⁶

- 1 Height for age less than 2 standard deviations from the WHO Child Growth Standards median.
- 2 Weight for height less than 2 standard deviations from the WHO Child Growth Standards median.
- 3 Weight for age less than 2 standard deviations from WHO Child Growth Standards median.
- 4 Hb<110g/L.
- 5 <https://progress.scalingupnutrition.org/country-profiles/timor-leste/#:~:text=Timor-Leste%20officially%20joined%20the%20SUN%20Movement%20in%20September,sectors%20and%20is%20replicated%20at%20the%20sub-national%20level.>
- 6 International Food Policy Research Institute (IFPRI), Global Nutrition Report 2014: Actions and Accountability to Accelerate the World's Progress on Nutrition (Washington, DC: IFPRI, 2014; cited in: <https://nutritionforgrowth.org/why-nutrition/>)

PROJECT OVERVIEW

BFBH Goal:

Children under 5 and their mothers are well nourished.

The Objectives:

World Vision’s BFBH project aimed to reduce undernutrition by improving the utilisation and demand for nutritionally diverse foods and enhancing year-round access to these foods – particularly protein- and iron-rich foods. As shown in Figure 1, the project worked towards this goal through four outcomes: **(1)** caregivers of children under five have improved nutrition and health-seeking practices; **(2)** households have improved access to ‘superfoods’; **(3)** households have increased income from superfood production; and **(4)** improved sustainability of health and agriculture services.

A core component of BFBH project activities was the establishment and support of six different, yet mutually supportive, community groups: parents’ clubs; farmers’ groups; Farmer Managed Natural Regeneration (FMNR)⁷ groups; food processing groups; savings and loans groups;⁸ and Citizen Voice and Action (CVA)⁹ groups.

Community health volunteers, known as Promotor Saúde Familiar (PSFs), were trained to facilitate parent club meetings, perform home visits and undertake child growth monitoring and health promotion during SISCa (Integrated Community Health Services)¹⁰ visits. In acknowledgement of their additional workload, PSFs were supported with a ‘chicken incentive package’, consisting of training, improved chicken housing, a rooster, 10 hens and a bag of chicken feed.



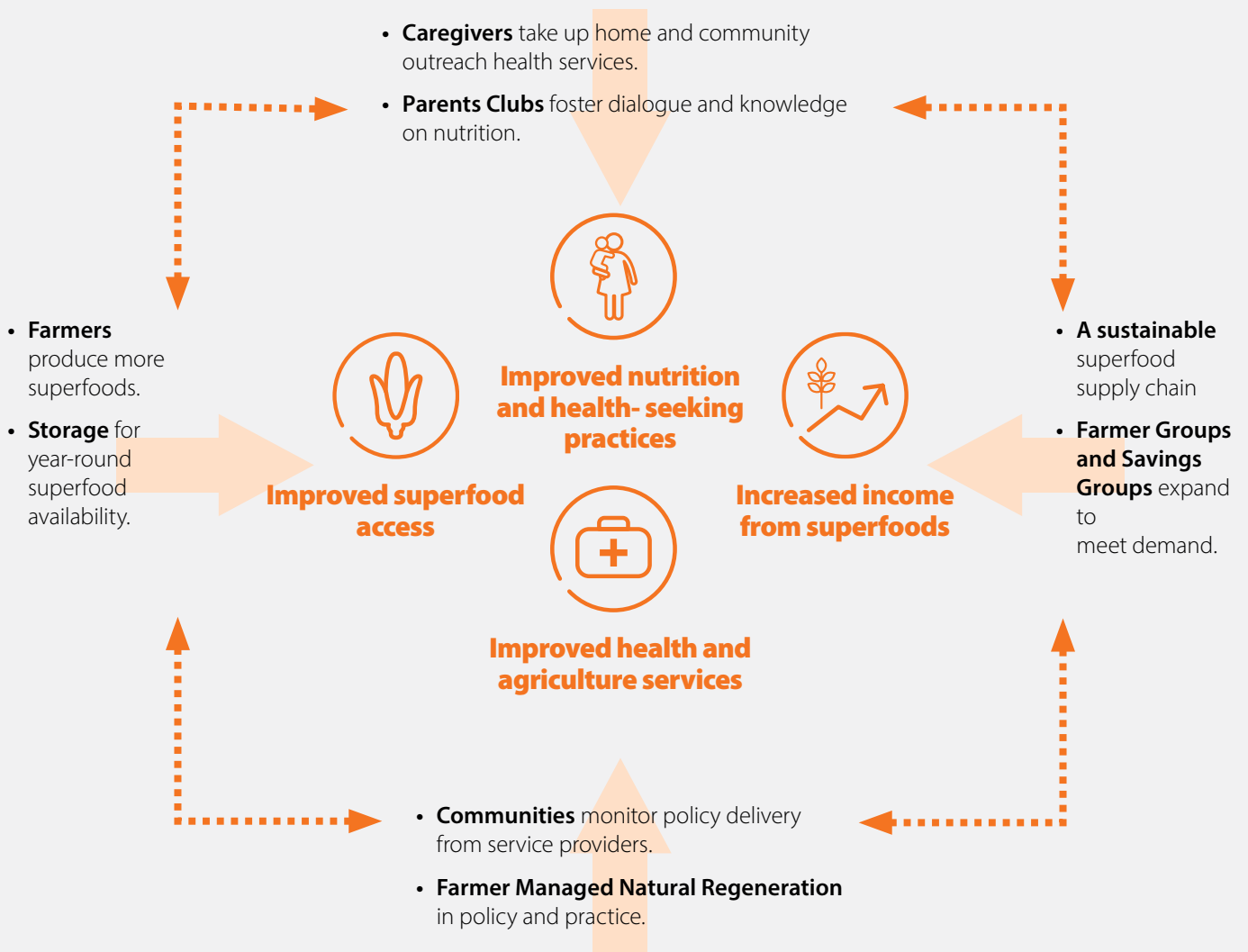
Local community members showcasing the programming being implemented under BFBH Project in the municipalities of Aileu and Covalima.

