

citTimor-Leste

Better Food, Better Health Project

Aileu, Baucau, Bobonaro & Cova Lima



Endline Report

April 2022

World Vision Pacific and Timor-Leste

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1. Acknowledgements

This report has been prepared by Katy Cornwell (independent consultant) in collaboration with Domingos Maia Bicik (World Vision Timor-Leste, WVTL), Nuno Alves (WVTL) and Evangelita Pereira (WVTL). Katy Cornwell was employed by World Vision Australia until 2020 and provided monitoring, evaluation and learning support to this project as part of that role.

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World Vision acknowledges Australian Government funding for this project through the Department of Foreign Affairs and Trade under the Australian NGO Cooperation Program (ANCP) program.

2. Affirmation

This report is the original work of Katy Cornwell and World Vision Timor-Leste. Its purpose is to provide insight into the pre-program conditions of communities in the project's target areas in Aileu district. It is intended to provide a rigorous and fair evaluation of the Better Food Better Health (BFBH) Project in Aileu, Baucau, Bobonaro and Cova Lima municipalities of Timor-Leste, as well as provide input into the next phase (expansion) of the project.

3. Glossary

Acronym	Full Description
ANC	Ante natal care
ANCP	Australian NGO Cooperation Program
BFBH	Better Food, Better Health (project)
BRACCE	Building Resilience to a Changing Climate and Environment (BRACCE)
CVA	Citizen Voice and Action
COVID-19	Coronavirus 2019
DHS	Demographic and Health Survey
DiD	Difference-in-differences
DPT-3	Third dose of the diphtheria, pertussis (whooping cough) and tetanus vaccine
FMNR	Farmer Managed Natural Regeneration (FMNR)
HAP	Haburas Aileu project (food security)
HAP-N	Haburas Aileu nutrition project (food security with nutrition component)
HAZ	Height-for-age z-score
HH	Household
IEC	Information, Education and Communication
IYCF	Infant and young child feeding
ITT	Indicator tracking table

LIFE	Livelihood Improvement through Farmer Enterprise
MAF	Ministry of Agriculture and Fisheries
MAM	Moderate Acute Malnutrition
MNCHN	Maternal Newborn Child Health and Nutrition
MELF	Monitoring, Evaluation and Learning Framework
MUAC	Middle upper arm circumference
NGO	Non-Government Organisation
PDD	Program Design Document
PLWD	Person living with a disability
PSF	Community health promoters / volunteers
SBCC	Social and Behaviour Change Communication
SISCa	Integrated community health services (mobile health unit)
Stunted	HAZ <-2
Superfoods	Soybeans, mung beans, red kidney beans, orange sweet potato, moringa and eggs.
Thinness	MUAC <23.5
TOR	Terms of reference
Underweight	WAZ <-2
Wasted	WHZ <-2
WASH	Water, sanitation and hygiene
WHO	World Health Organization
WAZ	Weight-for-age z-score
WHZ	Weight-for-height z-score
WV	World Vision
WVA	World Vision Australia
WVTL	World Vision Timor-Leste
WVPTL	World Vision Pacific Timor-Leste

4. Executive Summary

Abstract

World Vision (WV)'s Better Food, Better Health (BFBH) project is a nutrition-sensitive agriculture project aiming to improve nutrition for 31,806 direct beneficiaries in Timor-Leste. The project promotes production and utilisation of six 'superfoods': soybeans, mung beans, red kidney beans, orange sweet potato, moringa and eggs. This report presents the findings of the endline study for the project fielded November 2021 through to February 2022 and provides some recommendations for the next phase (expansion) of the project.

The 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 stunting¹, wasting² and underweight³ among children 0 to 59 months was 46%, 24% and 40% respectively, and anaemia⁴ prevalence amongst children 6-59 months is 40%. These rates all fall in the World Health Organisation (WHO)'s most severe category for public health significance, highlighting the nutrition situation in Timor-Leste is in a critical state. Undernutrition, particularly during pregnancy and the first two years of life, has been shown to have a devastating impact on child health and development, the effects of which persist into poor health, education and economy 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.

Project Overview

WV's BFBH project aimed to reduce undernutrition by improving utilisation and demand for nutritionally diverse foods, and enhancing year-round access to these foods – particularly protein-rich foods. The project promoted production and utilisation of six 'superfoods': soybeans, mung beans, red kidney beans, orange sweet potato, moringa and eggs.

The BFBH project involved a social and behaviour change communication strategy, built on learnings from previous WV child health and nutrition projects in Timor-Leste. Key activities included:

- Establishing community groups: parents' clubs, farmer groups, food processing groups and savings and loans groups.
- Promoting, training and supporting 'superfood' production and utilisation, improved agricultural techniques and technologies including Farmer Managed Natural Regeneration (FMNR), perennial kitchen gardens, post-harvest processing, preservation and storage (e.g. production of tofu and tempeh).
- Training and supporting community health volunteers (PSFs) to facilitate parent club meetings, perform home visits and undertake child growth monitoring and health promotion during SISCa (Integrated Community Health Services) visits.

¹ Height for age less than 2 standard deviations from median reference population.

² Weight for height less than 2 standard deviations from median reference population.

³ Weight for age less than 2 standard deviations from median reference population.

⁴ Hb<110g/L.

- Strengthening and expanding markets for products through private sector partnerships.

Project Goal: Children under 5 and their mothers are well nourished

Outcome 1: Caregivers of under 5 children have improved nutrition and health seeking practices

Outcome 2: Households have improved access to 'superfoods'

Outcome 3: Households have increased income from 'superfood' production

Outcome 4: Improved sustainability of health and agriculture services

Direct beneficiaries include children 0-59 months and their caregivers, pregnant women, partners of these caregivers and pregnant women, agricultural households and PSFs in 22 villages (suku) across Aileu, Baucau, Bobonaro and Cova Lima municipalities. The project was anticipated to support 31,806 direct beneficiaries, 16 health posts, 120 PSFs, 287 parents' clubs, 87 farmer groups, 92 savings and loans groups and 21 food processing groups.

Endline Study Purpose

This endline study has sought to understand the extent to which the project has achieved its goals, outcomes and outputs. It documents learnings and provides some recommendations for the next phase (expansion) of the project, which will also 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 and Design

This endline study covers all 22 BFBH project suku as well as non-project comparison groups in all four municipalities, to allow for evaluation of project impact. It also allows for identification of synergies with prior WVTL programming experience, and in Baucau municipality, concurrent WVTL-implemented TOMAK (*To'os ba Moris Di'ak*) Farming for Prosperity project, which is also supported by the Australian Government. The total sample size was 2129 households – 1542 from project areas and 587 from comparison areas. The total project area 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 2.13.⁵

The study was of mixed-methods design; core methods employed included primary data collection from households (including haemoglobin and anthropometric measurements of children, mothers and pregnant women), focus group discussions with project groups and semi-qualitative key informant interviews with PSFs and government representatives.

⁵ <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.

Key Findings

Reach

- **BFBH has had impressive uptake and reach:** 77-85% of households with children 0-59 months in project areas had heard of the project, and project group membership lists comprising up to 72% of the estimated adult beneficiary population of 22,264. There was unanimous agreement that the project has been good for the community.
- **Gender and disability:** the gender distribution of members is evenly spread in farmer groups, while more women are members of parents' clubs and more men members of savings and loans groups. PWDs make up 2-4% of the group membership list, which is consistent with the 3% disability rate reported in the 2015 census.
- **Distance and access is a major barrier** to participation in groups.
- **Fame and regard extended beyond project area boundaries**, indicating there will have been spillover effects of project activities on households in comparison areas. This will be somewhat problematic in assessing the 'true impact' of the project.

Outcome 1: Caregivers of under 5 children have improved nutrition, hygiene and health-seeking practices (including family planning)

Nutrition:

- Exclusive breastfeeding among children aged 0-5 months in project areas has remained constant (66% at baseline compared to 67% at endline).
- The proportion of children aged 12-23 months receiving breastmilk in the 24-hour recall period has increased slightly from 52% to 56%, and this is a significant positive impact for boys.
- 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). This represents an impact of 6 percentage points overall, 8 percentage points for girls and 4 percentage points for boys.
- Rates of consumption of superfoods among mothers of children aged 0-59 months were virtually identical to those of the children: 14% at baseline to 59% at endline. This highlights that when mothers are eating superfoods, children are too. Similarly positive results were observed for pregnant women – from 15% at baseline up to 53% at endline in project areas.
- BFBH has supported dietary diversity more broadly: at baseline, children aged 6-59 months in project areas were consuming only 2.42 food groups on average out of a possible 7.⁶ By endline, this had increased to an average of 3.90. This represents an impressive 55% of children satisfying a minimum dietary diversity of 4 food groups in project areas at endline compared

⁶ The 7 food groups are based on the World Health Organisation (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.

to only 13% at baseline.⁷ Difference-in-differences estimates are smaller and significant for girls: BFBH has had a positive impact on dietary diversity for girls, but not necessarily for boys.

- BFBH has had a significant impact on shifting traditional gender roles in the feeding and caring for children.

Health-seeking:

- BFBH has had a protective effect on mitigating an overall trend of reduced health-seeking behaviour amid the recent COVID-19 climate (ANC, attendance at SISCA and childhood vaccinations).
- Particularly positive shifts are seen in male involvement in antenatal care and births attended by a skilled birth attendant. The majority (55%) of children in the endline sample were born in a hospital (55%), and the proportion in Cova Lima project areas has almost doubled since baseline.

Hygiene: There have been dramatic improvements in hygiene-related indicators – proportion of households with adequate handwashing facilities, basic hygiene knowledge, and prevention of animals from entering the house – since baseline, and effects have been larger in BFBH project areas.

Family planning: There is no evidence that BFBH has had an impact on family planning among mothers of children 0-59 months.

Generally speaking, the troubling health situation in Cova Lima observed at baseline appears to have improved – by bringing some of the systemic realities to light through the baseline findings, WVTL may well have had a significant influence in affecting this change.

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: In Bobonaro, 97% of project area households produced at least one superfood crop, and this rate was similarly impressive in Aileu (85%) and Cova Lima (86%).⁸ It is much lower in Baucau at 58%.
- Orange sweet potato is the more universally grown crop, while soybeans, mungbeans, red kidney beans and moringa have very different rates of uptake by location.
- The range of superfoods available under the BFBH project, enabling different areas to adopt the particular superfoods that are most suitable to their agro-geographical climate, has proven to be very successful in overall adoption of superfoods.
- Water availability was the major limiting factor in superfood production and yield.

⁷ The WHO’s Minimum Dietary Diversity indicator of 4 food groups is based on the WHO IYCF categories, hence our minimum dietary diversity indicator here departs from this by allowing breastmilk in the dairy category.

⁸ 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 at baseline.

Access to superfoods: Months of difficulty accessing superfoods has significantly reduced in Bobonaro and Cova Lima. Supply appears to have not yet caught up with demand in Baucau, and for some superfoods in Aileu (moringa and eggs). Superfoods are now more available at local markets, nonetheless growing superfoods at home is the main driver for consumption in the home.

Outcome 3: Households have increased income from ‘superfood’ production

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

Overwhelmingly, money from sales 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.

Many more households are saving at endline compared to baseline. The value of savings per household is variable and the amount held per household does not appear to have increased since baseline.

BFBH has had a strong protective effect on resilience to financial shocks – households in comparison areas were much less confident at endline compared to baseline, whereas there was no change in project areas.

Outcome 4: Improved sustainability of health and agriculture services

Respondents in Bobonaro and Cova Lima show large improvements in confidence to voice opinions in public, confidence to make change to public service quality and accountability, and satisfaction with public services. Results are not so positive in Aileu and Baucau.

There continue to be very high rates of satisfaction with regard to health facilities, treatment and personnel are reported in all locations – project and comparison. Lower rates are seen for satisfaction with broader public service quality, accountability and transparency.

PSF are 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 PSF to support the broader community.

The project has a solid transition plan and the communities are confident and motivated to continue applying what they have learned through the project.

Project Goal: Children under 5 and their mothers are well nourished

Children:

- There is no strong evidence of improvement in rates of stunting, wasting, underweight or anaemia in children aged 0-59 months. A weak improvement in the rate of anaemia is found for girls, but not boys, in Baucau.
- There is little evidence that prevalence of diarrhea has reduced between baseline and endline, despite the impressive improvements in health and hygiene knowledge in communities. Some protective effect is seen in Baucau, however.

Mothers and pregnant women:

- Thinness has declined in most areas since baseline, however this is also observed in most comparison areas.
- Prevalence of anaemia appears to have declined in project areas and risen in comparison areas, but the difference is not statistically significant.

Gender:

- Gender attitude score have improved dramatically between baseline and endline, particularly in Aileu and Cova Lima.
- Joint decision-making scores have also improved since baseline across all locations.

Conclusion

The BFBH 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). Many more households are putting aside savings and earning income from superfoods (outcome 3). The project has instigated a solid transition and the community is motivated and committed to continue (outcome 4). While the project has achieved its gender-related goals, it has not achieved those related to nutrition, at least with respect to the indicators. Reasons for this will need to be further understood and addressed in order for the expansion phase to be successful.

Recommendations

1. Continue to prioritise and tailoring 'superfoods' by location in expansion areas.

The range of superfoods available under the BFBH project, enabling different areas to adopt the particular superfoods that are most suitable to their agro-geographical climate, has proven to be very successful in overall adoption of superfoods.

2. Do not shy away from addressing taboos.

The progress and innovation in addressing taboos in Baucau 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 yield. Ways to address this – whether by improving the availability of water or by pursuing water-saving 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 develop realistic birth plans.

Despite great progress in the number of births taking place at hospital and a high demand for giving birth at hospital, there are still large numbers of mothers giving birth at home (without a skilled birth attendant present) due to being unable to reach hospital or a skilled professional not being available. BFBH should continue to 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 some nutrition-related indicators did not return better results

In particular, these include:

- Diarrhea prevalence despite shifts in hygiene knowledge and access to facilities.
- Stunting, wasting, underweight and anaemia despite improvements in nutritional intake.

Reasons may be due to the way they were measured or because of other factors influencing outcomes. Could the common thread here be water quality and access?

7. Consider ways to further support and develop financial literacy in savings and loans groups, particularly among women

8. Review indicators and/or evaluation methodology, utilising group monitoring data where appropriate.

The project team as well as the communities expressed a great deal of fatigue at the amount 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. 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 future?

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

The baseline and endline data is 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. The LQAS monitoring data could potentially also be analysed further.

7. Project Background

Table 5.1
Project Summary

Project Name:		Better Food, Better Health			
Project number:	1TMP083, T206531				
Country:	Timor-Leste				
Start and end date of project:	1 November 2017 to 30 June 2021 (Pilot in Aileu municipality from 1 July 2016)				
Total project budget:	USD 6,772,995				
Source of funding:	DFAT, ANCP				
Impact area population:	Target beneficiaries (direct):				
Men	22,737	Men	11,368		
Women	21,792	Women	10,896		
Boys	9,744	Boys	4,872		
Girls	9,339	Girls	4,670		
Total:	63,612	Total:	31,806		
Municipality	Aileu	Baucau	Bobonaro	Cova Lima	
Start and end date of Project	1 July 2016 to 30 June 2020	1 November 2017 to 30 June 2020	1 November 2017 to 30 June 2020	1 November 2017 to 30 June 2020	
Date baseline data completed	11 July 2017	23 March 2018	6 February 2018	23 February 2018	
Date endline data completed	29 July 2021	25 February 2022	20 January 2022	3 February 2022	
Target beneficiaries (direct)					
Men	2,935	3,985	2,122	2,122	
Women	2,700	3,831	2,056	2,056	
Boys	1,258	1,708	909	909	
Girls	1,157	1,642	881	881	
Total:	8,050	11,166	6,622	5,968	
National Office M&E Contact: Domingos Maia Bicik					

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 stunting⁹, wasting¹⁰ and underweight¹¹ among children 0-59 months was 46 percent, 24 percent and 40 percent respectively, and anaemia¹² prevalence amongst children 6-59 months is 40 percent. Prevalence rates are higher in rural areas and slightly higher among boys (DHS, 2016). The Better Food, Better Health (BFBH) baseline study found similarly high prevalence rates of stunting (45%-53%), wasting (11-23%) and underweight (34-47%) among children 0-59 month in project areas, and very high rates of anaemia (39-68%) among

⁹ Height for age less than two standard deviations from median reference population.

¹⁰ Weight for height less than two standard deviations from median reference population.

¹¹ Weight for age less than two standard deviations from median reference population.

¹² Hb<110g/L.

children 6-59 months, their mothers (24-45%) and pregnant women (41-64%). All these rates all fall in the World Health Organization (WHO)'s most severe category for public health significance, highlighting the nutrition situation in Timor-Leste is in a critical state.

Undernutrition, particularly during pregnancy and the first 2 years of life, has been shown to have a devastating impact on child health and development, the effects of which persist into poor health, education and economy 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.

Recent research in Timor-Leste has identified that iron and protein-rich foods are lacking in the diets of children, with physical and financial access to such foods a major barrier to consumption (Cornwell et al., 2016). The Better Food, Better Health (BFBH) baseline study found that while anaemia prevalence rates were very high, in many cases the degree of anaemia was mild and could potentially be improved with dietary adjustment such as that promoted through BFBH.

World Vision (WV)'s BFBH project was a nutrition-sensitive agriculture project funded by the Australian NGO Cooperation Program (ANCP), with a value of \$6.77 million over 3.6 years (November 2017 – June 2021). It aimed to reduce undernutrition in Aileu, Baucau, Bobonaro and Cova Lima municipalities, Timor-Leste, by improving utilisation and demand for six nutritionally diverse, affordable and easy-to-grow 'superfoods' – soybeans, mung beans, red kidney beans, orange sweet potato, moringa and eggs – and enhancing year-round access to these foods.

Project Activities and Target Coverage

BFBH aimed to bring about positive nutrition outcomes for approximately 31,806 direct beneficiaries in Aileu, Baucau, Bobonaro and Cova Lima municipalities in Timor-Leste. It involved a social and behaviour change communication strategy, built on learnings from previous WV child health and nutrition projects in Timor-Leste. Direct beneficiaries include children under the age of five and their caregivers, pregnant women, partners of these caregivers and pregnant women, agricultural households and community health volunteers (PSFs).

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

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) 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 chicken feed.

'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) were promoted and supported through farmer, FMNR and food processing groups. Markets for products were strengthened and expanded through private sector partnerships.

The project beneficiaries and groups by municipality are provided in the Table 5.2 overleaf. In particular, the lower panel of Table 5.2 compares the target and achieved number of PSFs, clubs and groups supported by BFBH throughout the life of the project. In the vast majority of cases, the project has achieved (in fact, over-achieved) its target.

Other project stakeholders and collaborators include:

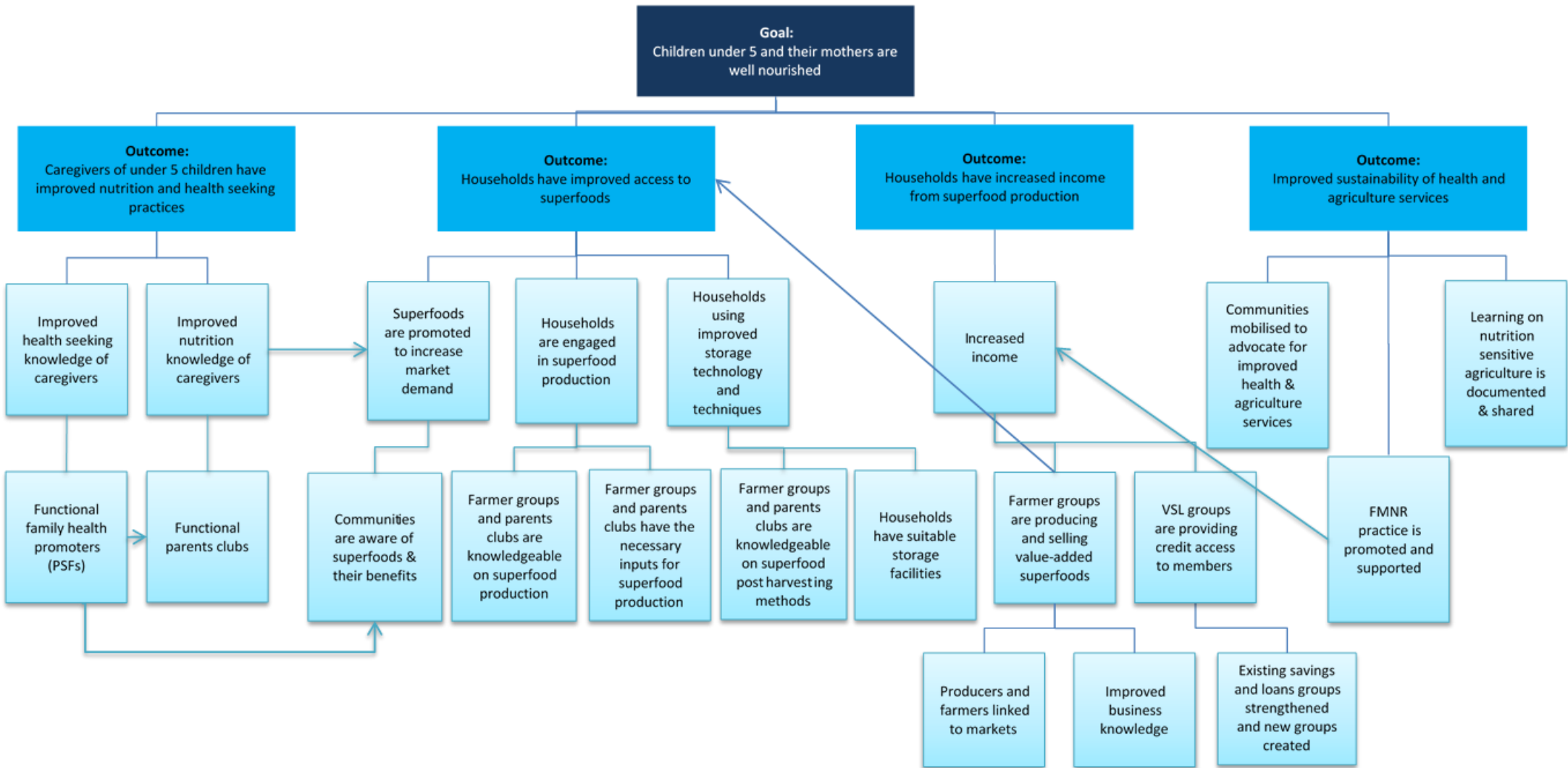
- Ministry of Agriculture, Forestry and Fisheries, national level (government)
- Secretary of State of Environment, national level (government)
- Secretary of State of Agroforestry and Natural Conservation, national level (government)
- Institute for Enterprise Development (Instituto de Apoio Desenvolvimento Empresarial), national level (government)
- Ministry of Commerce, Industry and Environment, national level (government)
- Ministry of Health, national level (government)
- National Health Institution, national level (government)
- District Health Service, local level (government)
- District Administration, local level (government)
- Health Posts, village level (government)
- Dili Mart supermarket (business sector)
- Leader supermarket (business sector)
- Timor Global (business sector)
- Permatil (local NGO)

Figure 5.1 overleaf shows the theory of change. The complete project design documents, including logframe, are attached in Annex 1.

Table 5.2
Project Beneficiaries and Coverage
Target versus Achieved

Municipality	Aileu		Baucau		Bobonaro		Cova Lima		Total	
Sub municipalities	1		1		1		1		4	
Sukus (villages)	Aileu Vila		Baucau		Balibo		Zumalai		22	
	5		7		5		5			
	Aissirimou	Seloi Malere	Buibau	Samalari	Balibo Vila	Leolima	Lepo	Tashilin		
	Fahiria	Suku Liurai	Gariuai	Seical	Cowa	Sanirin	Lour	Zulo		
	Seloi Craic		Uailili	Trilolo	Leohito		Raimea			
			Buruma							
Number of aldeia (sub-villages)	34		43		24		24		125	
Beneficiary population	8,050		11,166		6,682		5,969		31,806	
Number of health posts	4		5		4		3		16	
Number of participating:	Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
PSFs	35	35	35	35	25	25	25	25	120	120
Parents' clubs	68	70	123	123	48	50	48	52	287	295
Farmer groups	34	100	21	19	17	49	15	109	87	277
FMNR groups	34	50	14	5	8	18	5	5	61	78
Savings & loans groups	25	36	28	26	29	29	15	9	82	100
Food processing groups	4	12	7	10	5	20	5	7	21	78
CVA groups	5	5	7	7	5	5	5	5	22	22

Figure 5.1
Project Theory of Change



8. Endline Study Purpose and Objectives

This endline study (the 'Study') was conducted to evaluate the project's achievements towards its goals, outcomes and outputs, as well as provide insights and recommendations for the next phase (expansion) of the project. The terms of reference (TOR) including key evaluation questions are provided in Annex 2.

Table 6.1 outlines the logframe indicators for collection at endline. Specific definitions for indicators are provided in Annex 1.