7 <https://www.wvi.org/publications/world-vision-european-union/farmer-managed-natural-regeneration-holistic-approach>

8 Savings for Transformation (S4T) model, World Vision’s adaptation of the Village Savings and Loans Associations (VSLA) savings groups approach, is designed to reach the most vulnerable groups (especially women and persons with disabilities) and often most marginalised children, living in different contexts (all faiths, rural, urban or semi-urban).

9 <https://www.wvi.org/meero/publication/citizen-voice-and-action-model>

10 Integrated Community Health Services or Servisu Integradu da Saúde Comunitária (SISCa), is in principle ‘From, With and To the Community’. Community leaders, such as sub-district council members and chiefs, hamlet chiefs, youth organisations, women’s networks, working side by side with health workers, would mobilise people – men and women, children, youth, the elderly, to protect and improve community health. SISCa activities last for a minimum of four hours, to ensure that communities will have time and the opportunity to participate. Community members play a role in deciding the schedule of these activities. SISCa undertakes health promotion, prevention of diseases, treatment for sickness and rehabilitation as well as health interventions such as combating infectious diseases, family planning, nutrition, maternal and child health, and environmental health.

Figure 1: How the BFBH project achieves change.

The BFBH project promoted the production and consumption of six superfoods: soybeans, mung beans, red kidney beans, orange sweet potato, moringa leaves and chicken eggs. This involved a social and behaviour change communication strategy, built on learnings from previous World Vision child health and nutrition projects in Timor-Leste. Key activities included:

- Establishing and strengthening community groups: parents' clubs, farmers' groups, food processing groups and savings and loans groups.
- Promoting, training and supporting superfood production and utilisation, improved agricultural techniques and technologies including FMNR, perennial kitchen gardens, post-harvest processing, preservation and storage (e.g. production of tofu and tempeh).
- Training and supporting PSFs to facilitate parent club meetings, perform home visits and undertake child growth monitoring and health promotion during SISCa visits, and identification of cases for referral to local health centres.
- Strengthening and expanding markets for superfood products through private sector partnerships.

Participants who benefitted directly included children 0-59 months and their caregivers, pregnant women, partners of caregivers/pregnant women, agricultural households, and PSFs in 22 villages (or sukus) across Aileu, Baucau, Bobonaro and Cova Lima municipalities. The project aimed to support 31,806 participants (11,368 men, 10,896 women, 4,872 boys, and 4,670 girls), 16 health posts, 120 PSFs, 287 parents' clubs, 87 farmers' groups, 92 savings and loans groups, 78 FMNR groups, 21 food processing groups, and 22 CVA groups.

EVALUATION OVERVIEW

EVALUATION PURPOSE

This endline evaluation has sought to understand the extent to which the project has achieved its goals, outcomes, and outputs. It aimed to document learnings and to provide key recommendations for the next phase (expansion) of the project. The findings are also expected to contribute to the knowledge base on nutrition-sensitive agriculture in Timor-Leste more broadly, and particularly, the role of protein- and iron-rich foods.

METHOD

The endline evaluation was of mixed-methods design. Core methods employed included primary quantitative data collection from households (including haemoglobin and anthropometric measurements of children, mothers, and pregnant women), focus group discussions (FGDs) with project groups, as well as key informant interviews (KIs) with PSFs and government representatives.

The evaluation survey sample mirrored that used in the baseline; it was drawn from virtually the same villages (suku) and sub-villages/hamlets (aldeia) as the baseline. This evaluation covered 78 of 125 project-supported aldeias and 36 aldeias for non-project comparison groups across all four municipalities,¹¹ to allow for the assessment of project impact.¹² The target selection also allowed for identification of synergies with prior World Vision Timor-Leste programming experience, and the concurrent World Vision implemented TOMAK (To'os ba Moris Di'ak) Farming for Prosperity project in Baucau municipality, which is also supported by the Australian Government.¹³ The total sample size was 2,129 households – 1,542 from project areas and 587 from comparison areas. The total project sample size of 1,542 households is representative of the total target population of 5,652 households with a confidence level of 95% and confidence interval of 2.13.¹⁴

LIMITATIONS

The impact of COVID-19 on the project should be kept in mind when considering the evaluation results. The program operated throughout the pandemic which had implications for health access, utilisation, and outcomes, as well as having an impact on incomes and the demand and supply of products. Communities were also struck by a number of other adverse events including fall armyworm infestations, resulting in crop losses in April 2020, African swine fever outbreaks which resulted in significant loss of livestock from September 2019, as well as unfavourable climate conditions in 2019/20, including drought followed by erratic rainfall and flooding in April 2021 which resulted in delayed planting and crop loss.

Data was collected at different points in time: the project started as a pilot project in Aileu municipality in July 2016 with the baseline conducted in July 2017, whereas the baseline for the expansion districts was conducted in January-March 2018. Endline surveys were conducted in Aileu in November 2021, while in Bobonaro, Cova Lima and Baucau municipalities, the surveys were conducted in January-February 2022. For this reason, results may reflect seasonal as well as locational differences. Due to restrictions on international travel, the lead evaluator was unable to conduct any KIs or FGDs in person. While the World Vision field team were extremely competent in conducting qualitative studies, some nuances and means of triangulation may have been inadvertently missed.

11 The four municipalities include: Aileu, Baucau, Bobonaro, and Cova Lima.

12 The evaluation used the difference-in-differences (DiD) approach, which involved collecting data at baseline and endline in project areas as well as comparison areas to disentangle the effect that can be attributed to the project (impact) from what would have happened anyway in the absence of the project. That is, the difference observed in comparison areas between baseline and endline is subtracted from the change observed between baseline and endline in project areas of the project. DiD is particularly useful in the presence of unusual and adverse events such as COVID-19, as it allows for essentially purging those effects from the outcomes. In this analysis, the DiD approach was used to demonstrate that BFBH had a protective effect on many outcomes of interest in these unusual times.

13 Refer to <https://tomak.org/>

14 <https://www.abs.gov.au/websitedbs/D3310114.nsf/home/Sample+Size+Calculator>. Note that confidence intervals for indicators based on subsets of the data will be larger than this.

FINDINGS

REACH

- BFBH groups have had good, yet varied, uptake and reach.** Project group membership lists show 72% of the estimated adult beneficiary population of 22,264 participated in parents' clubs and 46% in farmer groups. However, in the household survey, which was comprised almost entirely of households with children under 5, only 26% reported taking part in parents' clubs, and 20% in farmers' groups. Rates varied considerably by municipality, with 67% of households with children under 5 in Aileu reporting taking part in any project-supported group, 29% in Baucau, 50% in Bobonaro and 36% in Cova Lima. Overall, 45% of households reported being part of at least one of the six BFBH-supported groups.
- Gender and disability inclusion worked.** The gender distribution of members is evenly spread in farmers' groups, while there were more women members of parents' clubs, and more men members of savings and loans groups. Inclusion of people with disabilities ranged from 2% (parents' club) to 3% (farmers' groups) and 4% (savings groups), which is consistent with the 3% disability rate reported in the 2015 census.
- In terms of group leadership, the BFBH Indicator Tracking Table (ITT) regularly recorded the number of women and people with disabilities in leadership positions, though figures for men were tracked for parents' clubs only, which showed that in the 295 supported parents' clubs, 220 women and 108 men held leadership positions, and 91 people with disabilities. However, it appears that fewer – around one in every three groups for women and even less for people with disability – held leadership positions in the farmers' groups and savings and loans groups as compared to parents' clubs.
- Knowledge and opinion of BFBH is positive and extends beyond project area boundaries:** 77-85% of households with children 0-59 months in project areas had heard of the project, and so had 21-59% of households in the neighbouring comparison areas (where BFBH not implemented). This indicates there may have been a spillover effect of project activities on households in comparison areas, which may affect the assessment of the 'true impact' of the project. **There was unanimous agreement that the project has been good for the community.**
- Distance and physical access are major barriers to participation in groups.** Visiting families in their homes was another aspect of the program that was appreciated by participants.
- Those who had heard of BFBH were further probed on what was good and not so good about the project, and who in the community they felt benefitted most and least. **Overwhelmingly, the most common benefit mentioned was the health of the children and for the mothers themselves.** There was also an eagerness to learn and an appreciation for the knowledge shared by the project, a sentiment echoed wholeheartedly in FGDs with parents' groups.

“After we learned about the benefits of superfoods, we feel good when we prepare food with superfoods. For example, for breakfast we cook sasoro (rice porridge) with mung beans, the taste is amazing!”

– Women in Somo Kanua, Cova Lima (FGD)

OUTCOME 1: CAREGIVERS OF CHILDREN UNDER 5 HAVE IMPROVED NUTRITION, HYGIENE AND HEALTH-SEEKING PRACTICES (INCLUDING FAMILY PLANNING)

Nutrition

- There has been a dramatic 44 percentage point improvement in the proportion of children aged 6-59 months consuming at least one of the six BFBH superfoods in the 24-hour recall period prior to interview (14% at baseline to 58% at endline, $p=0.00$) (Table 1). This represents an impact of 6 percentage points ($p=0.08$) – that is, after also considering the change observed in comparison areas between baseline and endline (the ‘difference-in-differences’ [DiD]), children in BFBH project areas were 6 percentage points more likely to have consumed superfoods than children in comparison areas. This impact was higher and more significant among girls: girls in project areas were 8 percentage points more likely than girls in comparison areas to have consumed superfoods ($p=0.07$), while the equivalent for boys was 4 percentage points and therefore statistically insignificant ($p=0.45$).
- Positive results were also observed for pregnant women – consumption of superfoods rising from 15% at baseline up to 53% at endline in project areas ($p=0.00^{15}$). These rates among mothers of children aged 0-59 months were identical to those of children: 14% at baseline to 59% at endline ($p=0.00$). This is confirmation that when mothers are eating superfoods, children are too.



Children in Baucau Municipality eating a moringa and rice porridge which contains high nutrients good for child nutrition; various recipes using superfoods such as moringa, soybeans, mung beans, red kidney beans, orange sweet potato and eggs were shared with parents through the BFBH project.

15 The p-value or probability value is the probability of observing a test statistic at least as extreme as the sample statistic if the null hypothesis is true. In most cases throughout this report, a significant result means that there is evidence to suggest the means/proportions are different between the two groups. We define ‘very significant’ as $p<0.01$, ‘moderately significant’ as $p<0.05$ and ‘weakly significant’ as $p<0.10$.