Table 6.1 Logframe Indicators for Collection at Endline	
Summary of objectives	Indicator
<p>GOAL:</p> <p>Children under 5 and their mothers are well nourished</p>	<p>G.1. % stunting in children/boys/girls (aged 0-59 months)(length/height for age<-2SD) (CIA.0008).</p> <p>G.2.1 % wasting in children/boys/girls (aged 0-59 months) (weight for height<-2SD).</p> <p>G.2.3 % thinness in mothers of children 0-59 months (MUAC).</p> <p>G.2.4 % thinness in pregnant women(aged 15-49) (MUAC).</p> <p>G.3 % underweight in children/boys/girls 0-59 months (weight for age<-2SD).</p> <p>G.4 % diarrhoea in the last 2 weeks among children/boys/girls 0-59 months.</p> <p>G.5.1 % anaemia in children/boys/girls (aged 0-59 months)</p> <p>G.5.2 % anaemia in mothers of children (aged 0-59 months)</p> <p>G.5.3 % anaemia in pregnant women (aged 15-49).</p> <p>G.5.4 % people (men, women, men with disability, women with disability) in agreement with key gender attitude statements.</p> <p>G.5.5 % households where women or men and women jointly make key health and nutrition related decisions.</p>
<p>OUTCOME 1:</p> <p>Caregivers of under 5 children have improved nutrition and health-seeking practices</p>	<p>1.1.1 % mothers of children (aged 0-59 months) who report attending 4 or more ANC visits while pregnant with their youngest child (CIC.0156).</p> <p>1.1.2 % mothers who were accompanied by their husband/partner at ANC visits while pregnant with their youngest child.</p> <p>1.1.4 % children/boys/girls (aged 0-59 months) who attended SISCa / health facility in the last 3 months.</p> <p>1.1.5 % children/boys/girls (aged 4-59 months) vaccinated against DPT3 [MELF 1.301 - Number (x) of girls and boys vaccinated (against DPT3 as the selected proxy indicator for vaccination)].</p> <p>1.2.1 % children/boys/girls (aged 0-5 months) exclusively breastfed in the last 24 hours (CIA.0047).</p> <p>1.2.2 % children/boys/girls (aged 12-23 months) who received breastmilk in last 24 hours.</p> <p>1.2.3 % children/boys/girls (aged 6-59 months) consuming superfoods in the last 24 hours.</p> <p>1.2.4 % mothers of children (aged 0-59 months) consuming superfoods in the last 24 hours.</p> <p>1.2.5 % pregnant women consuming superfoods in the last 24 hours.</p> <p>1.2.6 Average number of food groups consumed by children/boys/girls (aged 6-59 months) in the last 24 hours.</p> <p>1.2.7 % households with children (aged 0-59 months) men are regularly involved in feeding & care for the child</p>

	<p>1.3.1 % households with children (aged 0-59 months) with appropriate handwashing facilities (CIB.0130)</p> <p>1.3.2 % carers (women, men, total) of children (aged 0-59 months) knowledgeable about basic hygiene practices [MELF 1.201 - Number (x) of people with increased knowledge of hygiene practices]. (Measured annually)</p> <p>1.3.3 % households where animals are prevented from entering the house. (Measured at baseline and endline)</p> <p>1.4.1 % of in-union women (aged 15-49 years) who report that they are currently using a modern contraceptive method (C1C.21229)</p> <p>1.4.2 % of in-union women (aged 15-49 years) who are continuous users of family planning (C1C.0363)</p>
<p>OUTCOME 2:</p> <p>Households have improved access to superfoods</p>	<p>2.1.1 % households growing superfoods (any and disaggregated by superfood) either individually or as part of a collective effort (farmer group, parents' group).</p> <p>2.1.2 Annual volume (kg, number of eggs) of superfood produced among producing households (disaggregated by superfood).</p> <p>2.1.3 Average land area (ha) utilised for superfood production among producing households (disaggregated by superfood crop).</p> <p>2.1.4 % superfood-producing households processing superfoods (any).</p> <p>2.2.1 % households consuming superfoods in the last week (any and disaggregated by superfood).</p> <p>2.2.3 Average number of months in the last year households report having difficulty accessing superfoods (disaggregated by superfood).</p> <p>2.3.2 Average number of chickens lost/died in the last 12 months among households raising chickens.</p> <p>2.3.1 % households whose chickens have been vaccinated.</p>
<p>OUTCOME 3:</p> <p>Households have increased income from superfood production</p>	<p>3.1.1 Average/median household income from sale of superfoods and their products, among superfood-producing households - either individually or as part of a collective effort (farmer group, parents' group)</p> <p>3.1.2 % households earning income from superfoods and superfood-related activities (production, labour, processing, sale) - either individually or as part of a collective effort (farmer group, parents' group). (any and by superfood)</p> <p>3.2.1 Average annual savings/funds mobilised per group. [not for collection at baseline]</p> <p>3.2.2 Average annual savings/funds mobilised per group member. [not for collection at baseline]</p> <p>3.2.3 Average amount of household savings.</p>
<p>OUTCOME 4:</p> <p>Improved sustainability of Health and Agriculture Services</p>	<p>4.1.1 % people (women, men, women with disabilities, men with disabilities, total) attending CVA gatherings in the last 12 months.</p> <p>4.1.2 % people (women, men, women with disabilities, men with disabilities, total) reporting confidence in voicing their opinions in public.</p> <p>4.1.3 % people (women, men, women with disabilities, men with disabilities, total) reporting confidence in being able to make change to public service quality and accountability in their community.</p> <p>4.1.4 % people (women, men, women with disabilities, men with disabilities, total) reporting satisfaction with public services in their community.</p> <p>4.2.1 Number of hectares covered with FMNR. [not for collection at baseline]</p> <p>4.3.1 Average number of chickens owned by PSF</p> <p>4.3.2 Average number of eggs produced per month by PSF's chickens</p> <p>4.3.3 % PSF with improved chicken housing.</p> <p>4.3.4 % PSF whose chickens have been vaccinated.</p> <p>4.3.5 Average number of chickens lost/died in the last 12 months among PSF raising chickens.</p>

9. Study Method and Design

Study Design and Methodology

The evaluation study (the 'Study') was of mixed-methods design, incorporating a large quantitative household survey, focus group discussions (FGDs) with members from a cross-section of project-supported groups and semi-qualitative Key Informant Interviews (KIIs) with PSFs, Ministry of Agriculture, Ministry of Health and Ministry for Cooperatives. Primary data collection at the household level included anthropometric measurements and, in Baucau, Bobonaro and Cova Lima, haemoglobin.¹³

The household survey tool comprised a set of modules answered by households satisfying the following criteria:

- 1. General household module:** all households answered this set of questions, which included household composition, living conditions, agricultural production, time use as well as standard assessment tools including multidimensional poverty, food security and women's empowerment.
- 2. Mother-carer module:** only households with a child aged 0-59 months answered this set of questions, which included birth location, antenatal care (ANC), dietary intake, historical records from child health books, and undertaking anthropometric measurements of both mother and child.
- 3. Pregnant woman module:** only households with a pregnant woman answered this set of questions, comprising ANC, dietary intake, birth plans and attitudes.

Annex 4 contains the data collection tools.

Sampling and Data Collection

The Study sample mirrored that used in the baseline study. In particular, drawn from virtually the same villages (suku) and sub-villages/hamlets (aldeia) as baseline, covering all 22 BFBH suku as well as non-project comparison groups in the same four municipalities. At baseline, 78 of the 125 aldeia within these 22 suku were randomly selected for inclusion with probability proportional to size (based on the 2015 population census). During fieldwork, it was necessary to swap out some project area aldeia due to road and weather conditions.

Collectively, these locations have a broad range of exposure to previous and concurrent WVTL programming. In particular, Cova Lima represented a new location for WVTL, while four of the seven target sukus in Baucau simultaneously received Farming for Prosperity (TOMAK) interventions operated by WVTL on behalf of DFAT. The discussion of outcomes to follow will draw on these differences.

In addition to the 78 project area aldeia, 36 aldeias were selected to serve as non-project comparison areas (controls), such that a difference-in-differences (DiD) approach can be used in the analysis (refer to Box 1). The comparison locations were selected based on the following criteria:

¹³ Haemoglobin was not collected in Aileu as ethical clearance was not granted in time to conduct the baseline study in Aileu.

- Collectively covering a range of previous project experience, reflecting the range experienced in BFBH project areas, and some areas without any prior WVTL exposure.
- A mix of remote and not so remote locations in each sub-municipality.
- Agricultural production profiles similar to BFBH locations.

**Box 1:
Difference-in-Differences Approach**

A difference-in-differences (DiD) approach involves 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 (EC-BC in the diagram below) is subtracted from the change observed between baseline and endline in project areas (EP-BP) of the project.

DiD is particularly useful in the presence of unusual and adverse events such as COVID-19, as it allows us to essentially purge those effects from the outcomes. In the analysis to follow, we will use the DiD approach to demonstrate that BFBH had a protective effect on many outcomes of interest in these unusual times.

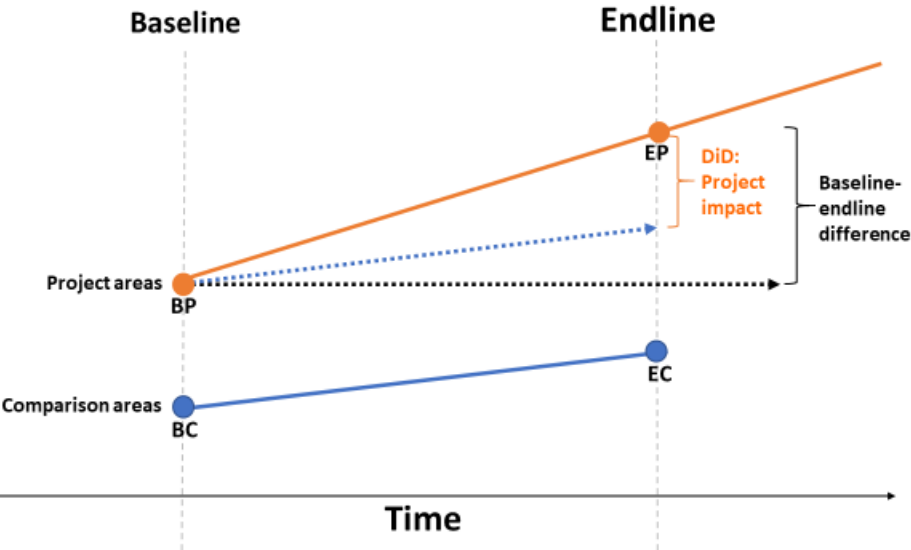


Table 7.2 outlines the number of aldeia selected for inclusion in the baseline sample, out of the total number of aldeias participating in BFBH and/or TOMAK, where applicable.

Table 7.2					
Number of Aldeia in Baseline Sample out of Total					
	Aileu	Baucau	Bobonaro	Cova Lima	Total
Project Areas					
BFBH only	23 of 34	11 of 23	16 of 24	15 of 24	65 of 105
BFBH + TOMAK		13 of 20			13 of 20
Total	23 of 34	24 of 43	16 of 24	15 of 24	78 of 125
Comparison Areas					
TOMAK		6 of 10			6
No current WVTL project	9	6	6	9	30
Total	9	12	6	9	36

In each aldeia, a target of 18 households was established for inclusion. This number was partially determined to ensure sufficient observations in each of the comparison strata, and partially based on the number a field team could practically cover within the timeframe of the fieldwork.

Households with a child aged 0-59 months were the primary target respondents for the household survey. Households were selected at random for interview using master household lists obtained from project activities or where these were not available, from aldeia chiefs.

In addition, where possible, care was taken to ensure there were at least two households with pregnant women and two households with a person living with a disability (PLWD) included for interview in each of the sampled aldeias.¹⁴ In some aldeia there were fewer than the target 18 households with children aged 0-59 months available for interview. In these cases, households without children aged 0-59 months were interviewed – intentionally selected from households with a pregnant woman or a PLWD.

In each location, data was collected by two teams consisting of a driver¹⁵, a supervisor, 5-6 household survey data collectors, 1-2 anthropometric data collectors, and in Baucau, Bobonaro and Cova Lima, a Ministry of Health laboratory assistant. The Ministry of Health laboratory assistant were responsible for conducting the anaemia testing using a Haemocue™. Ethical clearance for the work was obtained through the Timor-Leste National Institute of Health, and protocols were put in place to refer any severely malnourished or severely anaemic persons to the appropriate health facility for health staff for follow up.

¹⁴ For the purposes of sampling at this level, households with a person with a disability were identified in discussions with the aldeia chief or PSF – in the analysis to follow, ‘households with a person with a disability’ were identified with a set of defined criteria as outlined in the subsequent section, regardless of this nomination.

¹⁵ While the driver did not collect data, they were considered an integral part of the field team.

10. Sample Characteristics

Table 8.1 outlines the total number of observations at baseline and endline. In total, 2129 households in 114 aldeias were interviewed (1542 in project areas, 587 in comparison areas), comparable to that collected at baseline (2080 total, 1476 project, 604 comparison areas). The total project area 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 2.13.¹⁶ A complete list of aldeias and the resultant sample size is provided in Annex 5.

Data was collected for 2058 children aged 0-59 months, 216 households with a pregnant woman, 244 households with a PLWD, and 103 where the household head was nominated as female. The sample size for households with a child aged 0-59 months in Aileu is larger at endline than baseline; since the household sample for Aileu comprised households both with and without children aged 0-59 months, for comparison purposes we constrain the Aileu baseline sample to only those with children 0-59 months.

Households with a disability were identified by responses to a set of diagnostic questions adapted from the Washington Group Short Set of Questions on Disability¹⁷. The number of households observed with a PLWD in the endline sample is low at 11%, but similar to that at baseline (14%). It is also consistent with low rates observed in surveys where PLWD are identified by self-reporting, reflecting a varied perception of what is a “disability” and potentially misreporting due to stigma. Furthermore, only households, rather than individual members, with a disability were identified in the sample; this was necessary in order to limit the duration of the baseline questionnaire.

Table 8.2 provides the age and gender composition of children in the baseline and endline samples – that is, the youngest child under five in the respondent households. The endline sample has an even split between boys and girls in project areas (50% girls and 50% boys), but slightly more girls than boys in the endline comparison sample (53% girls compared to 47% boys) and in both areas at baseline. The endline sample in both project and comparison areas is an older cohort than sampled at baseline (46% of children in the project area endline sample are in the 24-59 month category, compared to only 38% at baseline). The baseline study showed nutritional status declining steeply with age of the child, and tending to be lower for boys, and so this may cause us to observe higher rates of overall undernutrition in the endline sample – in the analysis to follow, we further analyse the results to control for gender and age of the child.

¹⁶ <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.

¹⁷ <http://www.washingtongroup-disability.com/washington-group-question-sets/short-set-of-disability-questions/>. This is the same identification strategy that was used in the baseline sample for Baucau, Bobonaro and Cova Lima; identification used in Aileu at baseline utilised a different approach, whereby households with a PLWD were identified by self (respondent) report to the question “Does [household member] have a disability?”.

Table 7.1
Sample Size - Baseline and Endline

	Project Areas							Comparison Areas							Total Sample
	Aileu	with TOMAK	Baucau without TOMAK	total Baucau	Bobonaro	Cova Lima	Total project areas	Aileu	with TOMAK	Baucau without TOMAK	total Baucau	Bobonaro	Cova Lima	Total comp'n areas	
Total number of aldeia	34	23	20	43	24	24	125	10							
Baseline															
Number of aldeia in sample	23	11	13	24	16	15	78	9	6	6	12	6	9	36	114
Households with children under 5	298	180	254	434	299	244	1275	102	117	104	221	128	93	544	1819
Households without children under 5	149	11	13	24	9	16	198	41	6	2	8	5	6	60	258
Households with a pregnant woman	31	26	34	60	27	41	159	13	24	12	36	8	16	73	232
Households with a PWD	37	33	29	62	43	35	177	9	9	14	23	6	12	50	227
Households with a female head	24	10	13	23	15	6	68	6	2	5	7	6	1	20	88
Male Respondents	61	1	1	2	3	0	66	20	1	0	1	0	1	22	88
Female Respondents	386	190	266	456	305	263	1410	123	122	106	228	133	98	582	1992
Total Households	447	191	267	458	308	263	1476	143	123	106	229	133	99	604	2080
Endline															
Number of aldeia in sample	23	11	13	24	16	15	78	9	6	6	12	6	9	36	114
Households with children under 5	404	214	287	501	286	295	1486	130	109	82	191	122	129	572	2058
Households without children under 5	11	4	4	8	21	16	56	2	1	1	2	7	4	15	71
Households with a pregnant woman	31	24	22	46	51	29	157	9	10	12	22	13	15	59	216
Households with a PWD	49	38	34	72	20	36	177	19	14	14	28	10	10	67	244
Households with a female head	22	13	10	23	12	13	70	6	6	8	14	7	6	33	103
Male Respondents	17	2	4	6	3	8	34	9	1	2	3	0	2	14	48
Female Respondents	398	216	287	503	304	303	1508	123	109	81	190	129	131	573	2081
Total Households	415	218	291	509	307	311	1542	132	110	83	193	129	133	587	2129

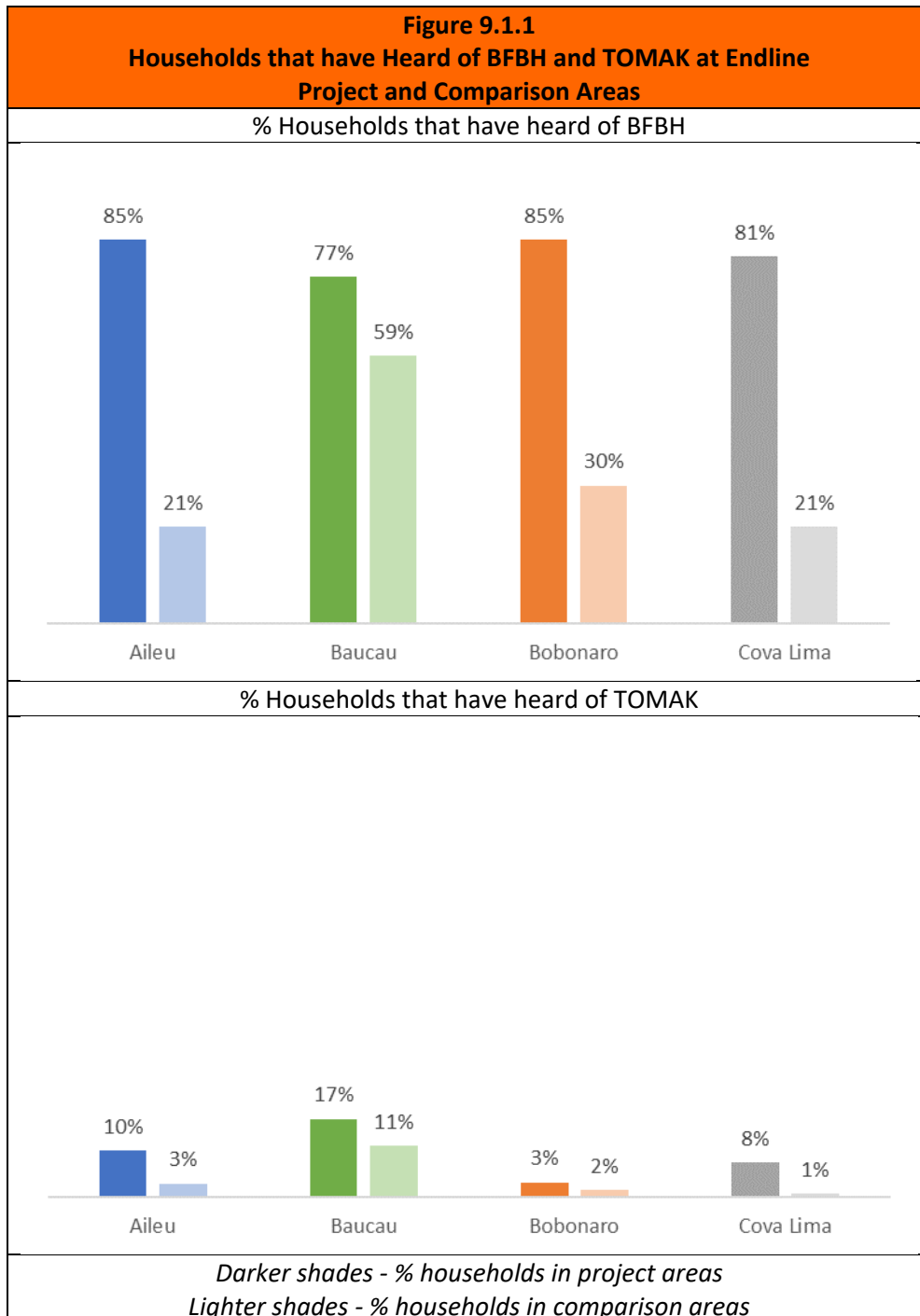
Table 7.2
Child Sample Composition - Baseline and Endline

	Project Areas							Comparison Areas						
	Aileu	with TOMAK	Baucau without TOMAK	all Baucau	Bobonaro	Cova Lima	All project areas	Aileu	with TOMAK	Baucau without TOMAK	all Baucau	Bobonaro	Cova Lima	All comp'n areas
Baseline														
% Boys	45%	49%	46%	47%	46%	49%	47%	47%	41%	53%	47%	54%	51%	49%
% Girls	55%	51%	54%	53%	54%	51%	53%	53%	59%	47%	53%	46%	49%	51%
% Aged 0-5 months	15%	21%	14%	17%	11%	19%	16%	12%	13%	16%	14%	15%	18%	15%
% Aged 6-23 months	51%	47%	49%	48%	44%	42%	46%	51%	50%	45%	48%	36%	49%	46%
% Aged 24-59 months	35%	33%	37%	35%	45%	38%	38%	37%	37%	39%	38%	49%	32%	39%
Total number of children under 5 in sample	294	175	249	424	296	242	1256	102	116	102	218	127	93	540
Endline														
% Boys	48%	50%	52%	51%	52%	48%	50%	49%	48%	41%	45%	49%	47%	47%
% Girls	52%	50%	48%	49%	48%	52%	50%	51%	52%	59%	55%	51%	53%	53%
% Aged 0-5 months	16%	16%	12%	13%	13%	13%	14%	15%	24%	11%	18%	8%	11%	14%
% Aged 6-23 months	37%	43%	43%	43%	42%	39%	40%	32%	45%	51%	48%	48%	36%	41%
% Aged 24-59 months	47%	41%	46%	44%	45%	48%	46%	53%	31%	38%	34%	43%	53%	45%
Total number of children under 5 in sample	401	212	286	498	285	291	1475	130	109	82	191	120	129	570

11. Project Reach

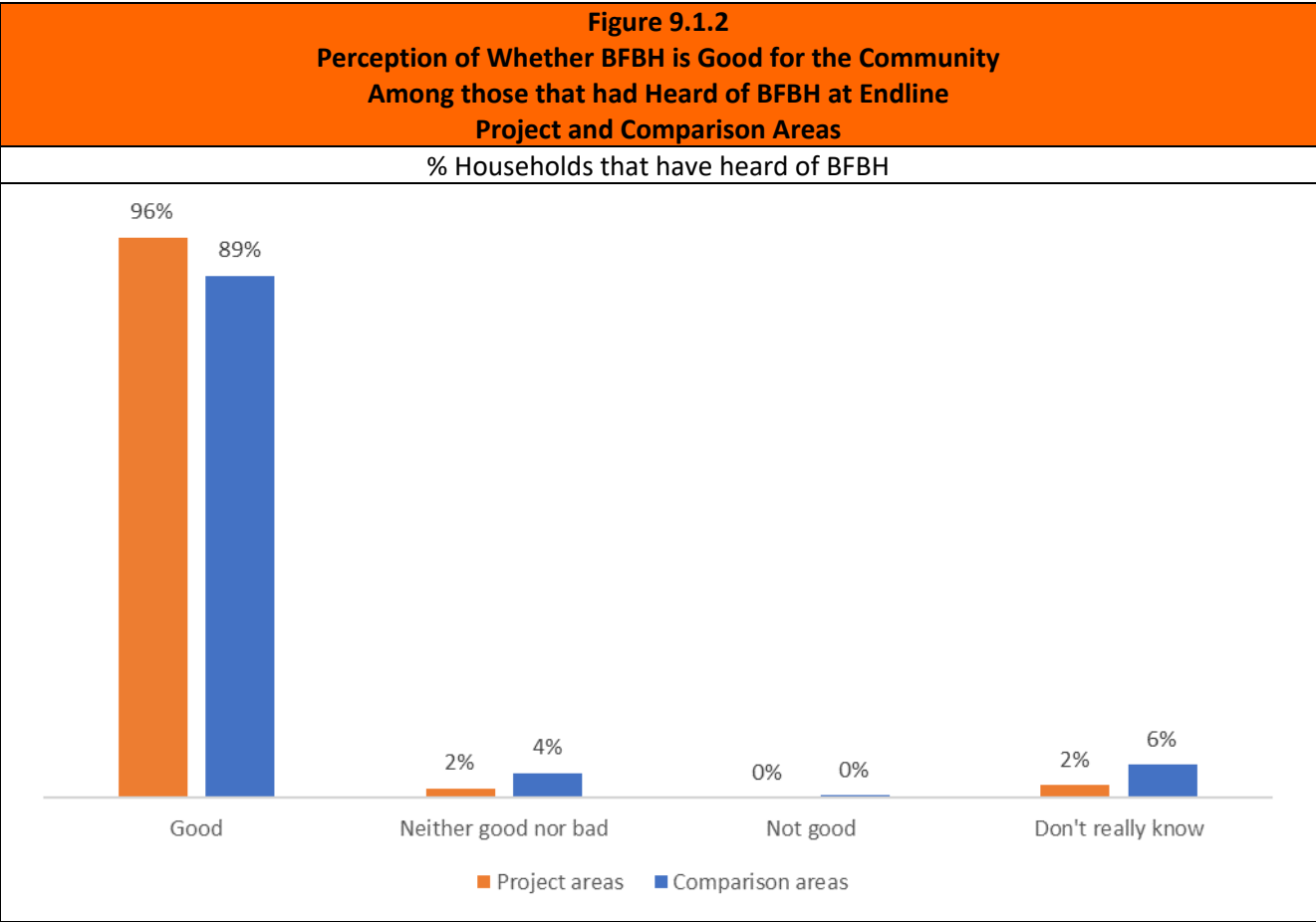
9.1 Have households heard of BFBH, and how do they perceive it?

Households across all project and comparison areas were asked whether they had heard of BFBH or TOMAK. Results in Figure 9.1.1 reveal that BFBH is well-known among communities, with upwards of 77% of households with children 0-59 months in project areas having heard of the project. Far fewer households have heard of TOMAK, even in Baucau where WVTL is implementing TOMAK on behalf of DFAT.



Remarkably, BFBH was also known in comparison areas, at differing rates of saturation – 21% of households in Aileu and Cova Lima comparison areas had heard of the project, 30% in Bobonaro and a huge 59% of households with children under 5 in Baucau. These high rates of saturation beyond project area boundaries suggests that there will likely have been substantial spillover effects of project activities on households in comparison areas. **This means that the impact of the project as measured by difference-in-differences may be underestimated.** In attempt to disentangle project impact from these spillover effects, in the analysis of outcomes to follow we will present differences between baseline and endline in project areas alongside difference-in-differences estimates. Where outcomes can clearly be attributed to the project (e.g. production of superfoods specifically), the project area differences will be presented alone.