Table 1. Superfood consumption among children (6-59 months), mothers and pregnant women (project and comparison areas – baseline and endline)

		% Children 6-59 months consuming at least one superfood in the last 24 hours		% Mothers of children 0-59 months consuming at least one superfood in the last 24 hours		% Pregnant women consuming at least one superfood in the last 24 hours	
		Baseline	Endline	Baseline	Endline	Baseline	Endline
Project areas:							
Aileu	% n	15% 251	58% 338	15% 274	59% 375	10% 31	58% 31
Baucau	% n	13% 353	56% 431	10% 422	57% 477	11% 57	50% 46
Bobonaro	% n	21% 262	57% 249	25% 292	58% 275	37% 27	62% 52
Cova Lima	% n	7% 195	58% 253	4% 241	63% 278	5% 41	55% 29
All project areas, average	% n	14% 1061	58% 1271	14% 1229	59% 1405	15% 162	53% 167
	%-point difference p-value	43% 0.00		45% 0.00		43% 0.00	
Comparison areas:							
Aileu	% n	19% 90	52% 110	12% 92	53% 121	25% 12	100% 11
Baucau	% n	9% 187	50% 156	11% 215	50% 185	6% 36	55% 22
Bobonaro	% n	14% 108	36% 110	16% 125	34% 116	13% 8	46% 13
Cova Lima	% n	3% 76	55% 115	5% 93	52% 122	6% 16	33% 15
All project areas, average	% n	11% 461	48% 491	11% 525	48% 544	17% 82	53% 66
	%-point difference p-value	37% 0.00		37% 0.00		46% 0.00	
Difference-in-differences:							
Boys	%-points p-value	4% 0.45					
Girls	%-points p-value	8% 0.07					
All children / mothers	%-points p-value	6% 0.08		9% 0.01		-3% 0.72	
Those in project areas participating in BFBH groups:		Yes	No	Yes	No	Yes	No
Endline	% n	63% 575	53% 696	64% 625	55% 780	63% 68	51% 90
Difference	%-points p-value	10% 0.00		10% 0.00		12% 0.12	

- The project had also supported dietary diversity more broadly: at baseline, children aged 6–59 months in project areas were consuming only 2.42 food groups in the past 24 hours on average out of a possible 7.¹⁶ By endline, this had increased to an average of 3.90. This represents an impressive 55% of children showing a minimum dietary diversity of at least 4 out of 7 food groups in project areas at endline compared to only 13% at baseline.¹⁷ With improvements in the number of food groups consumed also observed in comparison areas, DiD estimates are smaller but still statistically significant at 0.291 categories out of 7 ($p=0.01$). The effect is weaker when disaggregated by gender of the child, with only girls showing a statistically significant improvement. BFBH has had a positive impact on dietary diversity for girls (DiD of 0.348 categories, $p=0.03$), but not necessarily for boys (DiD of 0.231 categories, $p=0.15$).
- Households in the endline survey who reported taking part in BFBH project groups were asked in-depth questions on whether they had made any changes in their family since participating in BFBH. Many reported big changes, with most centred around new-found knowledge of superfoods, health and nutrition.
- The evaluation revealed the extent to which adult men in households are regularly involved in feeding and caring for children. There were improvements in most areas, for example, at baseline, the percentage of men helping at home ranged between 13% in Baucau and 35% in Bobonaro. By endline, the percentage had increased drastically in Aileu (63%), Bobonaro (52%) and Cova Lima (59%) project areas. In the Aileu and Cova Lima comparison areas, men were also reported to be involved in more households. However, a significant positive impact was reported in Baucau ($p=0.04$), Bobonaro ($p=0.01$) and Cova Lima ($p=0.05$), when taking DiDs into account. **This suggests that BFBH has had a significant impact on shifting traditional gender roles in feeding and caring for children.**
- The benefits to women were called out as a major impact of the project. **BFBH was clearly effective in addressing gender imbalances in household work. This aspect should be continued and expanded upon in the expansion phase of the project.**

“Before we hadn’t heard of BFBH so we cooked plain rice for our children, but now since the project has come we have started cooking like World Vision has taught us.”

– Respondent in household survey, Aileu

“Before my granddaughter was malnourished but after we followed the information that World Vision gave, we knew what foods to cook and because of that now the child is healthy again.”

– Respondent in household survey, Baucau

“There’s been a big change. It’s not just mothers who look after and care for the children, but the fathers also look after and care for the children, and know the importance of nutritious food for the women and children. The fathers help to do the housework. The fathers give us mothers the opportunity to participate in activities (to have personal time).”

– Women in Leohito, Bobonaro (FGD)

16 The seven food groups are based on the World Health Organization (WHO) Infant and Young Child Feeding (IYCF) categories: (1) grains, roots and tubers; (2) legumes and nuts; (3) breastmilk or dairy products: milk, yoghurt and cheese; (4) flesh foods: meat, fish, poultry and liver/organ meats; (5) eggs; (6) vitamin-A rich fruits and vegetables: in general, these include dark green leafy vegetables and fruits and vegetables that are yellow or orange inside; (7) other fruits and vegetables. This categorisation departs from the WHO by including breastmilk in the ‘dairy’ category. Following the baseline study, this allows aggregation across breastfed and non-breastfed children.

17 The WHO’s Minimum Dietary Diversity indicator of 4 food groups is based on the WHO Infant Young Child Feeding (IYCF) categories, hence our minimum dietary diversity indicator here departs from this by allowing breastmilk in the dairy category.

- However, exclusive breastfeeding among children aged 0-5 months in project areas has remained constant (66% at baseline compared to 67% at endline, $p=0.93$). While the proportion of children aged 12-23 months receiving breastmilk in the 24-hour recall period has increased slightly from

52% to 56%, this was a significant and positive impact for boys ($p=0.01$). This suggests that more effort is needed to promote optimal breastfeeding practices by identifying and addressing gaps in breastfeeding counselling skills among PSFs and tackling beliefs around non-optimal practices in future programs.