When asked their opinion on whether BFBH was good for the community, those who had heard of BFBH almost unanimously agreed (Figure 9.1.2) – even those not taking part and those in comparison areas where the project is not being implemented.



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 a clear thirst and appreciation for the knowledge learnt and capacity built among parents, a sentiment echoed whole-heartedly 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 mungbeans the taste is amazing!”

FGD with women in Somo Kanua, Cova Lima

Visiting families in their homes was another aspect of the program that was appreciated by participants.

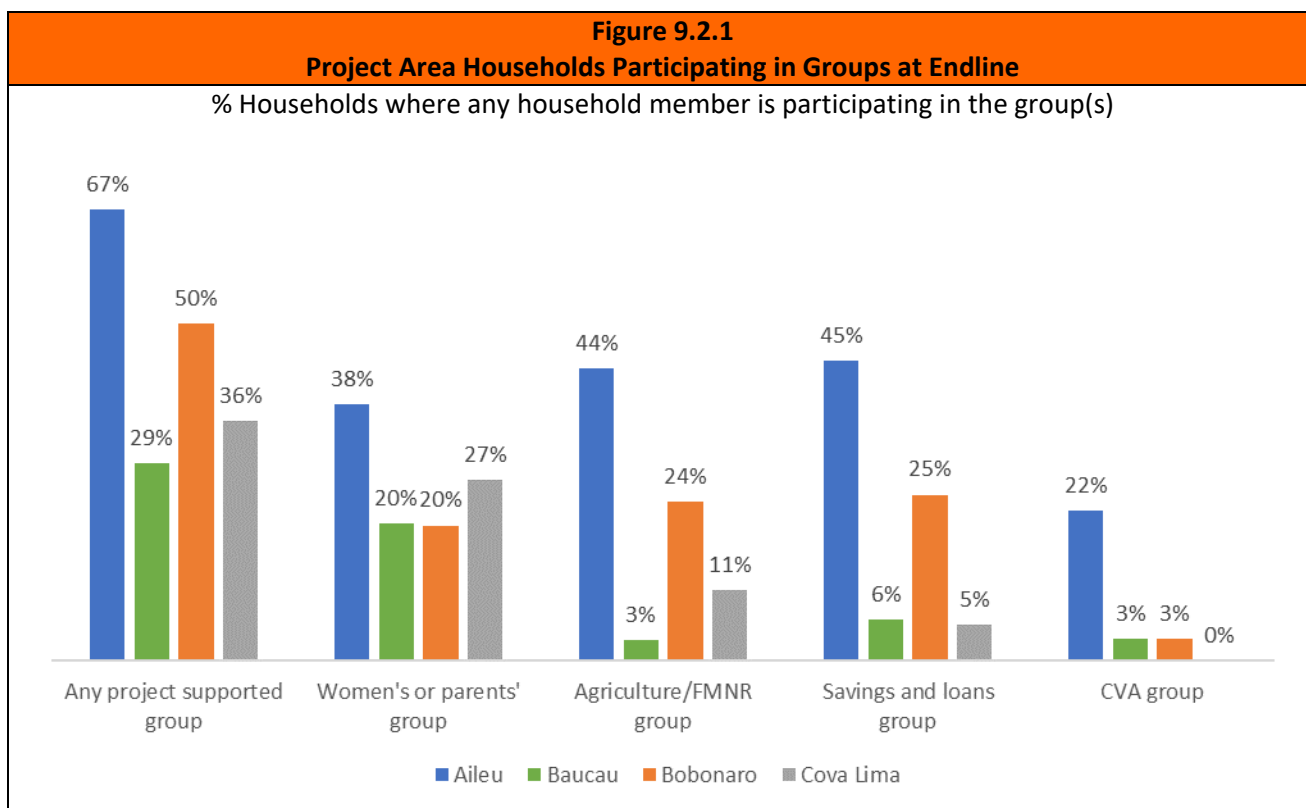
Those who benefit least from the project are those who don't attend project activities or have not heard about the project – typically these were described as those who are working (usually men), those who live far away or have trouble walking such as people with disabilities and the elderly. Despite these constraints, FGD participants unanimously considered all people including those living with disabilities as important and equal members of project groups.

9.2 Who is taking part in project groups?

Table 9.2 summarises the gender and disability composition of project group members, taken from the BFBH Indicator Tracking Table (ITT). In total, 16,121 people were members of parents' clubs, 10,256 farmer groups and 4,983 savings and loans groups. Approximately, this represents respectively 72%, 46% and 22% of the estimated adult beneficiary population of 22,264. The gender distribution of members is evenly spread in farmer groups, while more women are members of parents' clubs and more men members of savings and loans groups. PWDs make up 2-4% of group members, which is consistent with the 3% disability rate reported in the 2015 census.

Table 9.2 Gender and Disability Composition of Group Members						
	Parents' clubs		Farmer groups		Savings and Loans groups	
Number of groups	295		277		91	
	n	% total members	n	%	n	% total members
All group members						
Men	6742	42%	5023	49%	2922	59%
Women	9379	58%	5233	51%	2061	41%
Total members	16121	100%	10256	100%	4983	100%
% estimated project area adult beneficiary population (22,264)	72%		46%		22%	
Group members with disability						
Men with disability	189	1%	151	1%	114	1%
Women with disability	180	1%	111	1%	74	2%
Total with disability	369	2%	262	3%	188	4%

Respondents to the household survey in project areas were asked whether someone from their household was involved in any of the BFBH-supported groups – Figure 9.2.1 shows the proportion of households reporting taking part in each of the groups by municipality.

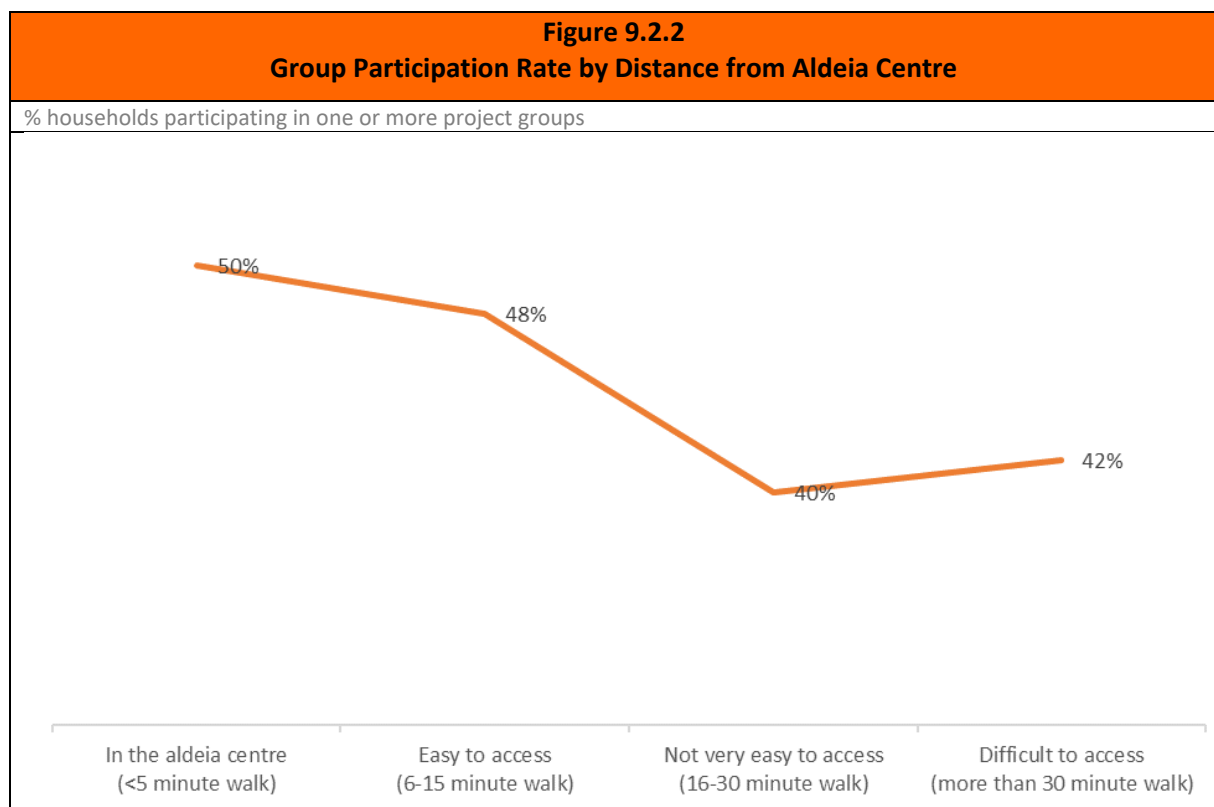


Across all BFBH-supported groups, participation is highest in Aileu, reflecting the longer presence of BFBH activities in this municipality. Participation rates across groups tend to be modest in Bobonaro and lower in Baucau and Cova Lima. Participation in farmer/FMNR groups are particularly low in Baucau (3%), and CVA groups in all but Aileu municipality (3% in Baucau and Bobonaro, 0% in Cova Lima). These participation rates are much lower than those estimated through the ITT, which could be due to a number of reasons: there may be some double-counting or churn implicit in the ITT figures, or respondents may not identify themselves/ as 'taking part' in the groups for some reason (language or terminology used in the survey, lack of respondent knowledge or association with the group, etc.).

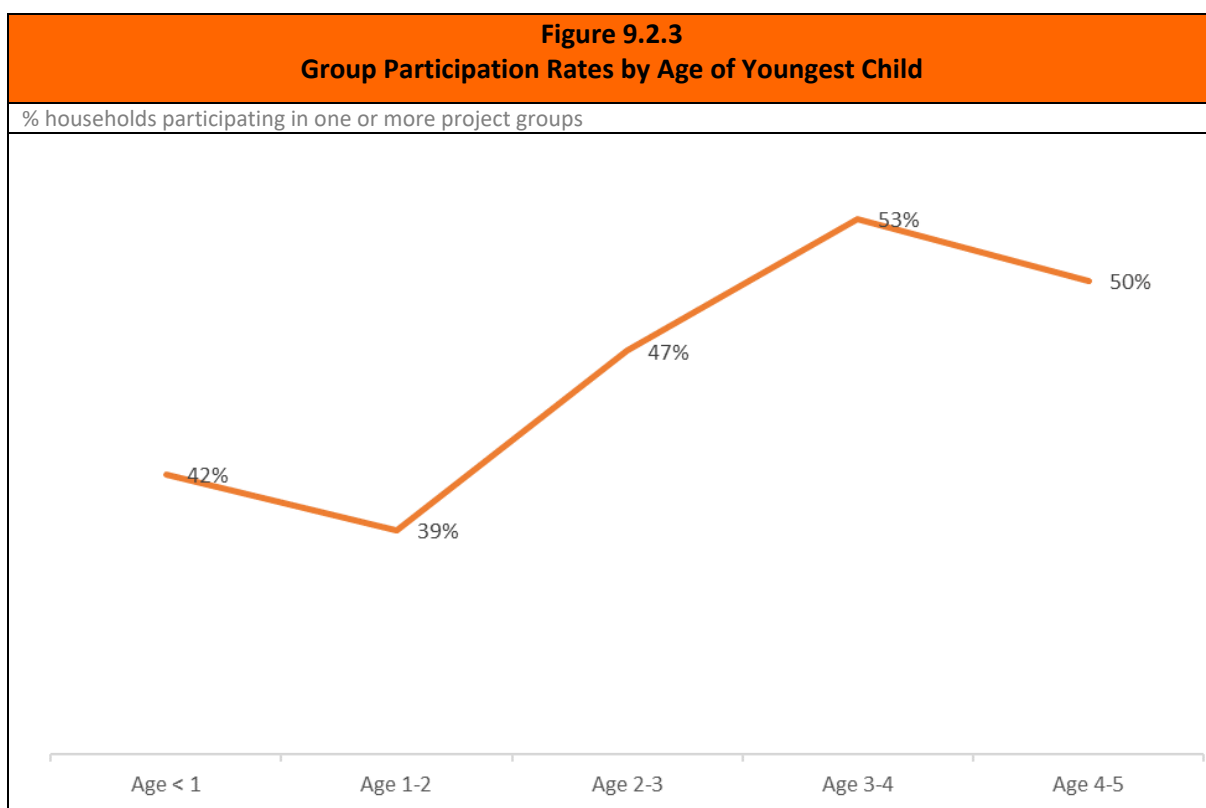
Where a respondent to the household survey indicated that someone from their household was involved in the group, further probing asked the respondent whether they themselves were involved in the group(s) – since primarily the household respondent was the mother of the child aged 0-59 months, this gives us an idea of the degree to which men and women are participating in groups. Table 9.3 shows that the vast majority of mothers are involved in parent groups (96%) and savings and loans groups (95%) and a very large proportion in farmer/FMNR groups (85%) and CVA groups (92%). Of the few male respondents in participant households, all were themselves involved in groups. Other family members were also very actively involved in these groups. These results highlight that participation in groups is very much a whole-of-household affair, not restricted to just one particular family member – at least among those households where the survey respondent identified the household as participating.

Table 9.3 Whether Respondents Themselves are Involved in Project Groups								
	Parent group		Agriculture / FMNR group		Savings and Loans group		CVA group	
	%	n	%	n	%	n	%	n
Mothers themselves involved	96%	208	85%	275	95%	322	92%	118
Fathers themselves involved	100%	4	100%	7	100%	6	100%	2
Other family member themselves involved	100%	6	77%	13	100%	16	0%	1

Data from the household survey also supports the view that distance is a barrier to participation in groups. Figure 9.2.2 shows that around 50% of those living in or within easy access of the aldeia centre reported taking part in groups, but only around 40% of those with more difficult access to the aldeia centre. **Timing of activities and physical access to project activities should be considered further in the expansion phase of the project.**



There were no differences in average age of mothers (average age of 30 years for participants and 29 years for non-participants) or years of education of mothers (average 10 years of education for participants and non-participants) from participating households. Participation rates were higher, however, among households with older children – Figure 9.2.3 shows that 39% of households with the youngest child aged 1-2 years were participants, but 53% among households with the youngest child aged 3-4 years. This indicates that it may take time for new parents to join groups (note this figure reflects participation in any group, not just parent groups).



9.3 Group leadership

BFBH project groups were led by a leadership team – usually comprised of a chief, treasurer and secretary. The ITT tracked the number of women and PWD in leadership positions, as summarised in Table 9.3. Figures for men were tracked for parents’ clubs but not for any of the other project groups. In the 295 supported parents’ clubs, 220 women and 108 men held leadership positions, and 91 PWDs. Seemingly fewer women held leadership positions in farmer groups and savings and loans groups – around one in every three groups.

Table 9.3
Gender and Disability Composition of Group Leaders

	Parents’ clubs		Farmer groups		Savings and Loans groups	
Number of groups	295		277		91	
Group members in leadership positions	n	# per group	n	# per group	n	# per group
Women	220	0.746	97	0.350	36	0.396
Men	108	0.366	-	-	-	-
PWD	91	0.308	47	0.170	24	0.264

The role that these women occupy is just, if not more, important to understand than the number of women. While this data is not available at the aggregate level in the ITT, through FGDs it was clear that women tended to take the role of treasurer – women in Timor-Leste are traditionally considered the most transparent and trustworthy with money, and this appears to have extended to their nomination to the treasurer position in groups. In this way, savings and loans groups can be an important vehicle for raising the status of women in the community. However, many savings and loans group members and the State Secretary of Cooperatives (SECOOP) admitted that financial literacy was lacking in groups due to generally low literacy and numeracy skills, particularly among women. **In the expansion phase of the project, it is recommended that ways to further develop financial literacy in savings and loans groups, particularly among women, be considered. Tracking of gender and disability by leadership position is also recommended to assess progress in this area.**

12. Results for Project Goal and Outcome Indicators

This section presents the summary results for each of the goal and outcome indicators. Results are compared to baseline values, and where appropriate, as difference-in-differences with respect to comparison areas. The ITT in Annex 6 provides the full table of indicator values and their definitions. The Annex also provides results disaggregated by sex and disability (where applicable), project and comparison areas.

10.1 Outcome 1: Caregivers of under 5 children have improved nutrition, hygiene and health-seeking practices

Outcome 1 indicators relate to improved health-seeking, nutrition, hygiene and family planning practices.

Outcome 1:
Caregivers of under 5 children have improved nutrition, hygiene and health-seeking practices

Health-Seeking Practices:

- 1.1.1. % mothers of children 0-59 months who report attending 4 or more ANC visits while pregnant with youngest child.
- 1.1.2. % children 0-59 months whose birth was attended by a skilled health professional [MELF 1.307 - Number (x) of additional births attended by a skilled birth attendant].
- 1.1.3. % mothers who were accompanied by their husband/partner at ANC visits while pregnant with youngest child.
- 1.1.4. % children 0-59 months who attended SISCa / health facility in the last 3 months.
- 1.1.5. % children 4-59 months vaccinated against DPT3 [MELF 1.301 - Number (x) of girls and boys vaccinated (against DPT3 as the selected proxy indicator for vaccination)].

Nutrition Practices:

- 1.2.1. % children 0-5 months exclusively breastfed in the last 24 hours.
- 1.2.2. % children 12-23 months who received breastmilk in last 24 hours.
- 1.2.3. % children 6-59 months consuming superfoods in the last 24 hours.
- 1.2.4. % mothers of children 0-59 months consuming superfoods in the last 24 hours.
- 1.2.5. % pregnant women consuming 'superfoods' in the last 24 hours.
- 1.2.6. Average number of food groups consumed by children 6-59 months in the last 24 hours.
- 1.2.7. % households with children <5 where men are regularly involved in household feeding & nutrition

Hygiene Practices:

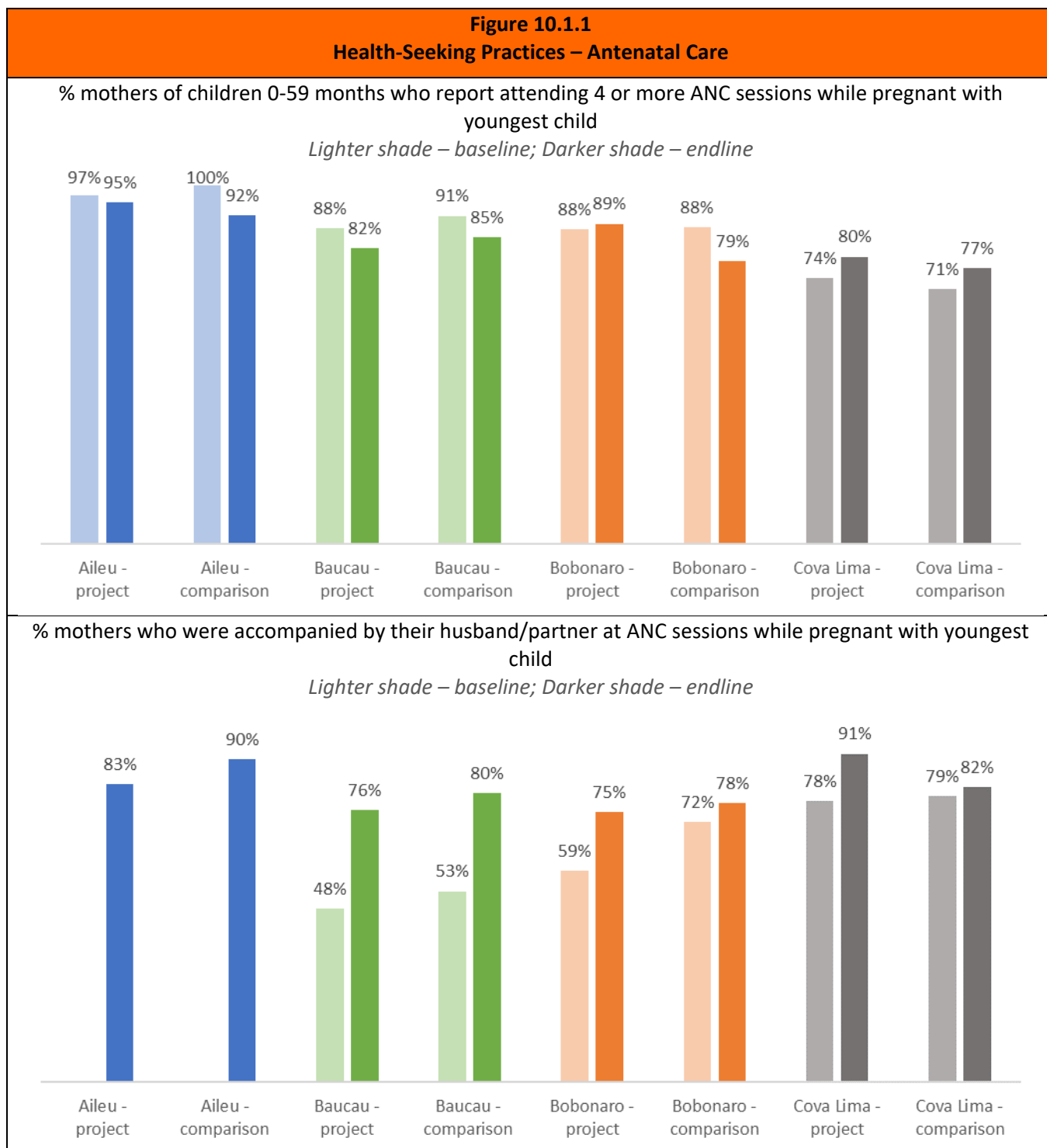
- 1.3.1. % households with children 0-59 months with appropriate handwashing facilities [CIB.0130, MELF 1.202 - Number (x) of people with hand washing facilities and soap or ash/other cleaning substances in their household].
- 1.3.2. % carers of children 0-59 months knowledgeable about basic hygiene practices [MELF 1.201 - Number (x) of people with increased knowledge of hygiene practices].
- 1.3.3. % households where animals are prevented from entering the house.

Family Planning:

- 1.4.1. % of in-union women aged 15-49 who report that they are currently using a modern contraceptive method.
- 1.4.2. % of in-union women aged 15-49 who are continuous users of family planning.

Health-Seeking Practices

Figure 10.1.1 shows results for indicators relating to antenatal care – first, the proportion of mothers who report attending four or more antenatal care (ANC) sessions while pregnant with their youngest child, and second, the proportion who report their husband or partner accompanied them to any of these visits. In Aileu, Baucau and Bobonaro, rates have remained steady or declined slightly in project areas, but the declines are larger in comparison areas. This suggests that while COVID-19 may have had a negative effect on access to or attendance at ANC sessions, the effect of this has been protected in project areas. In Cova Lima where rates were much lower at baseline, attendance at ANC has risen, and at similar magnitudes, in both project and comparison areas.



The second panel of Figure 10.1.1 shows the proportion of mothers of children 0-59 months whose husband or father accompanied them to any of the ANC sessions they attended (among those who attended any ANC sessions for their youngest child). This data was not collected at baseline for Aileu. By endline we see some very high rates across all locations (project and comparison), with the largest improvements apparent in project areas. This highlights some shift of norms and behaviours with regard to male involvement in antenatal care.

Figure 10.1.2 shows the proportion of children in the sample whose birth was attended by a skilled health professional – a doctor, nurse or midwife. Here we see some sizable improvements between baseline and endline in Aileu, Bobonaro and Cova Lima, again the largest improvements in project areas. In particular, rates have almost doubled in project areas of Cova Lima (33% at baseline compared to 61% at endline). Rates in Baucau have remained steady in project areas despite a slight decline in comparison areas, again suggesting that BFBH has had a protective effect.

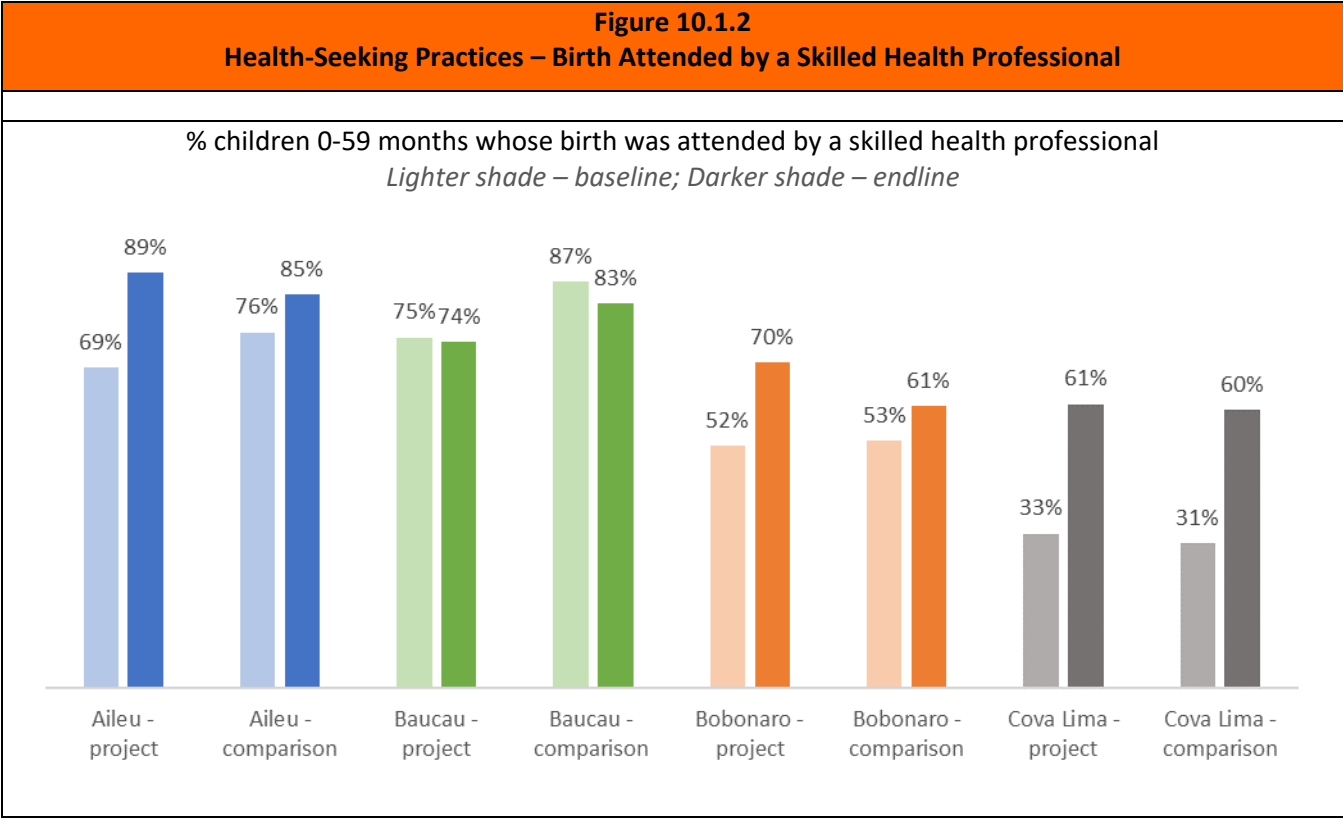
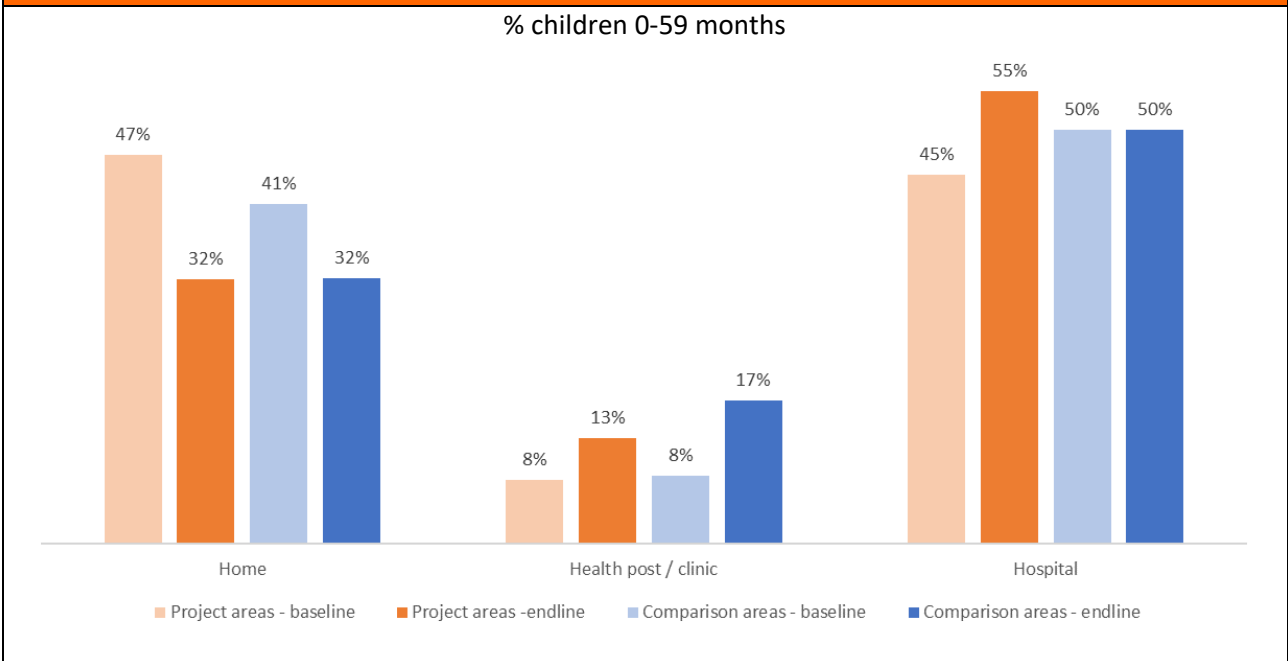


Figure 10.1.3 below highlights some significant progress in project areas behind this indicator. **At baseline, the majority of children in project areas were born at home (47%), whereas at endline the majority were born in a hospital (55%).** While the rate of homebirths in project and comparison areas at endline (32%), the shift in comparison areas has been from homebirths to health posts or clinics rather than hospital. This may reflect relative access to health posts/clinics versus hospitals by location.

Figure 10.1.3
Birth Location of Children aged 0-59 months in the Sample
Baseline and Endline



Pregnant women in the sample were asked about where they planned to give birth, presented in Figure 10.1.4. In project and comparison areas alike, most (63%) planned to give birth at a hospital, and very few (5%) planned to give birth at home. When asked why the mother decided to give birth at home and/or why a skilled birth professional was not in attendance at the birth, only 10% responded that this was a choice – many had no alternative because the baby came too quickly, it was late at night, there was no transport/bad roads or there was no health professional available. **These results highlight the continued importance of developing pro-active and realistic birth plans – that is, plans that recognise and factor in the realities with location and transportation.**

Figure 10.1.4
Planned Birth Location among Pregnant Women
Baseline and Endline

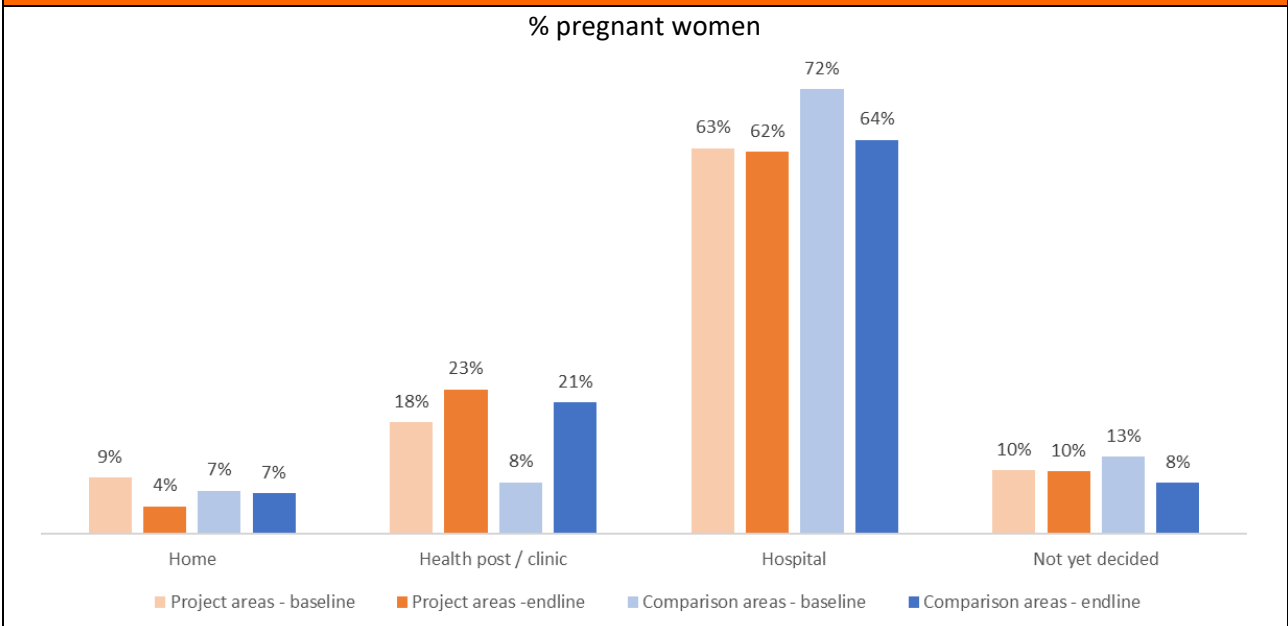


Figure 10.1.5
Health-Seeking Practices – Attendance at SISCa and DPT Vaccination

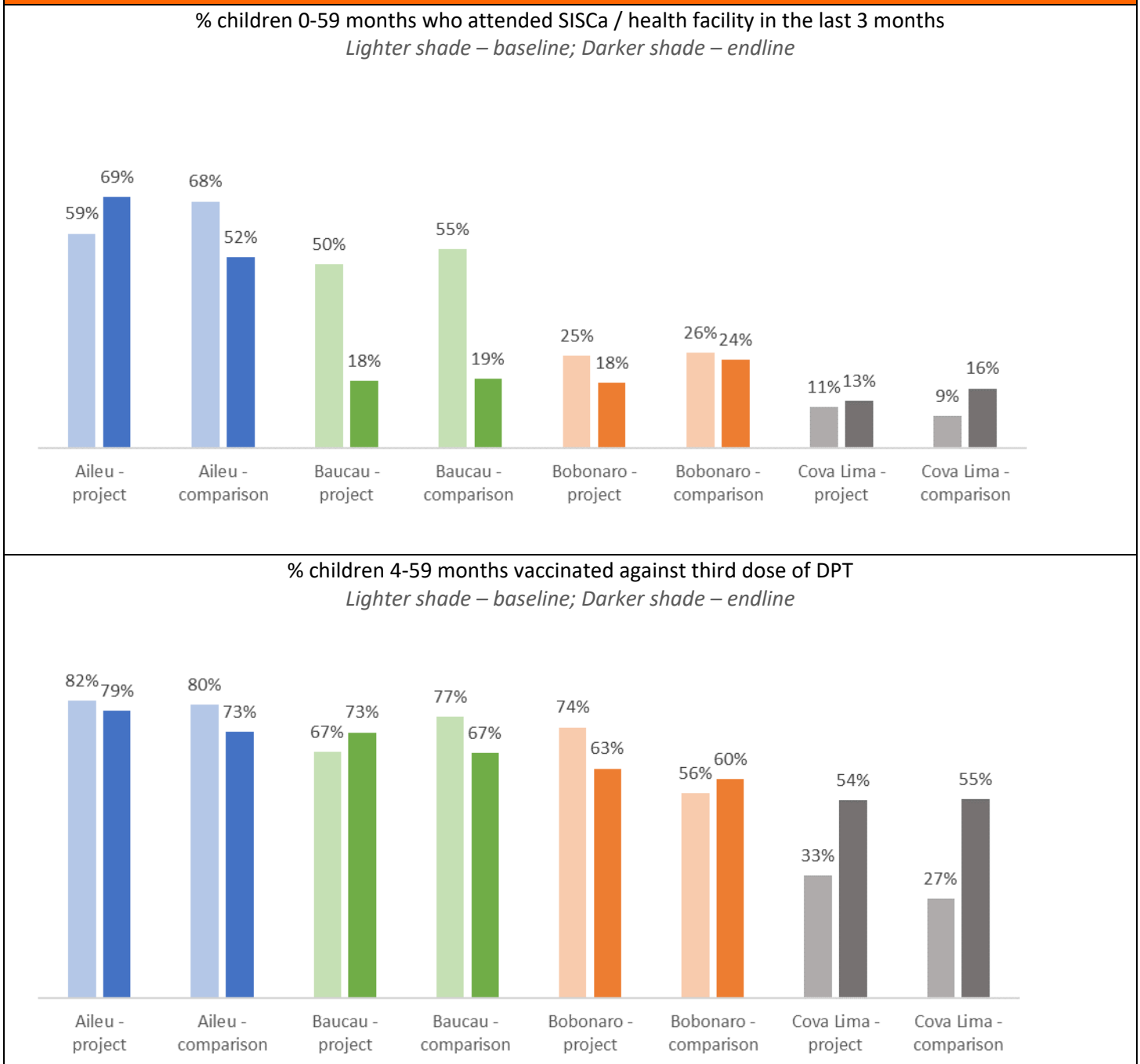


Figure 10.1.5 relates to health seeking behaviours once the child is born – recent attendance at SISCa and the third course of vaccination against diphtheria, pertussis and tetanus (DPT) or Pentavent. Generally speaking, there has been lower attendance at SISCa in recent months, most likely due to COVID-19-related closures and lockdowns. In Aileu, the proportion of children in the sample attending SISCa has risen in project areas despite the fall in comparison areas. Rates have declined substantially in Baucau, with only 18% of children 0-59 months in project areas having attended SISCa in the three months prior to interview. The decline in comparison areas of Baucau is steeper. Rates have not changed a great deal in Bobonaro and Cova Lima, and in fact rates appear to be better (or less worse in the case of Bobonaro) in comparison areas.

Consistent with reduced attendance at SISCA, there are generally lower rates vaccination against DPT. The differences do not map directly with recent SISCa attendance, perhaps due to the slightly older cohort in the endline sample: despite substantially lower SISCa attendance in Baucau, rates of vaccination against a third dose of DPT/Pentavent his higher in project areas (and lower in comparison areas). Rates of vaccination are higher in both project and comparison areas of Cova Lima. **Generally speaking, the health situation in Cova Lima observed at baseline appears to have improved – by bringing some of the systemic realities to light through the baseline findings, WVTL may well have had a significant influence in affecting this change.**

Nutrition Practices

Indicators used to assess improvements in nutrition practices among children aged 0-59 months, their mothers and pregnant women include rates of exclusive breastfeeding, currently receiving breastmilk, consumption of ‘superfoods’, dietary diversity, and regular involvement of men in household feeding and nutrition. Definitions of exclusive breastfeeding (EBF), continued breastfeeding and dietary diversity were based on World Health Organisation (WHO) Infant and Young Child Feeding (IYCF) indicators.

Exclusively breastfed: children aged 0-5 months who received only breastmilk in the previous day (24 hours). Vitamins, minerals, medicines, and oral rehydration solutions are permitted, but no other liquids or solids and no water.

Currently breastfed: children aged 12-23 months who received breastmilk (breastfed, expressed or from a wet nurse) in the previous day (24 hours).¹⁸

Consumed ‘superfoods’: consumption of any one or more of the six BFBH ‘superfoods’ – soybeans, mung beans, red kidney beans, orange sweet potato, moringa or eggs – or products made from these ‘superfoods’ in the previous day (24 hours). This is calculated for children aged 6-59 months, mothers of children aged 0-59 months and also for pregnant women.

Food groups: the definition of food groups follow the WHO IYCF definitions¹⁹ for seven food groups:

- (1) Grains, roots and tubers
- (2) Legumes and nuts
- (3) 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

¹⁸ The indicator is related to the WHO’s ‘continued breastfeeding at age one’ (children aged 12-15 months) and ‘continued breastfeeding at age two’ (children aged 20-23 months). However, the age ranges for these indicators are very tight and so the sample size is too small to present for comparative purposes. The rate for the age group 12-23 months is, however, reported in the 2016 DHS.

¹⁹ In this report we refer to minimum dietary diversity as defined by WHO (2008) when used as a standalone indicator. WHO (2008) also defines a minimum dietary diversity indicator for use as a component in calculation of the overall WHO (2008) indicator for a minimum acceptable diet. The difference relates to how milk feeds are included for non-breastfed children: milk feeds are not included in the component (since there is another component relating to milk feeds), but are allowed in calculation of the standalone indicator.

(7) Other fruits and vegetables.

A complete listing of specific foods that fall in each category is contained in WHO (2008)²⁰.

BFBH's outcome indicator 1.2.6: *Average number of food groups consumed by children aged 6-59 months in the last 24 hours* is defined as the average number of food groups consumed by children aged 6-59 months in the 24-hour recall period, out of the seven food groups listed above, but allowing food group (3) to also include breastmilk. This departs from the standard WHO definition of food group (3) as this allows for direct comparison of dietary diversity for breastfed and non-breastfed children – it equalises the total number of food groups able to be consumed by breastfed and non-breastfed children. This is particularly important for assessing improvements in dietary diversity and protein consumption in the BFBH project, where there is a focus on continued breastfeeding. Minimum Dietary Diversity under the strict WHO definition will improve simply if children switch from breastmilk to infant formula. Furthermore, since the tally of food groups for breastfed and non-breastfed children are different, the rate of adherence to a Minimum Dietary Diversity (MDD) will change if the ratio of breastfed to non-breastfed children changes.²¹

Results for indicators relating to breastfeeding practices are provided in Table 10.1.2. Rates of exclusive breastfeeding among children aged 0-5 months are quite variable due to the small sample sizes obtained for this age group. Overall rates in project areas have remained constant (66% at baseline compared to 67% at endline). Rates in comparison areas, however, appear to have improved drastically – from 66% at baseline to 82% at endline, rendering a weakly significant negative difference-in-differences. Among the children aged 0-5 months in project areas that were not exclusively breastfed (n=67), 79% received breastmilk, 61% water, and 37% infant formula.

Indicator 1.2.2 relates to current breastfeeding – that is, the proportion of children aged 12-23 months who received breastmilk in the last 24 hours. Current breastfeeding of children aged 12-23 months has improved slightly across project areas, from 52% to 56%, driven by improvements in Aileu (75% to 81%) and Cova Lima (28% to 38%). Rates across comparison areas fell from 50% to 43% overall, with only Aileu comparison areas reporting an increase. Difference-in-differences estimates at the overall project level are statistically significant for boys but not girls, **suggesting BFBH has had a significant positive impact on continued breastfeeding to age 2 for boys but not necessarily girls.**

²⁰ WHO (2008), Indicators for assessing infant and young child feeding practices: conclusions of a consensus meeting held 6–8 November 2007 in Washington D.C., USA.

²¹ For further discussion and explanation, see Cornwell, Inder, Benevides and Grey (2015, 2016): <https://drive.google.com/open?id=0BxiFT7ChCZQqMGJibHIWdE5TckU>.

Table 10.1.2 Outcome 1 Nutrition Practices – Breastfeeding Baseline and Endline					
	Sample period	% Children 0-5 months exclusively breastfed		% Children 12-23 months currently breastfed	
		Baseline	Endline	Baseline	Endline
Project areas:					
Aileu	%	80%	68%	75%	81%
	n	45	63	100	105
Baucau	%	70%	64%	41%	45%
	n	83	67	133	129
Bobonaro	%	59%	72%	57%	56%
	n	39	36	83	72
Cova Lima	%	54%	66%	28%	38%
	n	57	38	58	74
All project areas	%	66%	67%	52%	56%
	n	224	204	374	380
Comparison areas:					
Aileu	%	58%	75%	58%	85%
	n	12	20	24	27
Baucau	%	74%	80%	41%	34%
	n	34	35	54	53
Bobonaro	%	65%	80%	59%	37%
	n	20	10	32	35
Cova Lima	%	57%	100%	50%	25%
	n	21	14	24	28
All comparison areas	%	66%	82%	50%	43%
	n	87	79	134	143
Difference-in-differences:					
Boys	%-point DID	-16.3		25.3	**
	p-value	0.197		0.014	
Girls	%-point DID	-15.6		-3.3	
	p-value	0.178		0.736	
All children	%-point DID	-15.7	*	11.3	
	p-value	0.065		0.109	

There has been a dramatic 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: at baseline only 14% of children aged 6-59 months consumed a superfood, compared to 58% at endline – a remarkable 44 percentage-point difference. However, rates also improved in comparison areas – from 11% to 48%. Discounting for the change observed in comparison areas, the difference-in-difference estimate indicates that the change attributable to BFBH is only 6 percentage-points. However, given the likely contagion outside of project areas and the fact that superfood promotion was uniquely a BFBH activity, changes in consumption of superfoods observed (in project and comparison areas) can reasonably be thought to have been attributed to BFBH. **It is likely, therefore, the true impact of BFBH on consumption of superfoods has been extensive (up to a 44-percentage-point improvement), spreading widely within and outside of project areas.**

While there were significant improvements in consumption of superfoods for boys and girls between baseline and endline, the difference-in-differences results revealed a statistically significant difference for girls of 8 percentage-points, and a statistically insignificant difference for boys of 4 percentage-points. **That is, using a difference-in-differences approach, BFBH has had a positive impact on dietary diversity for girls, but not necessarily for boys.**

Table 10.1.3
Outcome 1 Nutrition Practices – Superfood Consumption
Baseline and Endline

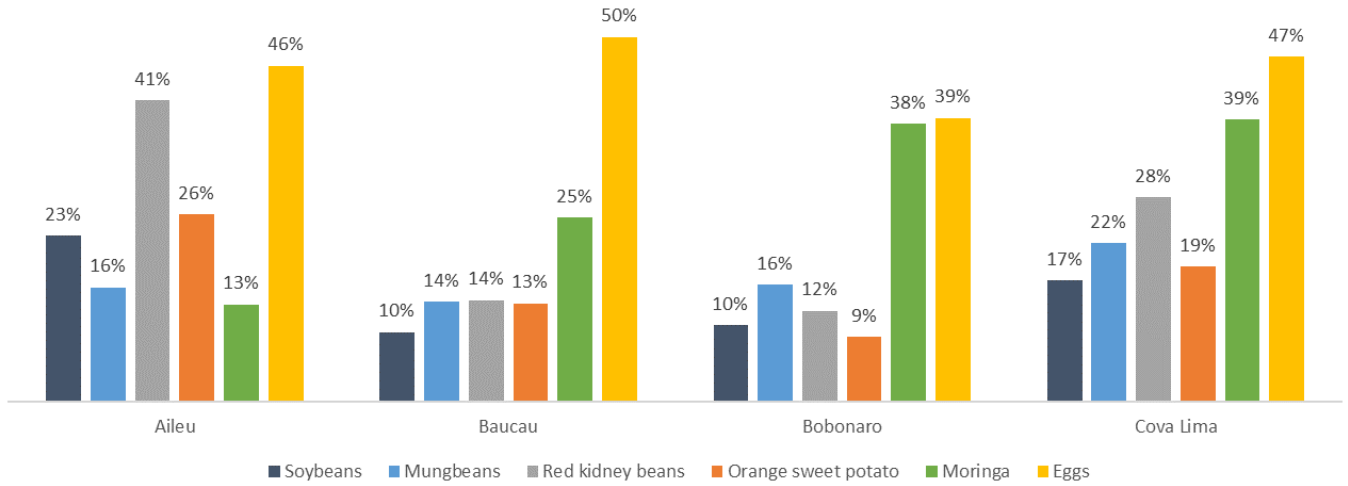
	Sample period	% Children 6-59 months consuming at least one 'superfood' in the last 24 hours		% Mothers of children 0-59 months consuming at least one 'superfood' in the last 24 hours		% Pregnant women consuming at least one 'superfood' in the last 24 hours	
		Baseline	Endline	Baseline	Endline	Baseline	Endline
Project areas:							
Aileu	%	15%	58%	15%	59%	10%	58%
	n	251	338	274	375	31	31
Baucau	%	13%	56%	10%	57%	11%	50%
	n	353	431	422	477	57	46
Bobonaro	%	21%	57%	25%	58%	37%	62%
	n	262	249	292	275	27	52
Cova Lima	%	7%	58%	4%	63%	5%	55%
	n	195	253	241	278	41	29
All project areas	%	14%	58%	14%	59%	15%	53%
	n	1061	1271	1229	1405	162	167
Comparison areas:							
Aileu	%	19%	52%	12%	53%	25%	100%
	n	90	110	92	121	12	11
Baucau	%	9%	50%	11%	50%	6%	55%
	n	187	156	215	185	36	22
Bobonaro	%	14%	36%	16%	34%	13%	46%
	n	108	110	125	116	8	13
Cova Lima	%	3%	55%	5%	52%	6%	33%
	n	76	115	93	122	16	15
All comparison areas	%	11%	48%	11%	48%	17%	53%
	n	461	491	525	544	82	66
Difference-in-differences							
Boys	%-points	3.8					
	p-value	0.452					
Girls	%-points	8.3**					
	p-value	0.074					
All children / mothers	%-points	5.8**		8.7	***	-3.1	
	p-value	0.082		0.005		0.718	

Patterns in consumption of superfoods among mothers of children aged 0-59 months were virtually identical to those of the children: 14% at baseline to 59% at endline. **This highlights that when mothers are eating superfoods, children are too.** Similarly positive results were observed for pregnant women – from 15% at baseline up to 53% at endline in project areas.

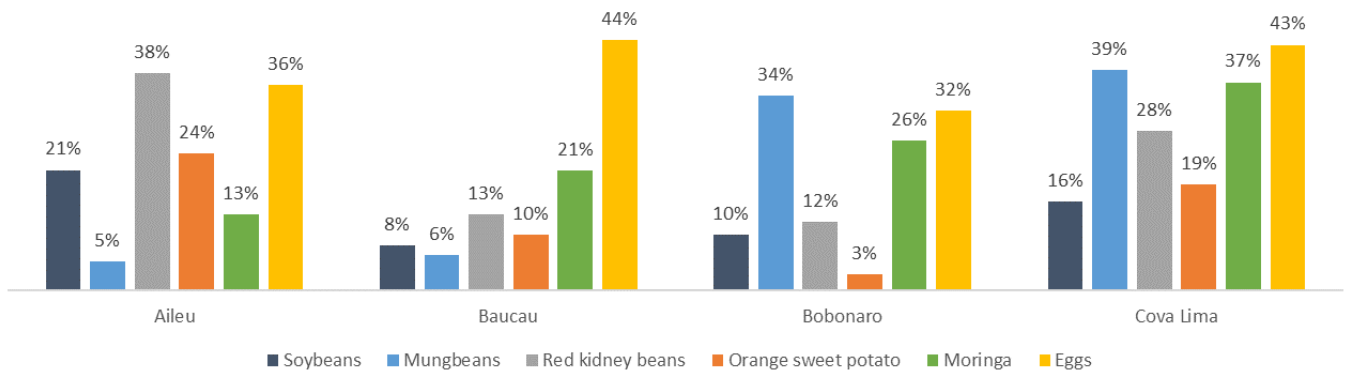
To explore consumption of superfoods more deeply, Figure 10.1.6 presents rates and changes in rates of consumption by children aged 6-59 months for each type of superfood – the proportion of children who are eating each superfood at endline in panel a, the change since baseline in panel b, and the difference-in-differences taking into account changes observed in comparison areas in panel c.