Health-seeking

- BFBH has had a mitigating effect on the trend towards reduced health-seeking behaviour amid the recent COVID-19 climate. Mothers of children under 5 in project areas were 5 percentage points ($p=0.05$) more likely to have attended at least four antenatal care (ANC) visits while pregnant than mothers in comparison areas (DiD). Children 0-59 months were 7 percentage points ($p=0.03$) more likely to have attended SISCa in the previous three months than children in comparison areas.
- Positive shifts were evident in male involvement in ANC, but this was observed in both the project and comparison areas. At baseline, 58% of mothers in project areas reported their partner accompanying them to ANC sessions, increasing to 80% at endline (DiD of 3 percentage points, $p=0.36$).
- BFBH has had a positive impact on the proportion of births attended by a skilled health professional. At baseline, 60% of children aged 0-59 months in project areas had a skilled health professional at their birth, which increased to 75% at endline (DiD of 9 percentage points, $p=0.01$). This achievement is also higher than the latest national estimate available of 67%.¹⁸

Hygiene

- BFBH has been particularly influential in improving basic hygiene knowledge in communities, going beyond the national improvements attributed to COVID-related campaigns. In project areas, the proportion of households knowledgeable about basic hygiene practices increased from 33% at baseline to 71% at endline (DiD of 7 percentage-points, $p=0.04$), while the proportion of households with basic handwashing facilities increased from 29% at baseline to 57% at endline (DiD of 12 percentage points, $p=0.00$).
- In Cova Lima, the troubling health situation observed at baseline appears to have improved. World Vision Timor-Leste may well have had a significant influence in triggering this broader change by bringing to light some of the systemic realities through their baseline findings.



Natalia and family taking care of her kitchen garden.

¹⁸ https://www.unicef.org/timorleste/media/1271/file/Timor-Leste%20at%20a%20Glance_updated%20as%20of%208Dec2020.pdf

OUTCOME 2: HOUSEHOLDS HAVE IMPROVED ACCESS TO 'SUPERFOODS'

Superfood production

- Households continue to produce small quantities of superfood crops, but there are many more households growing superfoods at endline. Overall, **79% of households in project areas produced at least one superfood crop** (Table 2), **up from 33% at baseline**.¹⁹ Rates vary by location: 97% in Bobonaro, 85% in Aileu, 86% in Cova Lima and 58% in Baucau. Superfoods have grown more popular beyond project groups, and most notably, beyond project area boundaries.
- Orange sweet potato is the most universally grown crop, while soybeans, mung beans, red kidney beans and moringa have very different rates of uptake depending on location.
- The range of superfoods available through the project has proven successful as different areas are able to adopt the crops most suitable to their agro-ecological conditions.
- Water availability was the major limiting factor in superfood production and yield.

Table 2: Superfood adoption (project and comparison areas – baseline and endline)

	Soybeans	Mung beans	Red kidney beans	Orange sweet potato	Moringa leaves	Chickens or eggs	Any superfood crop
Project areas:							
Baseline	6%	15%	8%	11%	18%	86%	33%
N	1210	808	1210	1210	1208	1476	1211
Endline	29%	29%	34%	54%	48%	85%	79%
N	1381	1381	1381	1380	1379	1542	1381
%-point difference	23%	13%	25%	43%	30%	-1%	46%
p-value	0.00	0.00	0.00	0.00	0.00	0.39	0.00
Comparison areas:							
Baseline	2%	7%	3%	10%	13%	78%	26%
N	481	348	481	481	477	604	481
Endline	5%	14%	16%	19%	43%	81%	65%
N	499	498	499	499	498	587	499
%-point difference	3%	7%	13%	9%	30%	3%	39%
p-value	0.02	0.00	0.00	0.00	0.00	0.18	0.00
Difference-in-differences (DiD):							
%-point DiD	20%	6%	12%	34%	0%	-4%	8%
p-value	0.00	0.05	0.00	0.00	0.95	0.09	0.02

- Among the attractions of superfoods (and key to their rapid uptake), is that they are generally just as easy to grow as other common household foods.
- In FGDs, the choice of which superfood crop to grow was largely based on climate and water conditions rather than taste preferences. For example, red kidney beans are more favourable to the climate in Aileu than moringa and mung beans, while the opposite was true for other areas where water was scarcer. As mentioned, virtually all participants cited scarcity of water as the major limiting factor in superfood production and yield.

¹⁹ Since, even at baseline, most households kept chickens, the 'any superfood' list relates to crops only in order to observe change in this indicator.

Superfood consumption

Consumption rates for all superfoods are much higher when considered over a seven-day recall period. This suggests that some more easily accessible superfoods are eaten daily, and others weekly. Cova Lima stands out as having the largest increase in percentage terms – the proportion of households consuming mung beans, for example, is up 70 percentage points since baseline. This is an exceptional achievement and highlights just how low a base Cova Lima was coming from.

Access to superfoods

After months of difficulty accessing superfoods in Bobonaro and Cova Lima, the situation has now improved. In Baucau, supply has not yet caught up to demand, and the same applies to some superfoods in Aileu (moringa and eggs). Superfoods are now more available at local markets, however, growing superfoods at home is the main driver for consumption in the home.



Ninil from Covalima Municipality, can see her family's nutrition improved; she learned how to cook superfoods such as moringa, soybeans and orange sweet potato through the BFBH project.

OUTCOME 3: HOUSEHOLDS HAVE INCREASED INCOME FROM 'SUPERFOOD' PRODUCTION

The evaluation revealed that many more households are selling superfoods by endline, but the median income per superfood per household has not changed at less than A\$50 per annum. It is clear, particularly in Cova Lima, that growing superfoods is primarily for home consumption.