Figure 10.1.6
Consumption of Superfoods by Children aged 6-59 months

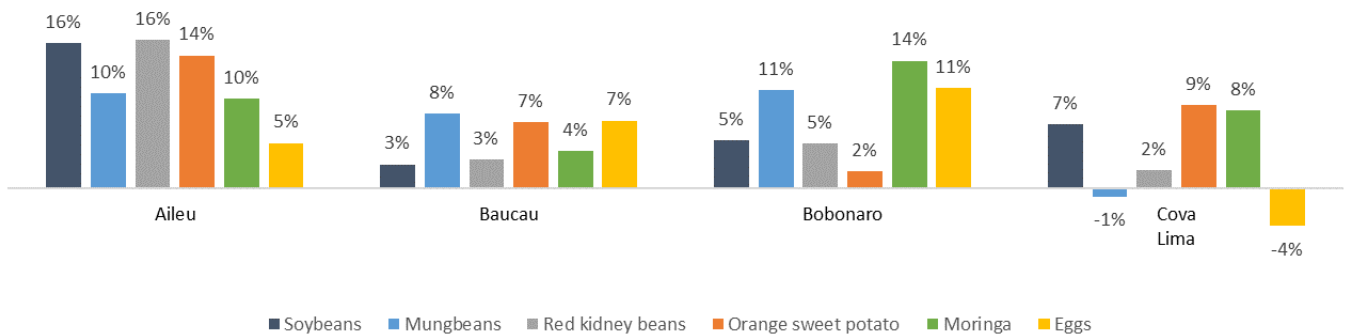
a. % Children aged 6-59 months consuming superfoods in the 24-hour recall period in project areas at endline



b. Percentage-point change in proportion since baseline (project areas)



c. DiD



Of the six superfoods, eggs continue to be the most commonly consumed superfood by children 6-59 months in all locations (panel a – 46% of children in Aileu, 50% in Baucau, 39% in Bobonaro and 47% in Cova Lima). Eggs are also among the biggest ‘changes’ since baseline in all areas (panel b). In Aileu, red kidney beans have been taken up readily, followed by orange sweet potato and soybeans. **In Baucau, the key changes have been in consumption of eggs and moringa – remarkably the two foods that have been known to have strong taboos in the area, testament to the behaviour change work that has been done by the project team.** Eggs and moringa are also commonly consumed by children in Bobonaro and Cova Lima, with Bobonaro also seeing a large uptake in mungbeans. There have been moderate to large changes in all six superfoods in Cova Lima.

Similar dramatic improvements are seen in indicator 1.2.6, the average number of food categories consumed by children 6-59 months. Table 10.1.4 shows that on average, children aged 6-59 months in project areas at baseline were consuming only 2.42 food groups out of a possible 7.²² By endline, this had increased to an average of 3.90. **This represents an impressive 55% of children satisfying a minimum dietary diversity of 4 food groups in project areas at endline compared to only 13% at baseline.**²³

Rates in comparison areas had also improved, from 2.42 to 3.64 out of 7 – leaving a statistically significant difference-in-differences of 0.291 categories. Mirroring the results for superfoods, disaggregating difference-in-difference results by gender of the child reveals a statistically significant difference for girls of 0.348 categories, while the difference of 0.231 categories for boys is not statistically significant. **That is, using a difference-in-differences approach BFBH has had a positive impact on dietary diversity for girls, but not necessarily for boys.**

²² The 7 food groups are based on the World Health Organisation (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.

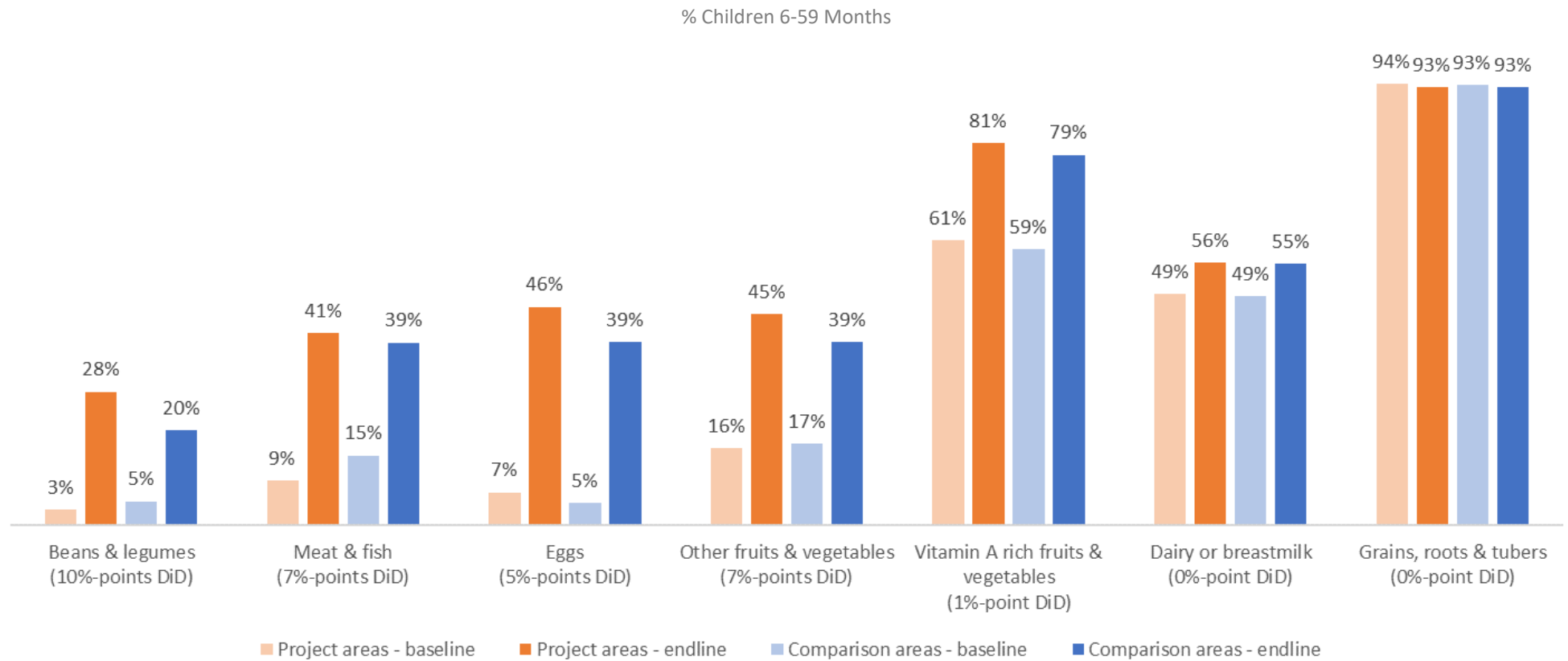
²³ The WHO’s Minimum Dietary Diversity indicator of 4 food groups is based on the WHO IYCF categories, hence our minimum dietary diversity indicator here departs from this by allowing breastmilk in the dairy category.

Table 10.1.3
Outcome 1 Nutrition Practices
Average Number of Food Categories Consumed
Baseline and Endline

		Average number of food groups consumed	
		Children 6-59 months	
	Sample period	Baseline	Endline
Project areas:			
Aileu	%	2.69	4.35
	n	251	338
Baucau	%	2.30	3.71
	n	353	431
Bobonaro	%	2.41	3.77
	n	262	249
Cova Lima	%	2.15	3.75
	n	195	253
All project areas	%	2.39	3.90
	n	1061	1271
Comparison areas:			
Aileu	%	2.79	4.07
	n	90	110
Baucau	%	2.28	3.31
	n	187	156
Bobonaro	%	2.56	3.51
	n	108	110
Cova Lima	%	2.13	3.79
	n	76	115
All comparison areas	%	2.42	3.64
	n	461	491
Difference-in-differences			
Boys	unit	0.231 categories	
	p-value	0.151	
Girls	unit	0.348 categories **	
	p-value	0.031	
All children	unit	0.291 categories **	
	p-value	0.011	

Figure 10.1.7 presents further detail on the food groups consumed by children at baseline and endline.

Figure 10.1.7
Food Groups Consumed by Children (aged 6-59 Months)
Baseline and Endline



Here we see large increases the proportion of children eating from categories containing superfoods – beans and legumes (soybeans, mung beans, red kidney beans), eggs and vitamin A rich fruits and vegetables (orange sweet potato and moringa) between baseline and endline. The difference-in-difference estimates highlight that bigger improvements are seen in project areas, particularly for the beans and legumes category (10 percentage point difference-in-differences). There are also large difference-in-differences for other food categories – the baseline-endline difference in proportion of children eating meat or fish was 7 percentage points higher in project areas than comparison areas, as was for other fruits and vegetables. **This highlights that the project has gone beyond just promoting consumption of superfoods, but has also supported dietary diversity more broadly.**

Participating households were asked whether they had made any changes in their family since participating in BFBH. Many report big changes – centred around new-found knowledge of superfoods, health and nutrition:

“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.”

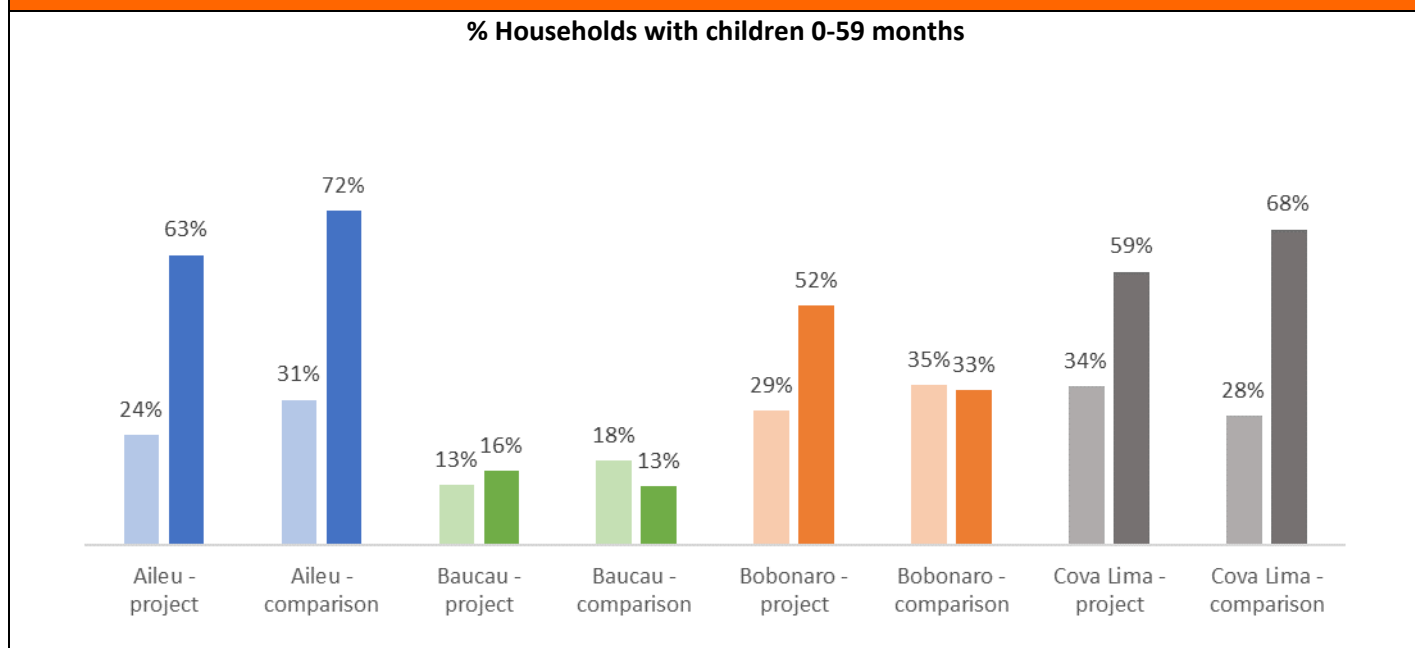
Respondent in household survey, Aileu

“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

The final indicator relating to household nutritional practices reflects the extent to which adult men in the household are regularly involved in feeding and caring for children. Figure 10.1.8 shows that at baseline, men were not commonly involved – rates were between 13% in Baucau and 35% in Bobonaro. By endline, the rate has increased drastically in Aileu (63%), Bobonaro (52%) and Cova Lima (59%) project areas. Men were also reported to be more involved in more households in Aileu and Cova Lima comparison areas. Taking into account difference-in-differences, a significant positive impact remained in Baucau (p-value=0.04), Bobonaro (p-value=0.01) and Cova Lima (p-value=0.05). **This suggests that BFBH has had a significant impact on shifting traditional gender roles in the feeding and caring for children.**

Figure 10.1.8
Households where Men are Usually Involved in Daily Feeding and Looking After Children



Shifts in traditional gender roles in the household were also mentioned in FGDs with parents’ groups, with many women describing positive changes within their households:

“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).”

FGD with women in Leohito, Bobonaro

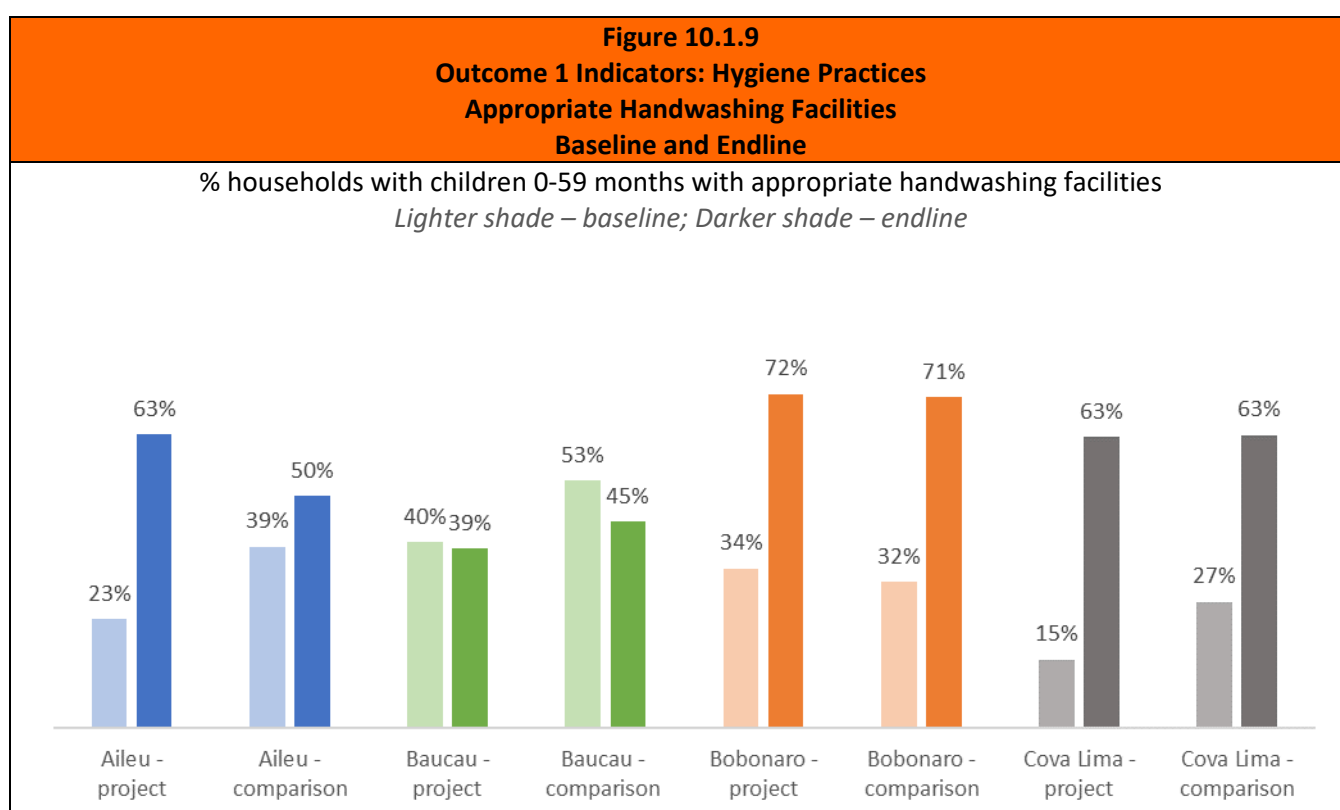
The benefits to women in this space were called out as a major impact to mothers participating in the project. **BFBH should be commended for its role in addressing gender imbalances in household work. This aspect should be continued and expanded upon in the expansion phase of the project.**

In farmer groups, a gender balance was considered a good and efficient working scenario, as “men and women complete each other”. Group work was described as being divided into “hard” work such as preparing the land, generally undertaken by men, while weeding and selling at market tended to be the task of women. Women also cooked for the group.

Hygiene Practices

Indicators relating to hygiene practices include observation of appropriate handwashing facilities (soap and water) in close proximity to the house, knowledge tests and prevention of animals from entering the house.

Figure 10.1.9 summarises the rates of appropriate handwashing facilities in each municipality at baseline and endline. Appropriate handwashing was defined as a place near the house that the enumerator could observe with water and soap (or equivalent cleaning substance) available. The Figure highlights some quite dramatic improvements in Aileu, Bobonaro and Cova Lima since baseline, and these effects are larger in project areas. Interestingly there is no difference between baseline and endline in project areas of Baucau, but declined in comparison areas, suggesting a protective effect of BFBH.

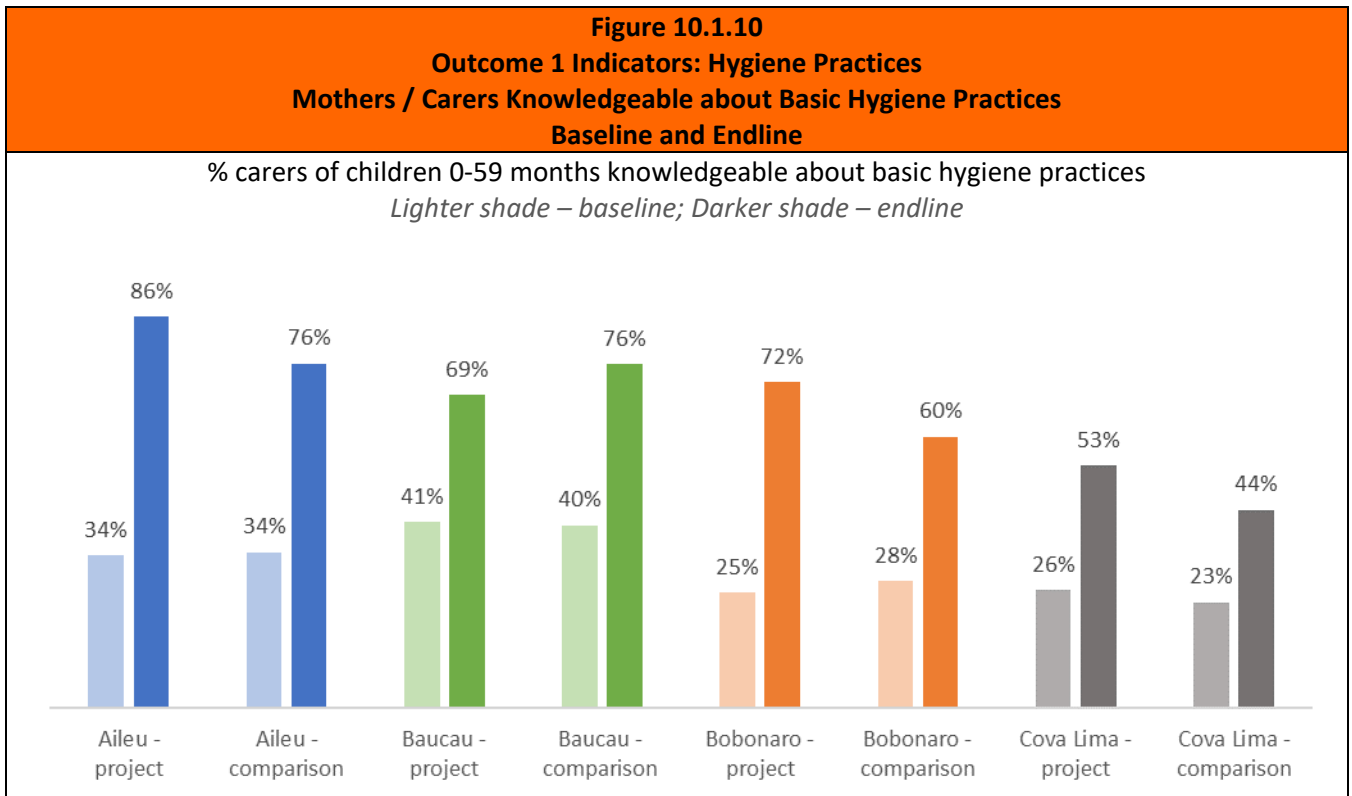


Indicator 1.3.2 relating to hygiene knowledge defines a carer knowledgeable in basic health and hygiene practices as those who correctly answer all of the following:

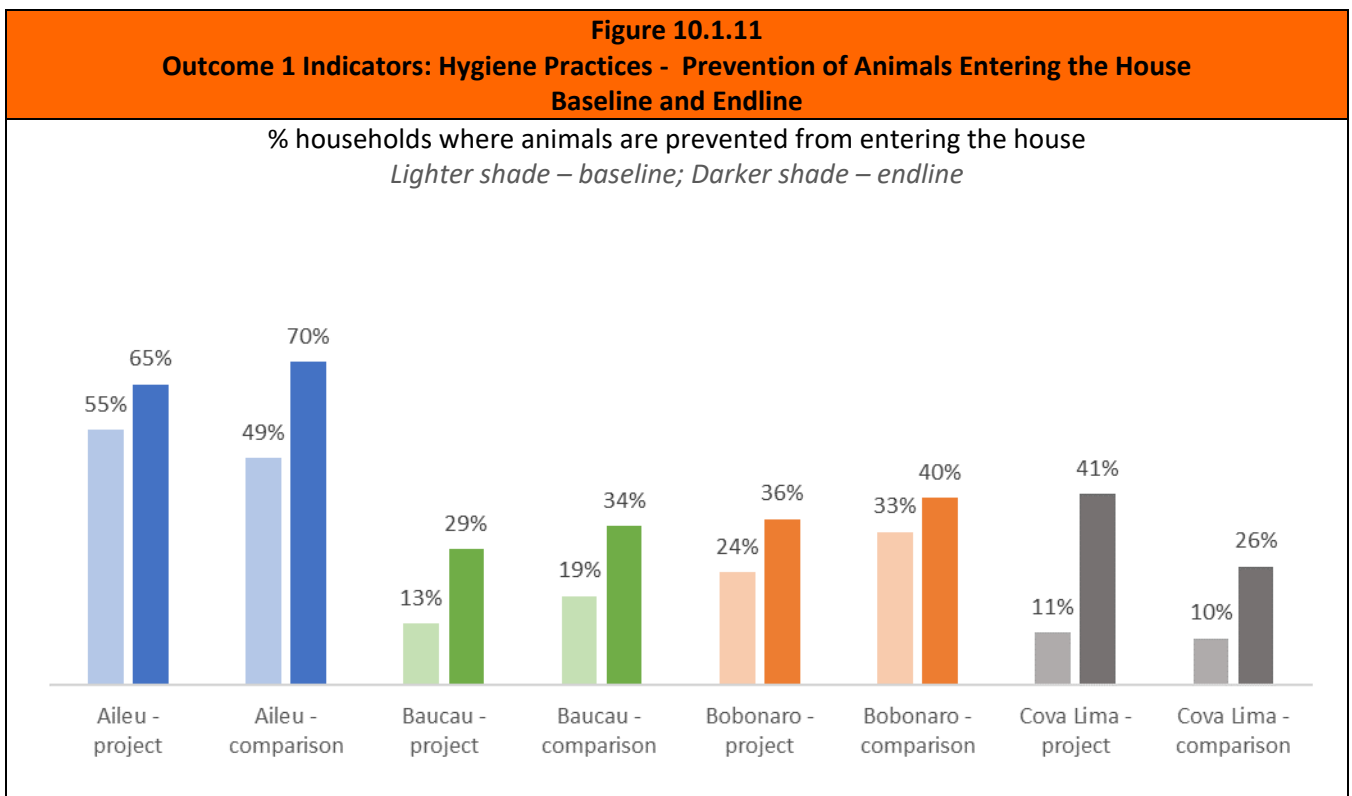
- (1) A child can be fed solids: at 6 months
- (2) A child can be fed water: from 6 months
- (3) Washing hands can reduce: viruses (including COVID-19), diarrhoea/stomach ache, bacteria or intestinal worms (not including responses that also mention mosquito-borne diseases)
- (4) When to wash hands: after going to the toilet / helping child to toilet and before eating.

Figure 10.1.10 illustrates dramatic improvements in basic hygiene knowledge among mothers/carers of children 0-59 months between baseline and endline, a large part of which can be attributed to the recent COVID-19 related health information campaigns (WVTL and otherwise). While these dramatic improvements are seen in both project and comparison areas, improvements are larger in Aileu,

Bobonaro and Cova Lima project areas, suggesting **BFBH has been particularly influential in improving basic hygiene knowledge in communities.**



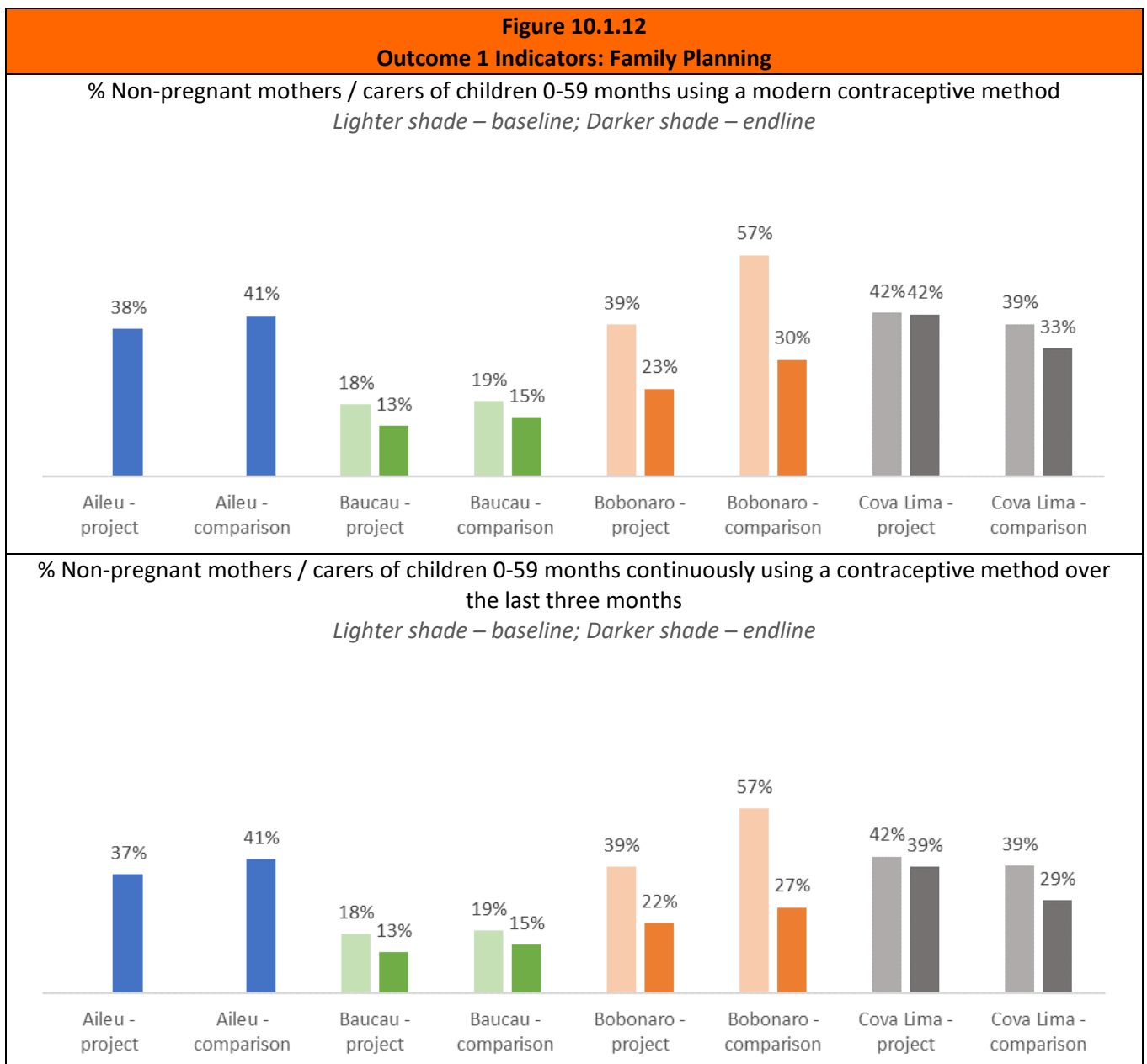
Prevention of animals from entering the house is also practiced more frequently at endline (Figure 10.1.11), and this is seen in both project and comparison areas. In Baucau, Bobonaro and Cova Lima, the difference is larger in project areas.



Family Planning

The final set of indicators under Outcome 1 relate to family planning. Note that since respondents consisted almost exclusively of mothers/carers of children 0-59 months, these results may differ somewhat from comparative figures which are normally defined over all non-pregnant in-union women of childbearing age. Baseline data is not available for Aileu.

Figure 10.1.12 presents the results for women in the sample who are not currently pregnant and who are aged 15-49. Interestingly rates in most areas declined, and particularly so in Bobonaro. This may reflect COVID-19 related shifts in preferences for having children, or reduced access to contraception. Rates are almost identical for current use of a modern contraceptive method and continuous use of any method in the last three months.



10.2 Outcome 2: Households have Improved Access to Superfoods

Outcome 2: Households have Improved Access to Superfoods

- 2.1.1. % households growing superfoods (any and disaggregated by superfood) either individually or as part of a collective effort (farmer group, parents' group).
- 2.1.2. Annual volume (kg/number of eggs) of superfood produced among producing households (disaggregated by superfood and also presented as kg/producing HH).
- 2.1.3. Average land area (m²) utilised for superfood production among producing households (disaggregated by superfood).
- 2.1.4. % superfood-producing households processing superfoods (any).
- 2.2.1. % households consuming superfoods in the last week (any and disaggregated by superfood).
- 2.2.2. Average number of days in the last week households consumed superfoods (disaggregated by superfood).
- 2.2.3. Average number of months in the last year households report having difficulty accessing superfoods (any and disaggregated by superfood, reason for difficulty).
- 2.3.1. % households whose chickens have been vaccinated.
- 2.3.2. Average number of chickens lost/died in the last 12 months among households raising chickens.

Indicators for outcome 2 relate to access to superfoods: production, yield, processing, consumption and availability of superfoods.

Superfood Production, Yield and Processing

In this section we focus on results and changes in superfood production, yield and processing in project areas: given that superfood production was very low in all areas at baseline, for the most part, uptake in superfood production can reasonably be attributed to BFBH.

Table 10.2.1 and Figure 10.2.1 highlight that households have rapidly taken to growing superfood crops on their own land as well as in group and community plots. **In Bobonaro, 97% of project area households produced at least one superfood crop, and this rate was similarly impressive in Aileu (85%) and Cova Lima (86%).**²⁴ It is much lower in Baucau at 58%, reflective of the very low proportion of households in the sample reporting taking part in farmer groups.

Among the attractions of superfoods and key to their rapid uptake appears to be that they are generally easy to grow and similar to other common household foods. **The range of superfoods available under the BFBH project**, enabling different areas to adopt the particular superfoods that are most suitable to their agro-geographical climate, **has proven to be very successful in overall adoption of superfoods.**

²⁴ Since even at baseline, most households kept chickens, the 'any superfood' list relates to crops only in order to observe change in this indicator.

**Table 10.2.1
Superfood Production, Yield and Processing
Endline**

		Unit	Aileu		Baucau		Bobonaro		Cova Lima	
% households producing superfoods			value	n	value	n	value	n	value	n
	Soybeans	% agricultural households	49%	394	4%	427	49%	287	20%	273
	Mung beans		5%	394	6%	427	81%	287	42%	273
	Red kidney beans		76%	394	2%	427	44%	287	11%	273
	Orange sweet potato		68%	394	38%	427	71%	287	43%	272
	Moringa		6%	394	41%	427	89%	285	75%	273
	Any superfood crop		85%	394	58%	427	97%	287	86%	273
	Chickens/eggs	% households	78%	415	90%	509	95%	307	77%	311
Median annual volume of superfood produced among producing households										
	Soybeans	Kg	20	169	20	16	10	125	25	50
	Mung beans		16	6	30	23	25	179	25	65
	Red kidney beans		25	260	30	10	10	113	25	26
	Orange sweet potato		30	230	25	158	10	166	25	115
	Moringa		5	13	1	154	2	142	8	203
	Eggs	Number of eggs	24	238	12	303	12	204	22	170
Median land area (m2) utilised for superfood production among producing households										
	Soybeans	m2	400	173	48	16	400	141	800	52
	Mung beans		11	16	76	26	625	232	1000	116
	Red kidney beans		450	275	39	10	400	124	360	29
	Orange sweet potato		200	247	50	161	400	200	275	116
	Moringa		34	24	20	165	100	233	36	203
% superfood crop-producing households processing superfoods (any)			45%	415	16%	509	49%	307	52%	311

How take-up of superfoods has differed by location is presented graphically in Figure 10.2.1. Panel a show the proportion of households producing each superfood at endline, while panel b shows how this has changed since baseline. Looking first to panel a, eggs are the most widely produced superfood across all locations. Panel b shows that raising chickens/eggs has not changed since baseline (and in Cova Lima, has declined). This is due to there already being a very high rate of chicken ownership among households at baseline. Recall that eggs were the most commonly consumed superfood among children, **highlighting a clear link between superfood availability and consumption: households eat what they produce.**

For superfood crops, which in many cases were barely grown in project areas, adoption since baseline has been impressive – the proportion of households growing red kidney beans in Aileu jumped up by 54 percentage points, orange sweet potato by 60 percentage points in Bobonaro and moringa by 53 percentage points in Cova Lima. Among the crops, orange sweet potato is the more universally grown crop, while soybeans, mungbeans, red kidney beans and moringa have very different rates of uptake by location.

In FGDs, the choice of superfood crop to grow was largely described as reflective of climate and water conditions rather than taste preferences: red kidney beans are more favourable to the climate in Aileu than moringa and mung beans, while the converse was true for other areas where water was scarcer. **Indeed, virtually all described water as the major limiting factor in superfood production and yield.**

Table 10.2.1 also provides the results for indicators relating to volume of production, land area and processing of superfood crops among producing households in project areas at endline. Data on crop volume, land area and yield are notoriously erroneous and messy and the endline data is no exception. The data suggests that volumes remain low among those growing the crop the typical household growing a superfood crop would grow approximately the equivalent of a 25-kilogram sack over a 12-month period. While similar per-household production figures were found at baseline, there are many, many more households growing superfoods at endline so the total aggregate volume of superfoods produced in project areas is high.

Land area utilised for superfood production varies, tending to be in the order of 400 square metres per crop per household. Land area in Baucau is much smaller – in the order of 50 square metres.

Figure 10.2.1
Proportion of Households Producing 'Superfoods' at Endline
Project Areas

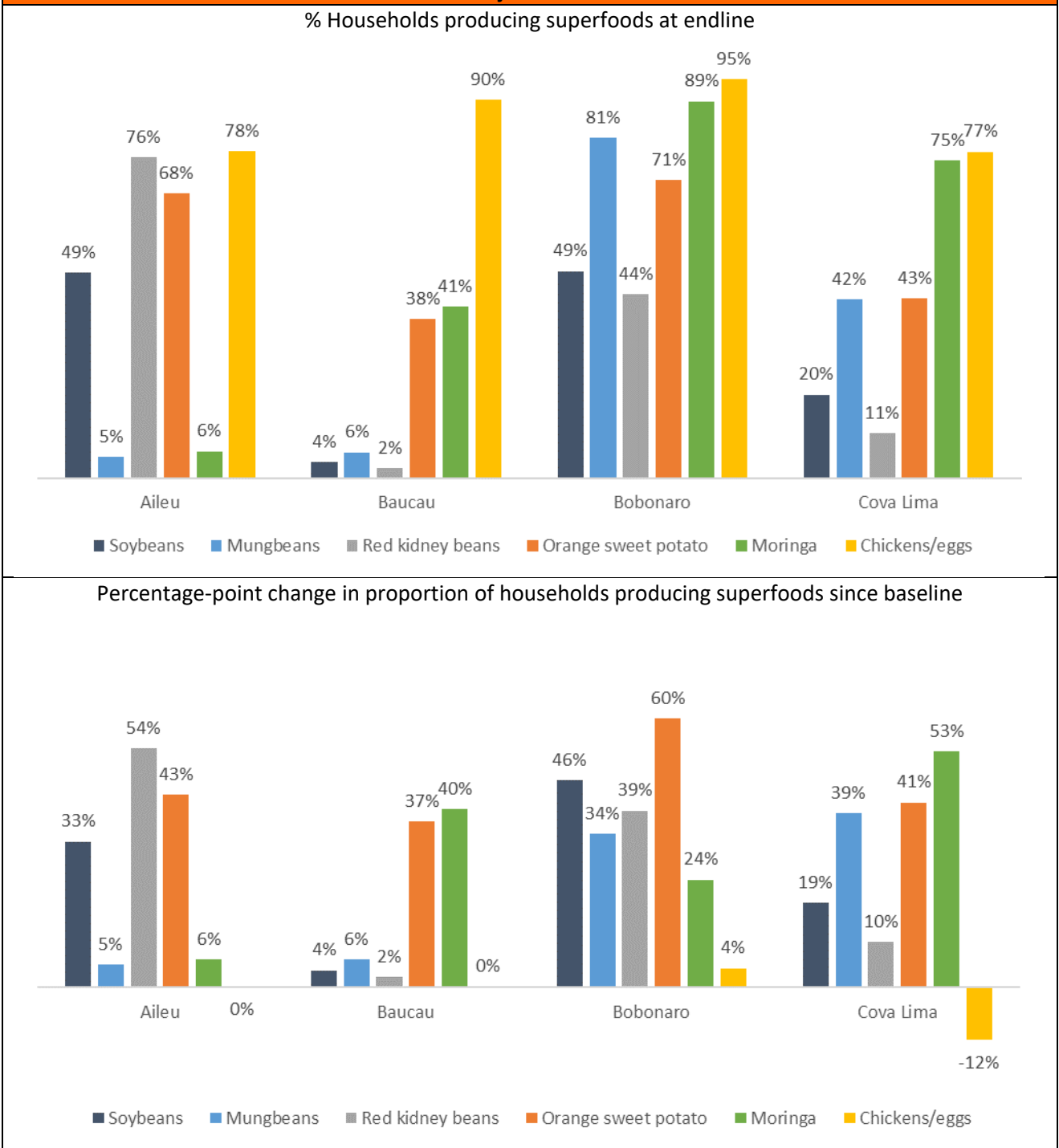


Table 10.2.2 provides production and loss data for chickens and eggs, as the sixth superfood. The typical household in project areas now owns 8 chickens, compared to only 5 in comparison areas. These chickens also tend to lay more eggs, from typically 12 per annum at baseline to 16 at endline. Vaccination rates are also significantly higher at endline – 15% compared to only 4% at than baseline, and higher than rates in comparison areas (7% at endline). Nonetheless households actually report losing more chickens in the last 12 months than baseline.

Households are more likely to utilise a secure coop for part or all of the day at endline (32% compared to only 8% at baseline), and while this is also true in comparison areas, the improvement is larger for project area households.

Table 10.2.2 Chickens and Eggs				
	All project areas		All comparison areas	
	Baseline	Endline	Baseline	Endline
Among all HHs:				
% owning chickens	85%	86%	81%	78%
Among those HHs owning chickens:				
Median number of chickens owned	5	8	4	5
Median number of eggs produced per annum	12	16	12	20
% whose chickens have been vaccinated	4%	15%	3%	7%
Average number of chickens lost in the last 12 months	0.499	0.685	0.520	0.675
Security of chicken housing:				
Coop secure day and night	2%	8%	0%	0%
Coop secure part of the day	6%	24%	8%	24%
Insecure coop	19%	17%	20%	16%
No coop	72%	51%	72%	60%

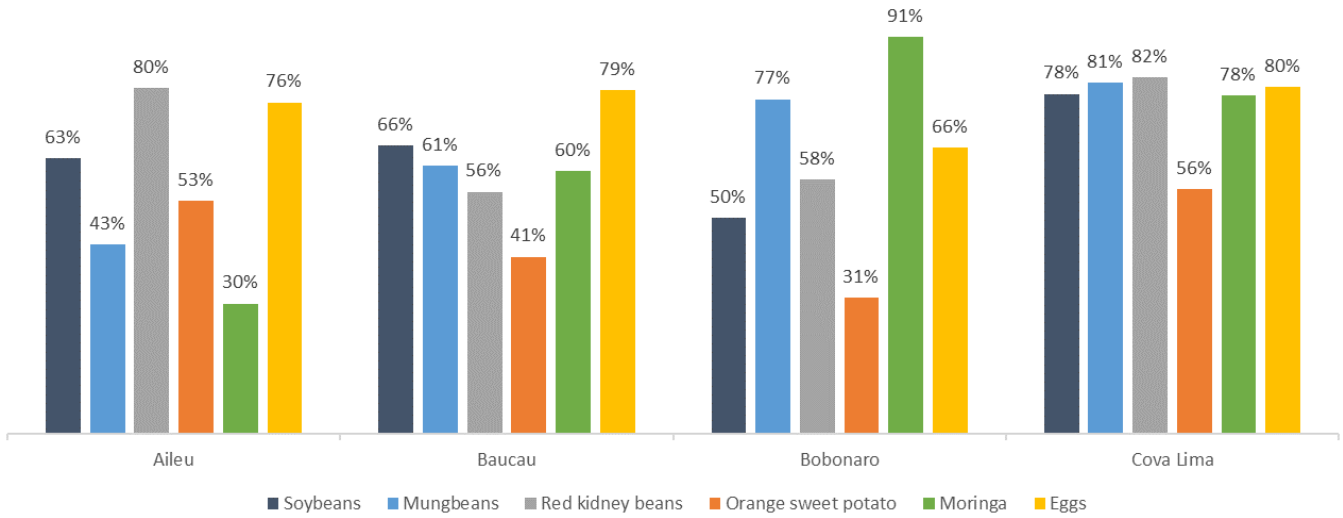
Consumption of Superfoods

Figure 10.2.2 shows the proportion of households reporting having consumed each of the BFBH superfoods in the seven days prior to the interview at endline (panel a), the change since baseline (panel b) and the difference-in-differences taking into account the change observed in comparison areas (panel c). Since these results relate specifically to consumption of superfoods, it is reasonable to assume that a large part of the changes in consumption can be attributed to BFBH – that is, the true impact lies somewhere between panel b and c.

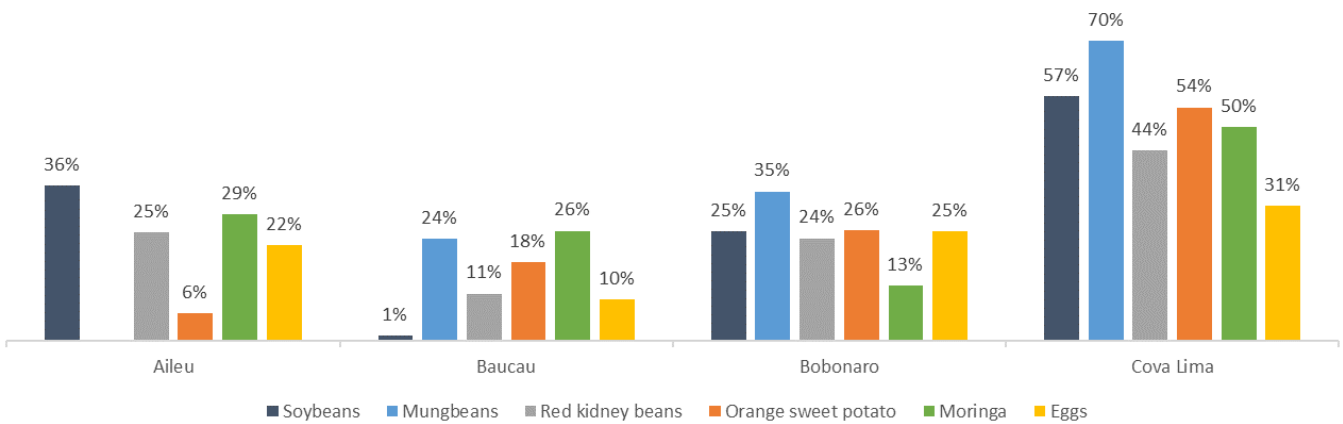
By expanding the recall period to seven days, this allows us to see changes in consumption of less frequently consumed foods (that is, foods that may be consumed weekly rather than daily). While consumption may have been by any household member, further analysis not presented here suggests that when the household consumes a food, so do all members. Comparing the rates seen amongst children, mothers and pregnant women using a 24-hour recall, 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. Looking to the change since baseline (panel b), 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 at baseline.**

Figure 10.2.2
Household Consumption of Superfoods in the Last 7 Days

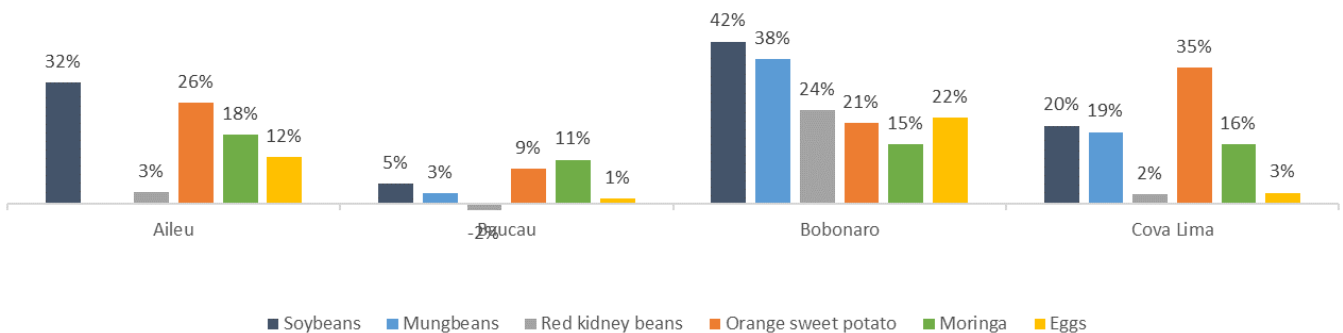
a. % Households in the endline sample consuming superfoods in the last week



b. Percentage-point change since baseline



c. DiD

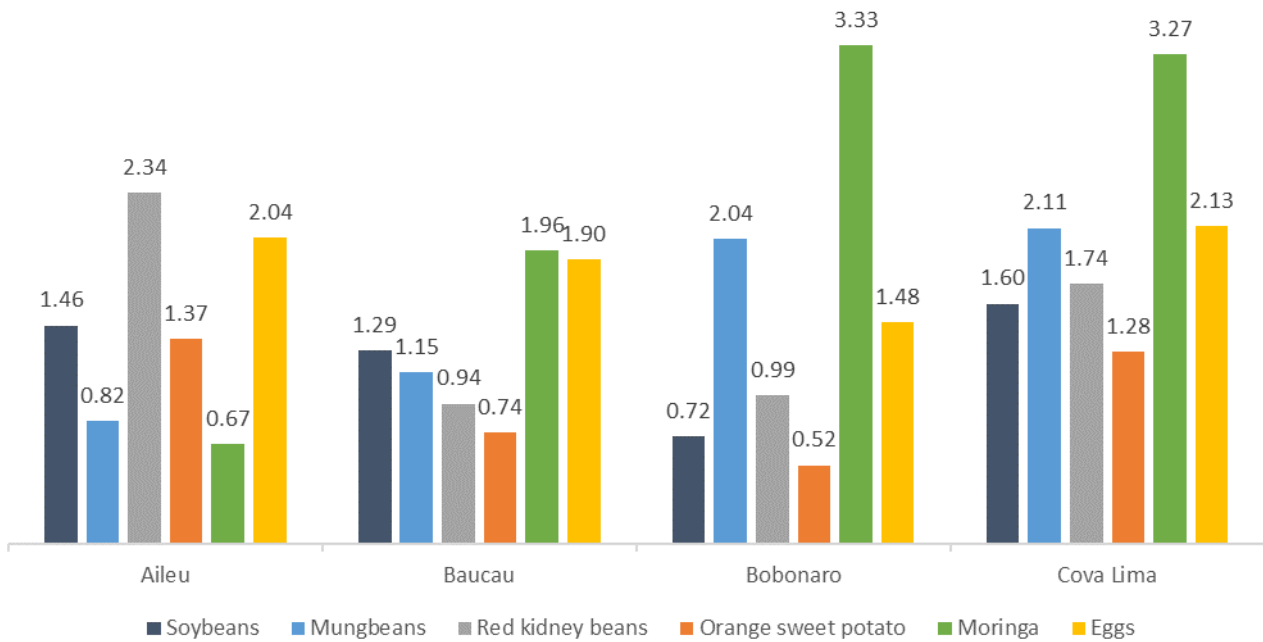


The differences-in-differences results in panel c are also commendable, with very large changes in consumption of superfoods in Aileu, Bobonaro and Cova Lima even after controlling for the change in comparison areas. The impact in Baucau is smaller, but still significant.

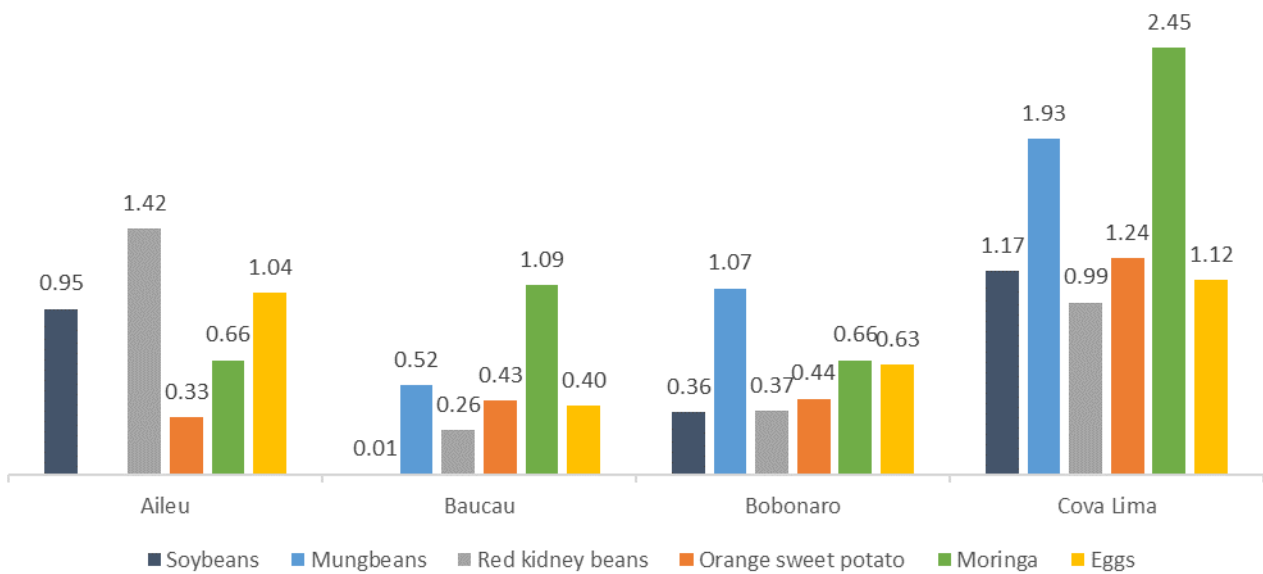
Figure 10.2.3 extends this seven-day recall analysis by looking at the number of days out of the seven that households consumed superfoods. Among the highest is moringa, consumed by households in Bobonaro and Cova Lima 3.3 days per week on average. Mirroring the results for the proportion of households consuming, the biggest differences since baseline are seen in Cova Lima and lowest in Baucau.

Figure 10.2.3
Household Consumption of Superfoods in the Last 7 Days

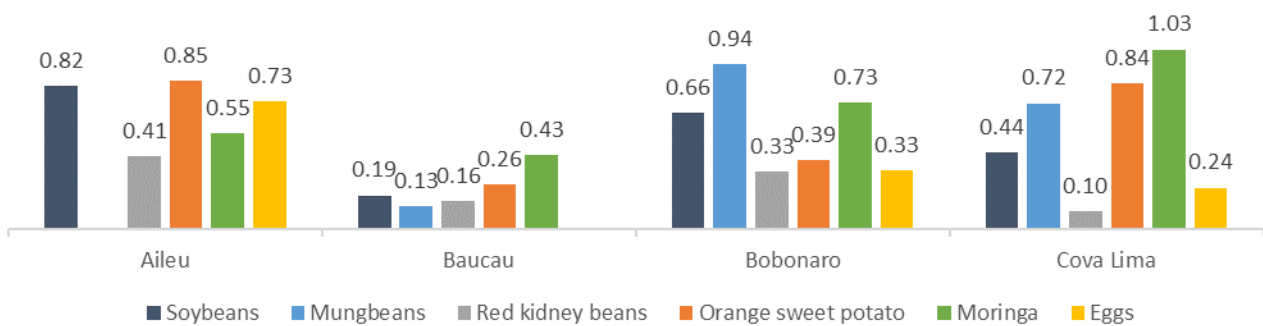
a. Average number of days households in the endline sample consumed superfoods in the last week



b. Percentage-point change since baseline



c. DiD



Availability of Superfoods

At baseline and endline, households were asked whether they had difficulty sourcing or having each of the six superfoods in the last 12 months, and if so, for how many months of the year. Results comparing baseline and endline are shown in Table 10.2.3.