Overwhelmingly, money from the sale of superfoods is utilised for household needs, children's schooling and savings. **The decision to spend the money in this way was predominantly made jointly by men and women in the household, or by women alone.** There were very few reports of men alone making this decision.

In the household survey, all respondents in the project areas (not just those who were part of savings and loans groups), were asked whether their household had any savings, and if so, how much. As shown in Table 3, **households were much more likely to have savings at endline compared to baseline.** However, the value of savings varied across project areas and although there were more households holding savings, the amount held does not appear to have increased significantly since baseline.

Table 3: Household Savings

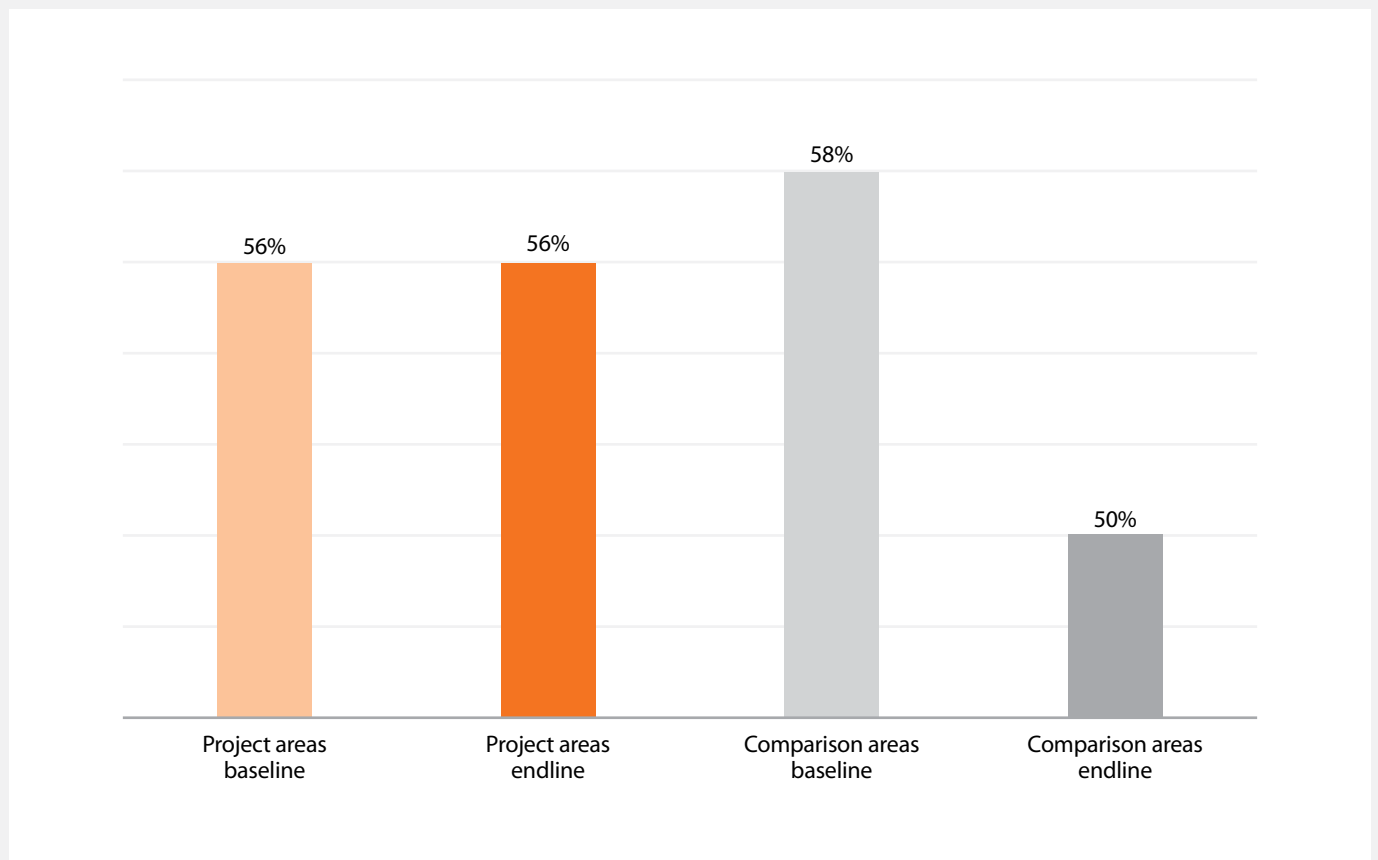
Project Areas - Baseline and Endline				
	% Households with any savings		Median value of savings among those households with some savings (A\$)	
	Baseline	Endline	Baseline	Endline
Aileu	31%	67%	50	183
Baucau	25%	32%	100	114
Bobonaro	16%	51%	215	205
Cova Lima	11%	42%	300	100
All project areas	23%	47%	100	200
%-point DiD	6 percentage-points		50	
p-value	0.07*		0.28	

The savings and funds mobilised by savings groups, as reported in the ITT at the time of the evaluation, were estimated at A\$1,100 in current funds – either available or on loan. This figure does not capture the total funds mobilised per group member, as some groups may have disbursed funds to members during this time. Taking disbursements into account, the average value of funds mobilised per group member varied from A\$8 in Baucau to A\$186 in Bobonaro. Comparative figures for Cova Lima were not available.