At baseline, households in Cova Lima consistently reported the greatest number of months with difficulty in each of the six superfoods, with most in shortage for 2-3 months of the year. By endline, however this had significantly reduced to less than one month per year across all superfoods. Bobonaro also reports reductions across all superfood crops. Aileu reports less difficulty accessing soybeans, red kidney beans and orange sweet potato, but more difficulty accessing moringa and eggs. Baucau also tends to report greater difficulty accessing each of the superfoods. This suggests that supply has not yet caught up with demand in these areas – for example, improved nutrition-seeking behaviour among households in Aileu sees a higher demand for nutritious foods such as moringa, but because moringa is not readily available this demand is unmet and households report difficulty accessing the food.

Difference-in-differences results are interesting, as once changes in comparison areas are taken into account, there are no differences between baseline and endline, except in Aileu, where there has been a very significant reduction in the number of months of difficulty accessing superfoods. With the project having a longer history in Aileu, this may reflect supply catching up with demand.

Project staff, local leaders and group members agreed that superfoods were now more available at local markets, however, it was clear that growing superfoods at home was the main driver for consumption in the home:

Table 10.2.3
Number of Months in the Last 12 with Difficulty Sourcing Superfoods

	Soybeans		Mungbeans		Red kidney beans		Orange sweet potato		Moringa		Eggs	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Project areas:												
Aileu	0.72	0.53	-	1.90	0.64	0.21	0.44	0.41	1.31	2.30	0.37	0.61
Baucau	0.15	0.38	0.18	0.37	0.13	0.35	0.34	0.44	0.03	0.09	0.02	0.20
Bobonaro	1.74	0.61	0.36	0.25	1.27	0.71	1.38	0.54	0.51	0.15	0.42	0.62
Cova Lima	3.19	0.52	2.64	0.46	2.20	0.69	3.02	0.75	1.80	0.19	0.65	0.29
Difference-in-differences:												
Aileu	-1.24	***			-0.73	***	-3.11	***	-1.51	**	-0.62	***
	0.00				0.00		0.00		0.01		0.00	
Baucau	-0.03		0.00		-0.11		0.17		0.13		0.09	
	0.83		0.99		0.40		0.30		0.11		0.23	
Bobonaro	0.64		0.31		0.76	*	0.74		-0.26		-0.05	
	0.17		0.21		0.07		0.11		0.19		0.81	
Cova Lima	-0.72		-0.50		-0.10		-0.41		-0.03		0.06	
	0.15		0.26		0.82		0.47		0.94		0.76	

10.3 Outcome 3: Households have increased income from superfood production

Outcome 3: Households have Increased Income from Superfood Production

- 3.1.1. Average household income from sale of superfoods and their products, among superfood-producing households - either individually or as part of a collective effort (farmer group, parents' group) [MELF 3.102 - Number (x) of poor women and men with increased income].
- 3.1.2. Proportion of households earning income from superfoods and superfood-related activities (production, labour, processing, sale) - either individually or as part of a collective effort (farmer group, parents' group).
- 3.2.1. Average annual savings/funds mobilised per savings group. [from ITT]
- 3.2.2. Average annual savings/funds mobilised per savings group member. [from ITT]
- 3.2.3. Average amount of household savings.

Table 10.3.1 presents results for the proportion of households earning income from superfoods, and among these, the median annual income (revenue less costs of production, if incurred) at endline. Figure 10.3.1 shows graphically the proportion earning income and the change since baseline for project areas (panels a and b). Many, many more households are earning income from selling superfoods at endline. Soybeans mungbeans and red kidney beans are most commonly sold by households in Baucau and Bobonaro. Most notably, these proportions do not necessarily correspond with comparative rates of production and consumption – far fewer households are selling orange sweet potato, moringa and eggs than are producing or consuming them. The negative differences from baseline observed in Cova Lima reflect that there were very few households growing superfoods in Cova Lima at baseline – **by endline, many more are growing superfoods, and most are growing for home consumption rather than sale in Cova Lima.**

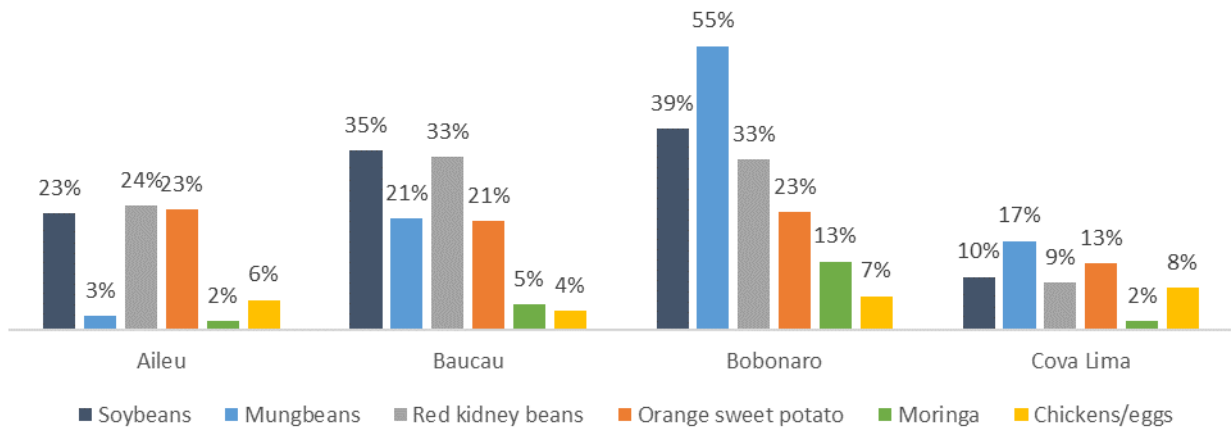
Panel b of Table 10.3.1 shows the median annual income from sales of superfoods – by income here we mean revenue less the cost of inputs and other costs incurred in getting crops to market. The income data, particularly once costs are taken out, is quite variable and in some cases negative. Typically households are earning less than \$50 per annum from sales of superfoods (some households may earn this for multiple superfoods). Median annual income from selling chickens and/or eggs is quite low at \$30-35 – representing the sale of 3-4 chickens.

Table 10.3.1
Income from Sale of Superfoods
Endline

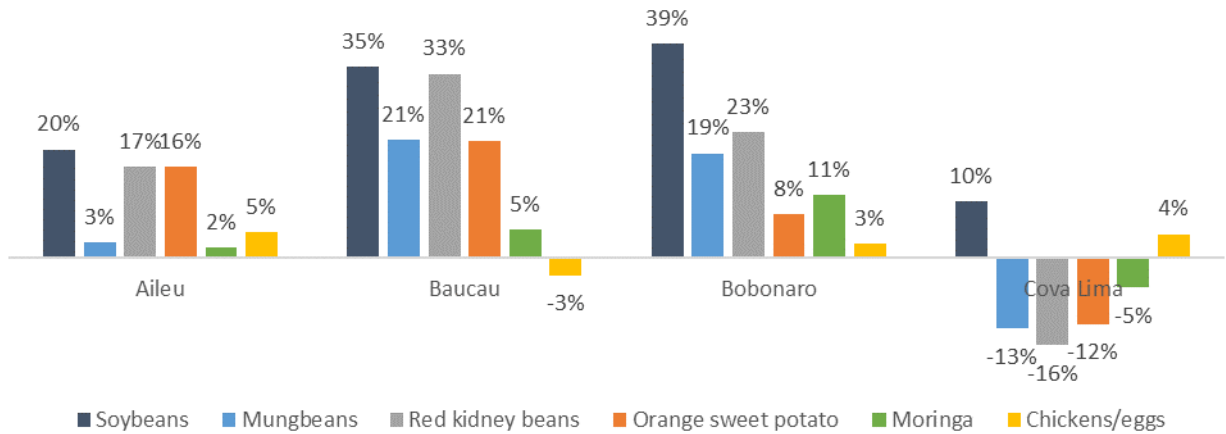
		Aileu		Baucau		Bobonaro		Cova Lima		
% earning income from superfoods:		unit	n	unit	n	unit	n	unit	n	
	Soybeans	23%	235	35%	26	39%	160	10%	117	
	Mung beans	3%	36	21%	28	55%	236	17%	169	
	Red kidney beans	24%	314	33%	15	33%	134	9%	66	
	Orange sweet potato	23%	281	21%	171	23%	207	13%	147	
	Moringa	2%	55	5%	179	13%	258	2%	229	
	Chickens / Eggs	6%	415	4%	509	7%	306	8%	310	
	Any superfood	47%	415	34%	509	67%	307	45%	311	
Annual median income (revenue less cost of inputs)										
	Soybeans	20	45	25	8	15	59	34	10	
	Mung beans	0	0	63	4	50	124	50	26	
	Red kidney beans	49	66	25	4	-90	41	40	5	
	Orange sweet potato	18	58	15	35	-5	45	28	18	
	Moringa	0	1	5	9	-95	33	0	4	
	Chickens / Eggs	33	113	30	150	35	150	33	108	

Figure 10.3.1
Households Earning Income from Sale of Superfoods

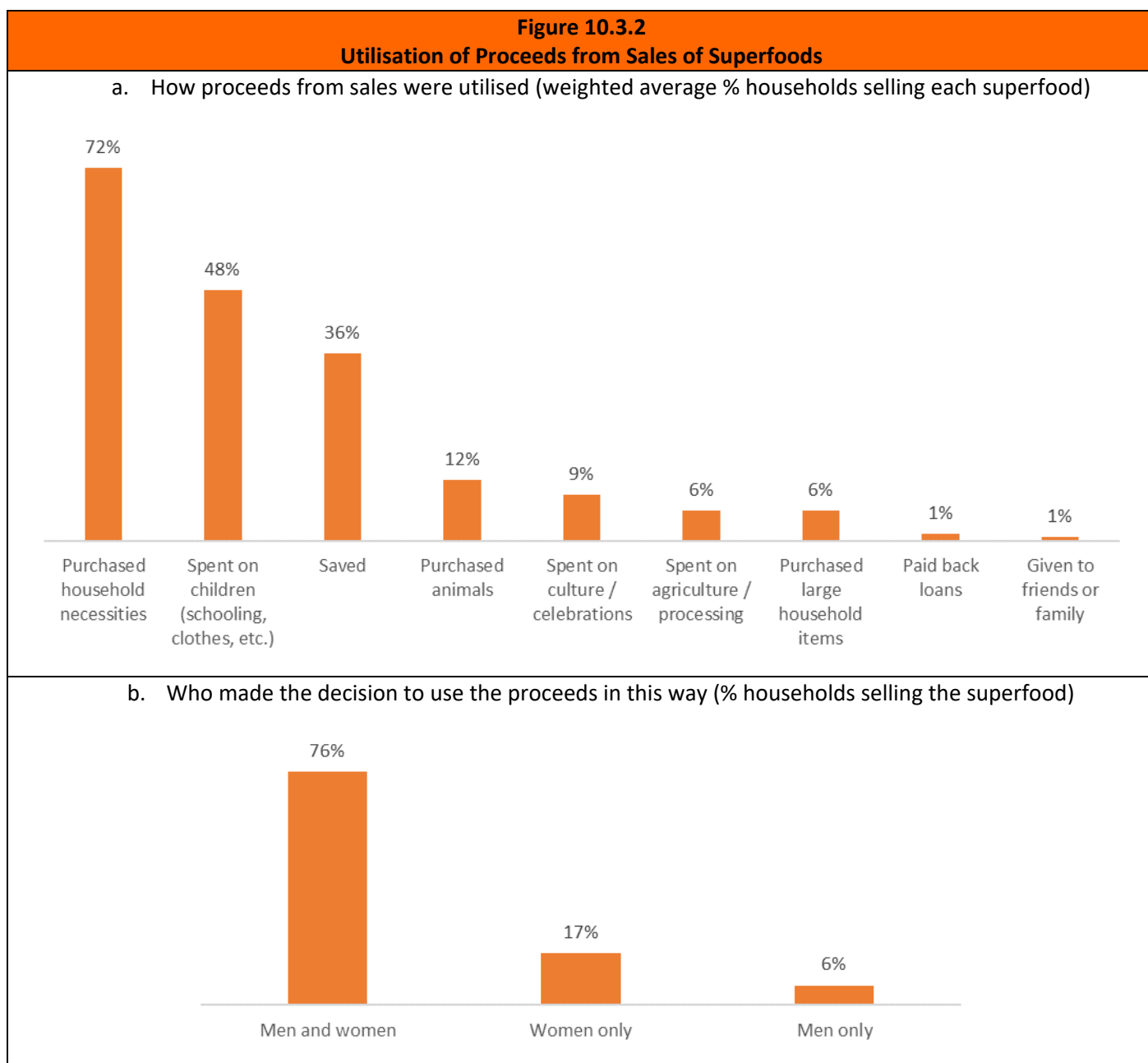
a. % Households selling the superfood at endline (project areas)



b. Difference in % households selling superfoods from baseline (project areas)



Households were also asked how the proceeds of sales were utilised (panel a of Figure 10.3.2) and who made the decision to utilise it in this way (panel b).



Overwhelmingly, and across all type of superfood, respondents reported utilising the money on household needs, followed by children’s schooling. A large proportion also reported saving the proceeds. Purchase of animals, also considered a form of savings, was also high. **The decision to spend the money in this way was predominantly made jointly by men and women in the household, or by women alone.** Very few reported men alone making the decision.

The final set of outcomes under outcome 3 relate to savings – within project-supported groups and at the household level. Table 10.3.3 shows details of savings and funds mobilised by savings groups as reported in the project ITT.

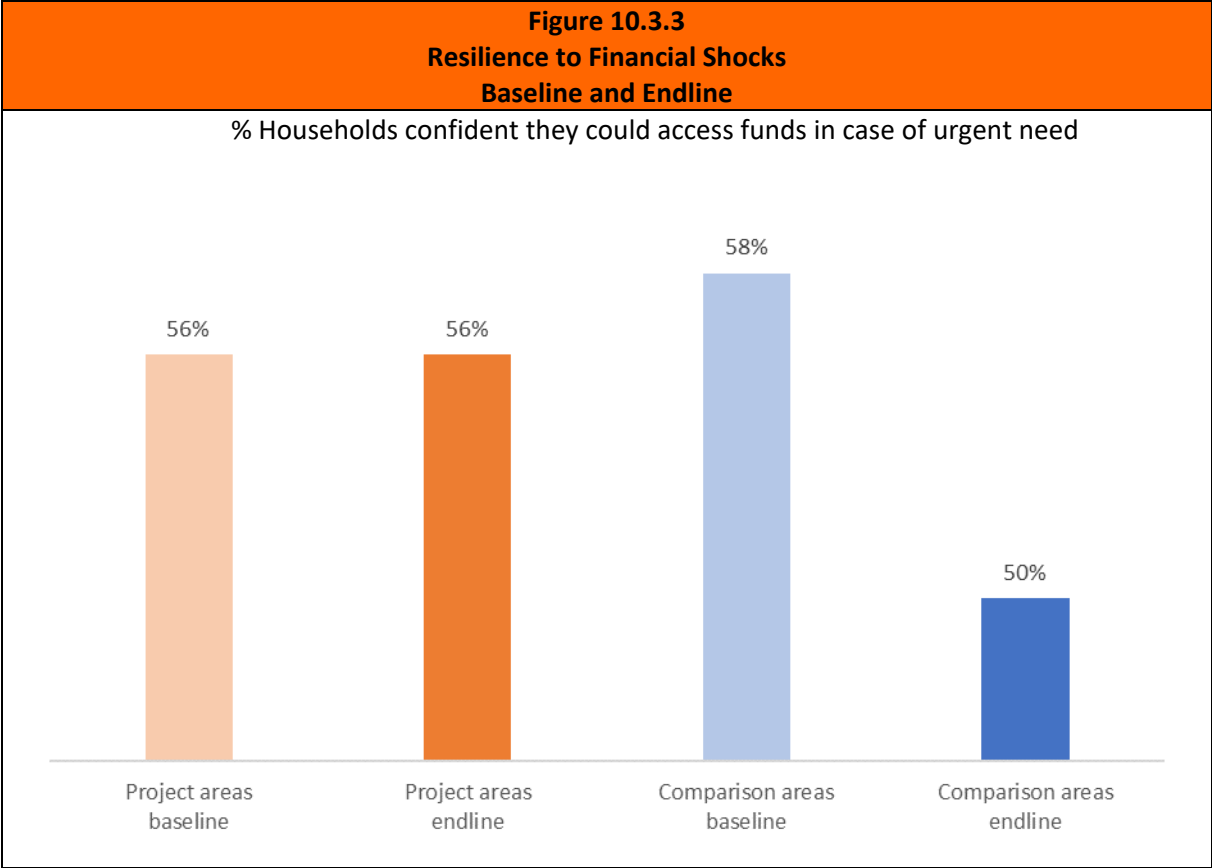
Table 10.3.3				
Funds Mobilised through Savings and Loans Groups				
Municipality	Aileu	Baucau	Bobonaro	Cova Lima
Number of groups	36	26	29	9
Number of group members	3,994	335	300	648
Average current savings/funds per group <i>Value of current available funds + funds on loan as at time of assessment</i>	\$1,236	\$1,198	\$1,035	-
Average annual savings/funds mobilised per group member <i>Value of current funds available for loan as at the time of assessment + value of funds on loan as at the time of assessment + disbursements to members in last 12 months, divided by number of members as at the time of assessment.</i>	\$82	\$8	\$186	-

At the time of assessment, groups had in the order of \$1100 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 \$8 in Baucau to \$186 in Bobonaro. Comparative figures for Cova Lima were not available.

In the household survey, all respondents, not just those who were part of savings and loans groups, were asked whether their household had any savings, and if so, how much. Table 10.3.4 shows that households are much more likely to have savings at endline compared to baseline. The value of savings is variable and although there are more households holding savings, the amount held does not appear to have increased since baseline.

Table 10.3.4				
Household Savings				
Project Areas - Baseline and Endline				
	% HHs with any savings		Median value of savings among those HHs with some savings	
	Baseline	Endline	Baseline	Endline
Aileu	28%	45%	\$50	\$180
Baucau	25%	28%	\$100	\$104
Bobonaro	11%	38%	\$200	\$200
Cova Lima	11%	39%	\$300	\$66

With savings often manifesting in alternative forms such as livestock and others assets, this does not necessarily reflect the overall capacity of households to manage financial shocks. To explore this, households were also asked 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. Figure 10.3.3 shows that households in comparison areas were much less confident at endline compared to baseline, whereas there was no change in project areas – **this indicates that BFBH has had a strong protective effect on resilience to financial shocks.**



10.4 Outcome 4: Improved sustainability of health and agriculture services

Outcome 4 relates to sustainability of health and agricultural services. This was facilitated by the project through support for Citizen Voice and Action groups – community groups whereby members and the wider community can bind together to affect change to public service quality and accountability.

Other indicators under Outcome 4 at the household level include respondent perceptions and satisfaction levels with public services, ability to voice their opinions and make change to public service quality and accountability. At the PSF level, indicators relate to PSF chicken and egg production.

Outcome 4: Improved Sustainability of Health and Agriculture Services

- 4.1.1. % people (women, men, women with disabilities, men with disabilities, total) attending CVA gatherings in the last 12 months.
- 4.1.2. % people (women, men, women with disabilities, men with disabilities, total) reporting confidence in voicing their opinions in public.
- 4.1.3. % people (women, men, women with disabilities, men with disabilities, total) reporting confidence in being able to make change to public service quality and accountability in their community.
- 4.1.4. % people (women, men, women with disabilities, men with disabilities, total) reporting satisfaction with public services in their community.
- 4.2.1. Number of hectares covered with FMNR.
- 4.3.1. Average number of chickens owned by PSF
- 4.3.2. Average number of eggs produced per month by PSF's chickens
- 4.3.3. % PSF with improved chicken housing.
- 4.3.4. % PSF whose chickens have been vaccinated.
- 4.3.5. Average number of chickens lost/died in the last 12 months among PSF raising chickens.

Citizen Voice and Action

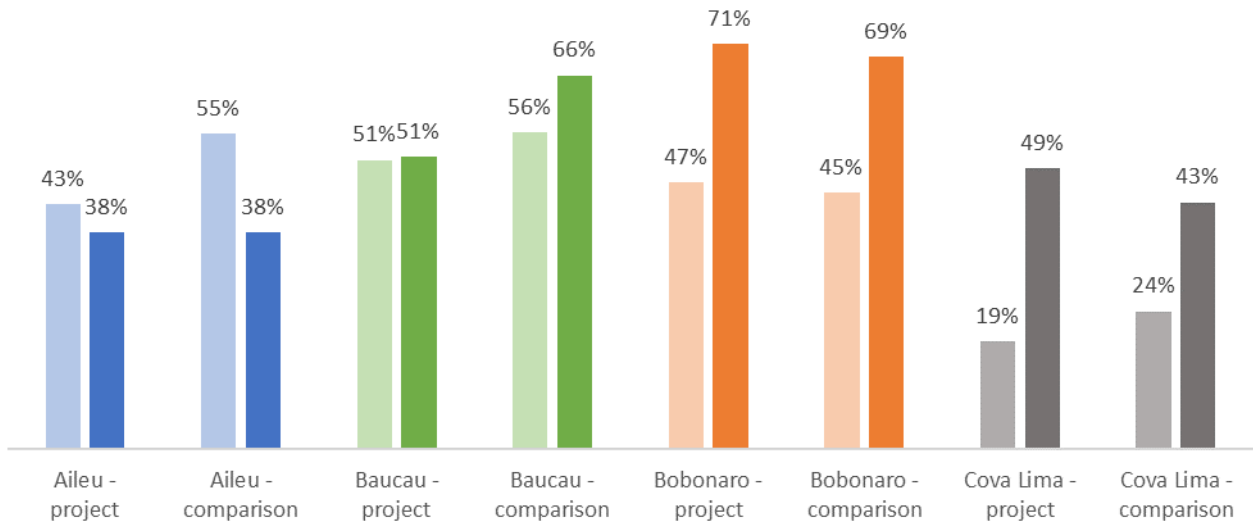
Figure 10.4.1 presents responses to questions relating to the respondent's perception of their ability to voice their opinions in public and to make change to public service quality and accountability, and whether they are satisfied with public services in their community. Recall that the majority of respondents in the household survey are mothers of children aged 0-59 months; the low numbers of male respondents renders it inappropriate to compare results by gender of the respondent.

All three indicators have similar trends: respondents in Bobonaro and Cova Lima report large positive improvements in each indicator, and this positive effect appears larger in project areas. In Aileu, confidence and satisfaction has declined, but less so in project areas. The changes in Baucau are more varied – from no change in confidence to voice opinions and satisfaction with public services, to some improvement in confidence to make change to public service quality and accountability. However, improvements appear slightly larger in comparison areas of Baucau.

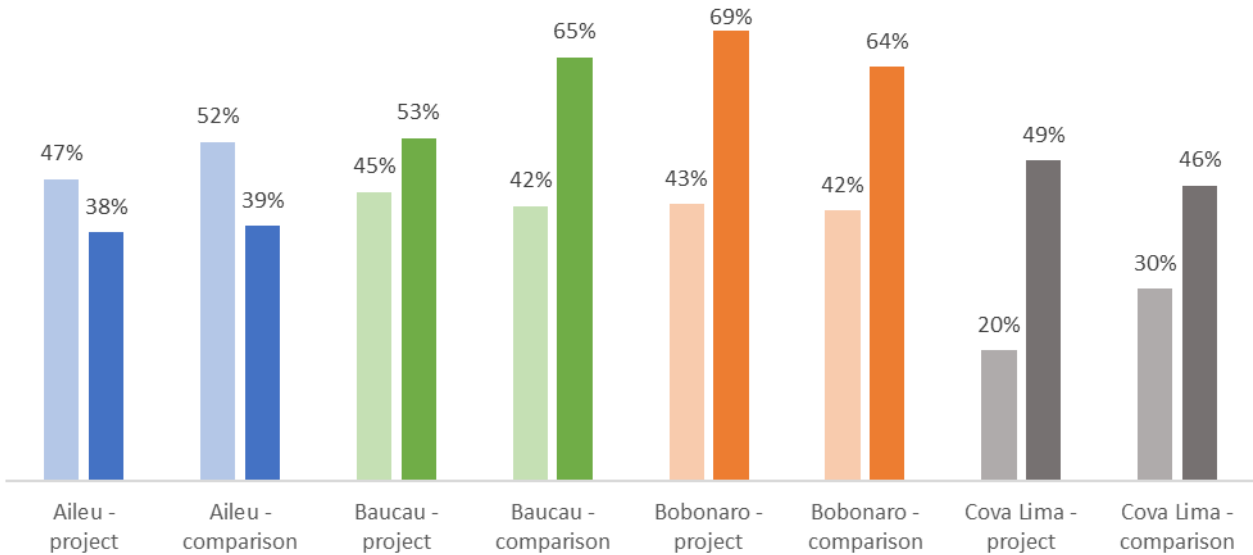
Figure 10.4.1

Respondent Satisfaction with Public Services
Lighter shade – baseline; Darker shade – endline

% respondents reporting confidence in voicing their opinions in public



% respondents reporting confidence in being able to make change to public service quality and accountability



% respondents reporting satisfaction with public services

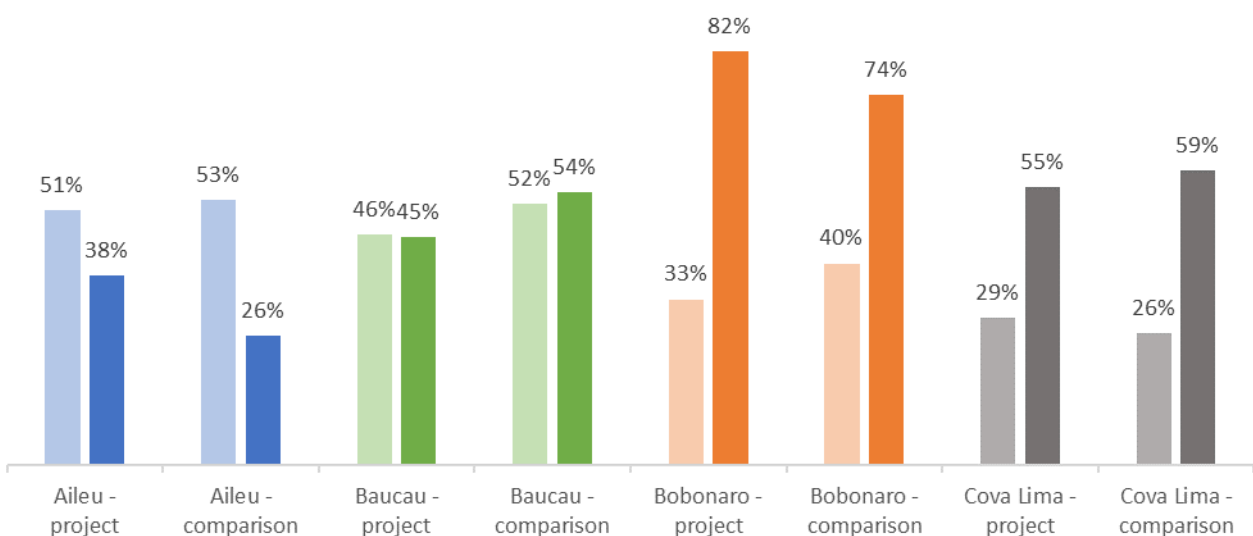


Table 10.4.1 breaks down the ‘satisfaction with public services’ indicator into its four components:

- (1) Satisfaction with health facilities in this place
- (2) Satisfaction with health treatment and health personnel in this place
- (3) Satisfaction with quality of public services in general, such as education, water, roads, etc. in this place
- (4) Satisfaction with accountability and transparency of public services in this community

Here we see that there are very high rates of satisfaction with regard to health facilities, treatment and personnel in all locations – project and comparison. Much lower rates are seen for broader public service quality, accountability and transparency, although they are still more positive than previous studies have found for rural areas in 2013 (see Nguyen, Cornwell, Inder and Qu, 2017²⁵).