With savings often manifesting in alternative forms such as livestock and other assets, these results do not necessarily reflect the overall capacity of households to manage financial shocks. To explore this, households were asked in the survey how confident they were that they could access funds if they had an urgent need – this could be through accessing savings or borrowing from various sources. The evaluation revealed that households in comparison areas were much less confident that they could access funds in case of urgent need at endline compared to baseline (Figure 2), whereas there was no change in the project areas (DiD of 9 percentage-points, $p=0.01$). **This indicates that BFBH has had a strong protective effect on resilience to financial shocks.**

Figure 2: Resilience to financial shocks (project and comparison areas – baseline and endline)

% Households confident they could access funds in case of urgent need



A group selling nutritious superfoods via an innovative marketing stall.

OUTCOME 4: IMPROVED SUSTAINABILITY OF HEALTH AND AGRICULTURE SERVICES

The evaluation revealed that **there was a significant improvement in confidence to voice opinions in public, and to make changes to public service quality and accountability.** There was also increased satisfaction with public services between baseline and endline in both the project and comparison areas (DiD, however, was not significant). The highest rates of satisfaction reported were for health facilities, treatment and personnel in all locations (project and comparison areas), with lower rates of satisfaction for broader public service issues such as quality, accountability, and transparency.

PSFs were very confident and active in their roles, often going above and beyond to serve their communities. The chicken incentive package has been an excellent motivator and empowers PSFs to support the broader community. In KIIs, 89% of PSFs reported feeling very confident to weigh and measure children during SISCa visits, and 72% very confident to complete the LISIO or child health card/book used to record the child's immunisations. Typically, PSFs reported visiting around 10 households per month, with 84% reporting giving eggs to households in their community. However, 68% of respondents in the endline household survey in project areas reported having been visited by the PSF in the last month, compared to 49% in comparison areas – indicating a lot more visits than reported by the PSFs.



Alarico and Alzira with their children, Fersilia (aged eight), Bruno (aged 13) and Antonio (aged four) in front of their chicken coop.

PROJECT GOAL: CHILDREN UNDER 5 AND THEIR MOTHERS ARE WELL NOURISHED

Children

- **Stunting:** consistent with recent national figures, stunting has remained steady between baseline (47%) and endline (50%) in project areas overall ($p=0.28$). However, stunting in comparison areas has declined, resulting in a positive DiD of 8 percentage points ($p=0.03$) – meaning that stunting has increased in project areas. The increase is seen in boys and children 0-23 months, but not girls nor children 24-59 months.
- **Wasting:** there is no strong evidence of improvement in the prevalence of wasting in children under 5 years. However, girls and children aged 24-59 months from households participating in BFBH-supported groups are 8 percentage points ($p=0.00$) less likely to be wasted than households not participating in groups.
- **Anaemia:** there is no strong evidence of improvement in the prevalence of anaemia among children under 5 years in project or comparison areas. However, children from households participating in BFBH-supported groups are less likely to be anaemic than households not participating in groups (difference of 10 percentage points, $p=0.00$).
- **Diarrhoea:** BFBH has had a protective effect on the prevalence of diarrhoea in project areas overall (DiD of -5 percentage-points, $p=0.02$). However, the reduction in diarrhoea has not been marked or consistent across locations, which is surprising given the impressive improvements in health and hygiene knowledge, as well as improved access to basic handwashing facilities. There are likely to be other influencing factors – such as poor access to clean drinking water – which would also speak to the weak results with respect to anthropometric indicators. When asked about any difficulties they had experienced in implementing any new-found knowledge learned through BFBH, FGD participants described the difficulty of creating new habits and poor access to water as barriers to handwashing.

Mothers and pregnant women

- **Thinness among mothers** has declined in most areas since baseline, however, this is also observed in most comparison areas, leaving an insignificant DiD of -4 percentage points ($p=0.11$).
- There is no evidence of a change in **anaemia among mothers** between baseline and endline, and this is true for both project and comparison areas. However, mothers from households participating in BFBH-supported groups are less likely to be anaemic than mothers from households not participating in groups (difference of 10 percentage points, $p=0.00$).
- There is no evidence of a change in the prevalence of thinness nor the prevalence of anaemia in pregnant women, and this is true for both project and comparison areas.

Gender

- **Attitudes related to gender** have improved dramatically between baseline and endline, particularly in Aileu and Cova Lima. DiDs, however, are insignificant, meaning the change was similar in project and comparison areas. Joint decision-making scores have also improved since baseline across all locations, project and comparison, leaving insignificant DiDs.
- Those participating in BFBH-supported groups have higher gender attitude²⁰ and joint decision-making²¹ scores than those not participating in such groups (difference of 7 percentage-points, $p=0.00$, and 3 percentage-points, $p=0.02$, respectively).

“Washing hands was a bit difficult because it is not yet a habit, and it is difficult to access clean water”

– Women in Leohito, Bobonaro (FGD)

20 The gender attitudes indicator is defined as the average proportion of gender-positive responses to a set of 10 gender attitude statements, converted to a percentage score.

21 Joint decision-making in the household score is based around a set of six household decisions, and the score is defined as the proportion of decisions made either by a female member, or a male and female household member jointly.

EVALUATION OVERVIEW

Overall, BFBH has been well targeted and effective in improving the production and consumption of the six superfoods, and in addressing gender imbalances within the household. There have been some dramatic improvements in many of the outcome indicators since baseline, however, this effect was often seen in comparison areas as well, suggesting a spillover effect and improvements in government outreach. There was no clear change in goal-level indicators, highlighting the fact that children in

Timor-Leste are exposed to complex deficiencies that are impacting their nutritional status. This suggests that although the production and consumption of the six superfoods is necessary, it has not been sufficient to significantly reduce the prevailing rates of chronic malnutrition within the project timeframe (despite some households producing all six superfoods). The reasons behind these complex deficiencies²² need to be further understood and addressed in order for the expansion phase to be successful.

Specifically, in terms of the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) evaluation criteria:²³

RELEVANCE: HIGH

Previous research has found the nutrition situation in Timor-Leste to be in a critical state. One important reason is the limited amount of iron- and protein-rich foods in the diets of children and women of childbearing age, with physical and financial access to these foods proving to be major barriers. Building on this knowledge, along with learnings from previous child health and nutrition projects in Timor-Leste, BFBH was developed as a nutrition-sensitive agriculture (NSA) intervention to specifically address these issues in the Timor-Leste context.

COHERENCE: HIGH

Throughout the project, World Vision Timor-Leste and advisors have continuously engaged with the Government of Timor-Leste, DFAT, and other NGOs working in the space to ensure consistency, alignment and the sharing of findings for mutual learning and development.

EFFECTIVENESS: HIGH

BFBH has had good uptake and reach, and groups are inclusive of men, women, and people with disabilities. The project has achieved outstanding results with respect to improving health and nutrition practices (Outcome 1) and the availability of protein- and iron-rich superfoods in project communities (Outcome 2).

In addition, many more households are putting aside savings and earning income from superfoods (Outcome 3).

EFFICIENCY: HIGH

While investigation into the use of project funds is outside the scope of this evaluation, BFBH has achieved and often overachieved its targets with respect to core project activities within the intended timeframe. Superfoods have gained popularity throughout and beyond project area boundaries.

IMPACT: MODERATE

The project has been successful in achieving its outcomes – improving the consumption of iron- and protein-rich foods and improving the production of these foods. However, it has not yet clearly achieved its goals, at least in respect of the key indicators: stunting, wasting, and anaemia.

SUSTAINABILITY: MODERATE

Sustainability, and indeed ongoing improvement in the trajectory of project outcomes, are promising. The project has instigated a solid transition and the community is motivated and committed to continuing (Outcome 4).

²² This may include exploring the use of new comprehensive and context specific approaches to examine the multiple causes of anaemia in particular; <https://www.advancingnutrition.org/events/2022/09/01/exploring-anemia-ecology-new-approach-old-problem-webinar>

²³ <https://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm>

RECOMMENDATIONS



1. Continue to prioritise and tailor or increase types of 'superfoods' by location in expansion areas.

The range of superfoods available under the BFBH project (enabling different areas to adopt superfoods most suitable to their agro-ecological conditions), has proven to be very successful in the overall adoption of superfoods.



2. Do not shy away from addressing taboos.

The progress and innovation in addressing taboos has been commendable. Continue to support local communities to find their own ways to address taboos in their communities.



3. Consider water-saving options for superfood production.

Water availability was identified as the major barrier to superfood production and yields. Ways to address this – whether by improving the infiltration and availability of water, or by pursuing more water-efficient technologies or options – should be considered.



4. Consider timing and physical access to project activities.

The endline study found distance and physical access to be a major barrier to participation in groups. Similarly, those who had other activities such as working on the farm were unable to attend. Consider rotating or varying the timing and location of activities to be more inclusive in the expansion phase.



5. Support PSFs to encourage pregnant women to develop realistic birth plans.

Despite great progress in the number of births being attended by a skilled birth attendant, there are still large numbers of mothers giving birth at home (without a skilled birth attendant present). This is due to mothers being unable to reach a hospital or because there are no skilled professionals available. As recommended in the baseline study, BFBH should support PSFs to help expectant mothers develop realistic birth plans – that is, birth plans that acknowledge and address the practical limitations of poor transportation facilities and road access.



6. Investigate why reported participation in groups was so low for some target areas.

Few households in Baucau and Cova Lima report taking part in some groups. Investigations should be carried out to determine if this was simply due to terminology in the survey question or whether it was a reality – and if so, what was the cause?



7. Investigate why some nutrition-related indicators did not return better results,

in particular:

- a. Stunting, wasting, underweight and anaemia despite improvements in the intake of more nutritious foods.
- b. Marked or consistent reduction in the prevalence of diarrhoea, despite shifts in hygiene knowledge and access to basic handwashing facilities.
- c. Were the goal indicators too ambitious? Or could the common thread across the project areas be the need for de-worming along with access to improved water quality?



8. Review indicator data collection methods.

The project team and community participants expressed concern at the volume and frequency of data collection in the project. Furthermore, the results of some indicators were erroneous (e.g. production and yield data) or did not change as expected (e.g. anthropometrics). The approach to data collection, monitoring and evaluation should be reviewed to ensure it is appropriate, efficient, and useful.



9. Consider ways to further support and develop financial literacy in savings and loans groups, particularly among women, and track gender and disability by leadership position to assess progress in this area.

FGDs and KIs suggested that financial literacy in savings and loans groups was low, particularly among women who tended to have low literacy. Savings and loans groups with better tracking to monitor progress can be an important vehicle for raising the status of these women in the community.



10. Call out BFBH as a gender-sensitive, as well as nutrition-sensitive, agriculture project.

The shifts in gender norms and roles in BFBH communities have been remarkable. Could involving men in activities that are practical and regular (that is, everyday activities such as feeding and looking after children) be the enabling factor here, and could this concept be scaled up and transferred to other everyday, practical activities in the future?



11. Conduct further analysis using the baseline and endline data.

The baseline and endline data sets are a rich source of information, providing an opportunity for future in-depth analysis and understanding of the drivers, barriers, and confounding factors behind the BFBH results, such as identifying the key factors associated with stunting among children under two; this can help both inform future programs as well as fill the existing evidence gap on the impact of Nutrition Sensitive Agriculture (NSA) on child nutrition outcomes.

World Vision



Tito, a father of four from Bobonaro, is new to chicken farming, but he loves it; some of his profit earnings have been used for his children's education.

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THIS MEANS THE WORLD

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