Table 10.4.1									
Satisfaction with Components of Public Services									
Project and Comparison Areas at Endline									
Area:	Aileu		Baucau		Bobonaro		Cova Lima		
	Project	Comparison	Project	Comparison	Project	Comparison	Project	Comparison	
% reporting satisfaction with regards to:									
Health facilities in this place	90%	89%	83%	91%	97%	88%	86%	90%	
Health treatment and health personnel in this place	90%	83%	81%	87%	97%	85%	89%	90%	
Quality of public services in general, such as education, water, roads, etc. in this place	51%	44%	64%	72%	87%	81%	76%	71%	
Accountability and transparency of public services in this community	44%	35%	52%	63%	87%	81%	61%	62%	
All 4 of the above	38%	26%	45%	54%	82%	74%	55%	59%	

PSF and their Chickens

The final set of indicators under Outcome 4 relate to PSF and their chickens: number of chickens owned, quantity of eggs produced, number of chickens lost in the 12 months prior, quality of housing and rates of vaccinations. These indicators were monitored throughout the project life by the BFBH team - Table 10.4.2 provides an excerpt from the ITT.

²⁵ Nguyen, Cornwell, Inder and Qu (2017) «An Economic Perspective on People Movement in Timor-Leste», Monash Centre for Development Economics and Sustainability Research Paper Series on Timor-Leste, RP-TL6-English, Monash University.

Table 10.4.2 PSF and their Chickens				
	Aileu	Baucau	Bobonaro	Cova Lima
Average number of chickens owned by PSF	1.23	15	82	-
Average (median) number of eggs produced per laying month by PSF's chickens	19	193	308	-
Average number of chickens lost/died in the last 12 months among PSF raising chickens	0	41	59	-
% PSF with improved chicken housing	34%	3%	12%	-
% PSF whose chickens have been vaccinated	36%	1%	1%	-

Project monitoring data also reports the average chicken survival rate among PSF has doubled, from 43% at baseline to 81% by May 2020, and the chicken population has increased five-fold.²⁶ Some concern was raised through KIIs on the sustainability of access to chicken feed.

In KIIS, 89% of PSF report feeling very confident to weigh and measure children at SISCa and 72% very confident to complete the LISIO books. Typically, PSFs visit around 10 households per month, and 84% report giving eggs to households in their community.

10.5 Project Goal: Children under 5 and their mothers are well nourished

Goal-level indicators for the project relate to reducing the incidence of malnutrition (specifically, stunting, wasting and underweight in children, and thinness in mothers and pregnant women), diarrhoea, anaemia and gender-equal attitudes and decision-making. Unfortunately, anaemia testing was not conducted in Aileu due to delays in receiving ethics clearance before the expiration of baseline funds for the pilot. Since anaemia testing was not conducted at baseline, it was deemed prudent to also not collect it at endline.

²⁶ BFBH Annual Outcome Monitoring Report August 2020.

Project Goal:

Children under 5 and their mothers are well nourished

- G.1. % stunting in children 0-59 months (length/height for age) (CIA.0008).
- G.2.1. % wasting in children 0-59 months (weight for height).
- G.2.3. % thinness in mothers of children 0-59 months (MUAC).
- G.2.4. % thinness in pregnant women (MUAC).
- G.3. % underweight in children 0-59 months (weight for age).
- G.4. % diarrhoea in children 0-59 months.
- G.5.1. % anaemia in children 0-59 months (not collected in Aileu).
- G.5.2. % anaemia in mothers of children 0-59 months (not collected in Aileu).
- G.5.3. % anaemia in pregnant women (not collected in Aileu).
- G.5.4. % people in agreement with key gender attitude statements.
- G.5.5. % households where women or men and women jointly make key health and nutrition related decisions.

Children aged 0-59 months

Figure 10.5.1 presents results for indicators based on anthropometric measurements of children aged 0-59 months – stunting in panel a, wasting in panel b and underweight in panel c.

Stunting (low height for age): reflecting growth retardation as a consequence of continued poor diet and infections, stunting reflects longer-term undernutrition. There has been no significant difference in rates of stunting between baseline and endline in project areas. Some reduction is apparent in comparison areas of Baucau and Bobonaro, but these results should be interpreted with caution due to the small sample sizes in comparison areas.

Wasting (low weight for height): reflecting acute or current malnutrition due to insufficient food intake or illness, the sample reveals mixed results for wasting. Wasting has declined in both project and comparison areas, and in project areas of Baucau. It appears to have increased in project areas of Cova Lima and remained steady in Bobonaro.

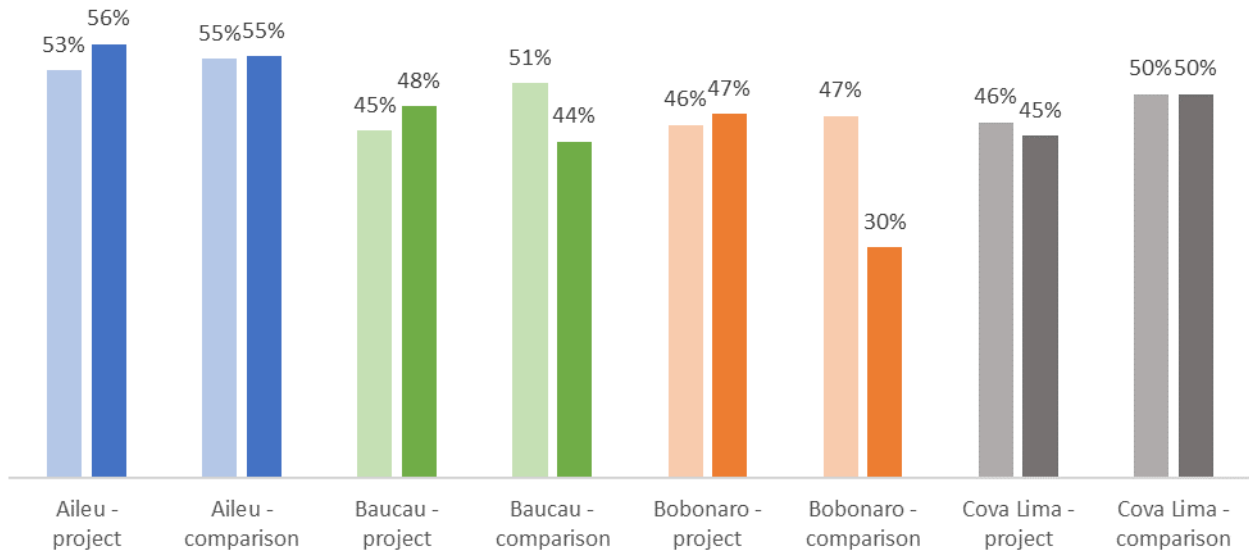
Underweight (low weight for age): this composite measure of height and weight reflects both longer-term and current undernutrition. There has been some decline in underweight in Baucau and Bobonaro, and this is apparent in both project and comparison areas. There has been no change to the proportion of children 0-59 months underweight in Aileu project areas, and an increase in the proportion in Cova Lima project areas.

There were no significant differences by gender or age of the child. There was weak evidence that children who ate superfoods, whether located in project or comparison areas, were less likely to be stunted (p-value=0.08) or wasted (p-value=0.06). Nonetheless, for almost all indicators the prevalence of undernutrition continues to reflect what the WHO classifies as the highest public health concern at endline.²⁷

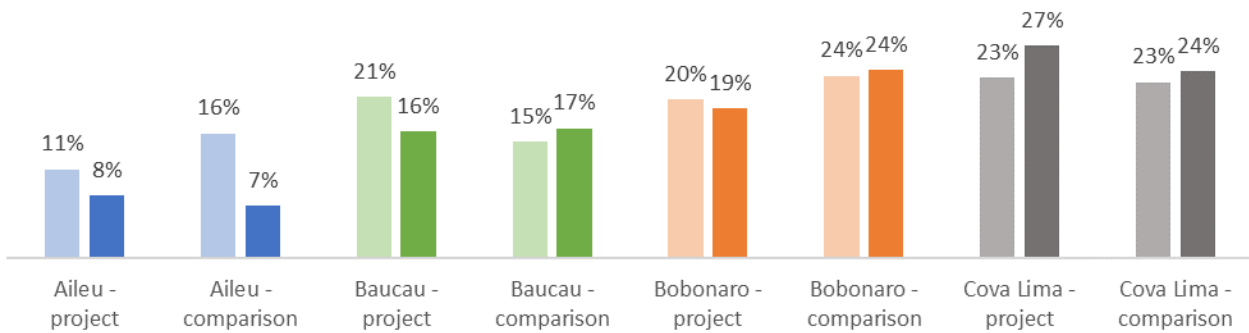
²⁷ <https://apps.who.int/nutrition/landscape/help.aspx?menu=0&helpid=391&lang=EN>

Figure 10.5.1
Child Health and Nutrition Indicators at Goal Level – Anthropometrics
Lighter shade – baseline; Darker shade – endline

a. % Children 0-59 months stunted



b. % Children 0-59 months wasted



c. % Children 0-59 months underweight

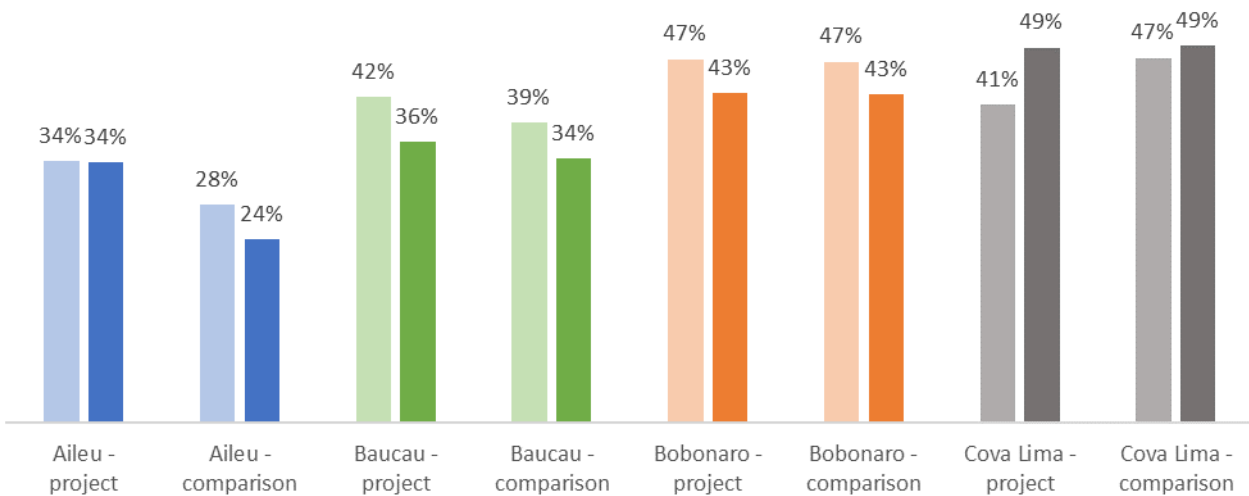
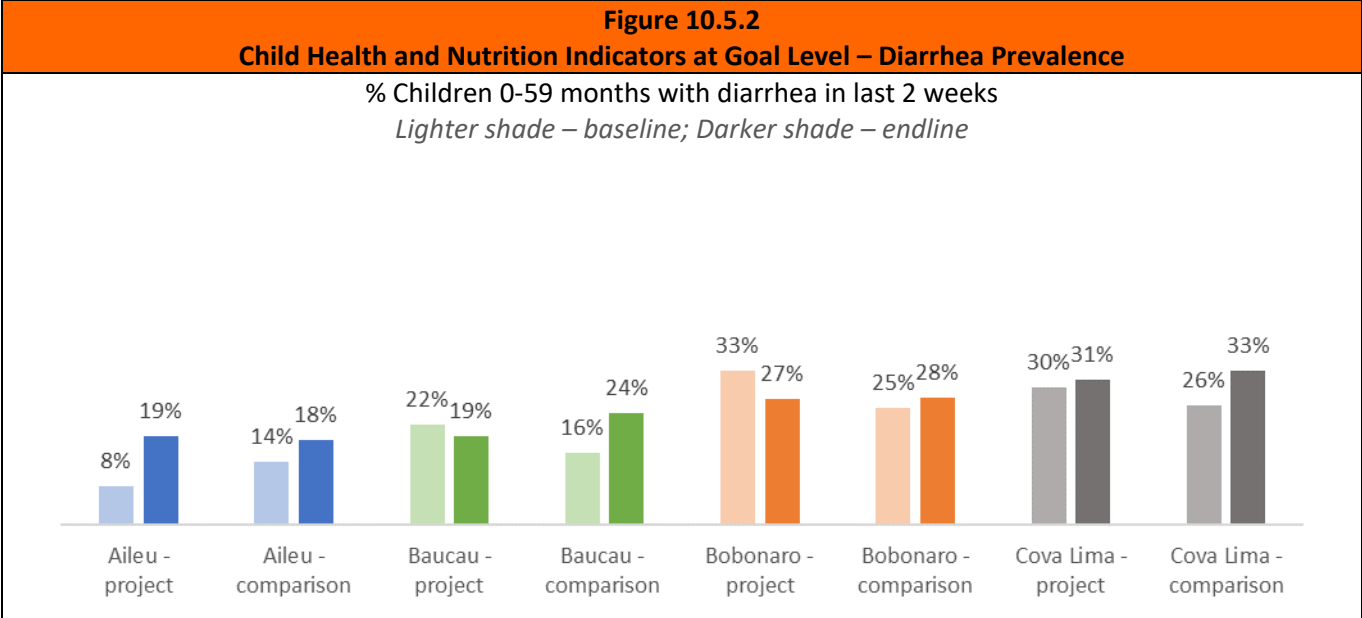


Figure 10.5.2 presents the results for incidence of diarrhoea in the two weeks prior to the survey. There are mixed changes in prevalence of diarrhea among children 0-59 months between baseline and endline in project areas. Nonetheless, prevalences have increased in all comparison areas and difference-in-differences estimates are significant for project areas as a whole (p-value=0.04) and for Baucau (p-value=0.02). This suggests BFBH has had a protective effect on the prevalence of diarrhea in project areas.

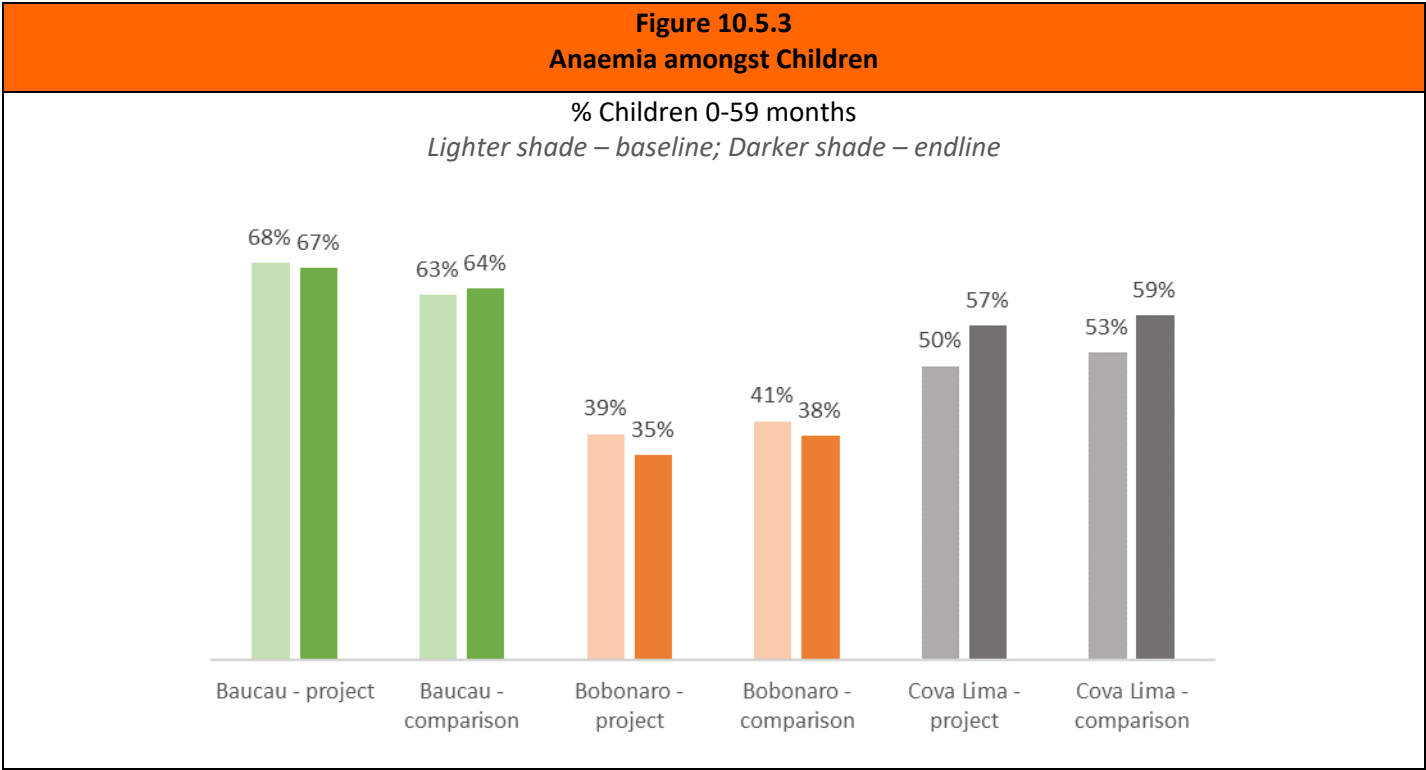


A lack of reduction in diarrhoea prevalence is surprising given the impressive improvements in health and hygiene knowledge, as well as improved access to adequate handwashing facilities, across all communities discussed in under outcome 1. When asked about any difficulties they had experienced in implementing any new-found knowledge learned through BFBH, FGDs described creating new habits and access to water as a barrier to handwashing:

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

FGD with women in Leohito, Bobonaro

The prevalence of any anaemia, defined as Hb<110g/L, among children 0-59 months is presented in Figure 10.5.3. Although visually there does not appear to be a great deal of change in anaemia rates, disaggregation by gender of the child reveals a weakly significant difference-in-differences for girls in Baucau (p-value=0.07) – that is, after taking into account the change between baseline and endline in comparison areas, girls in Baucau project areas have lower rates of anaemia at endline than baseline. A decline is observed in Bobonaro, but this is observed for both project and comparison areas. Conversely, Anaemia rates among children in Cova Lima have increased, and this was felt by project and comparison areas alike.

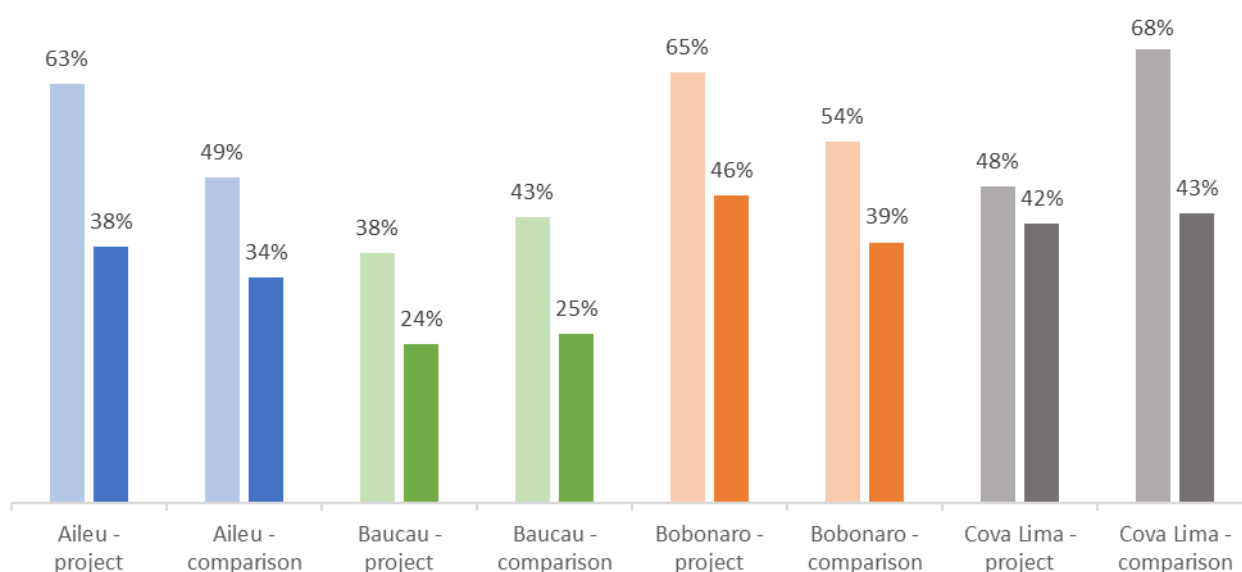


Mothers of children 0-59 months and pregnant women

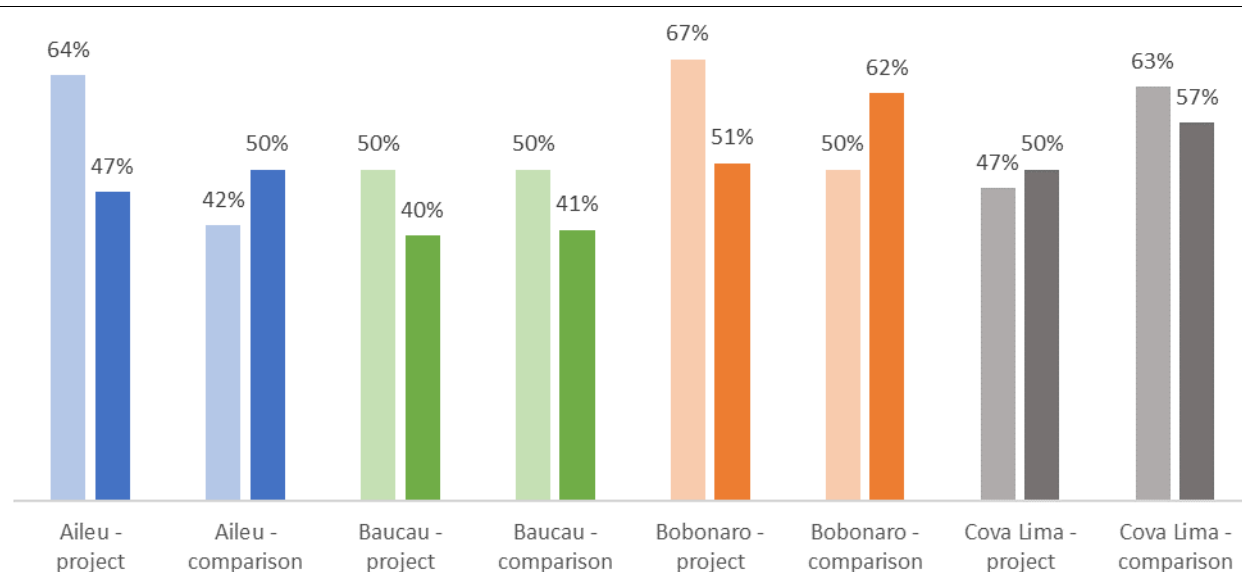
The first two indicators for mothers and pregnant women refer to the prevalence of thinness, defined as MUAC <23.5cm, presented in Figure 10.5.3. Thinness among mothers of children 0-59 months (panel a) has declined in all areas since baseline. This decline is seen in project and comparison areas alike, and the DiD estimates do not suggest any decline above what is seen in comparison areas. There was also no difference for mothers who ate superfoods in the 24-hour recall period.

Figure 10.5.3
Thinness among Mothers and Pregnant Women
Lighter shade – baseline; Darker shade – endline

a. % Mothers of children 0-59 months with MUAC <23.5cm



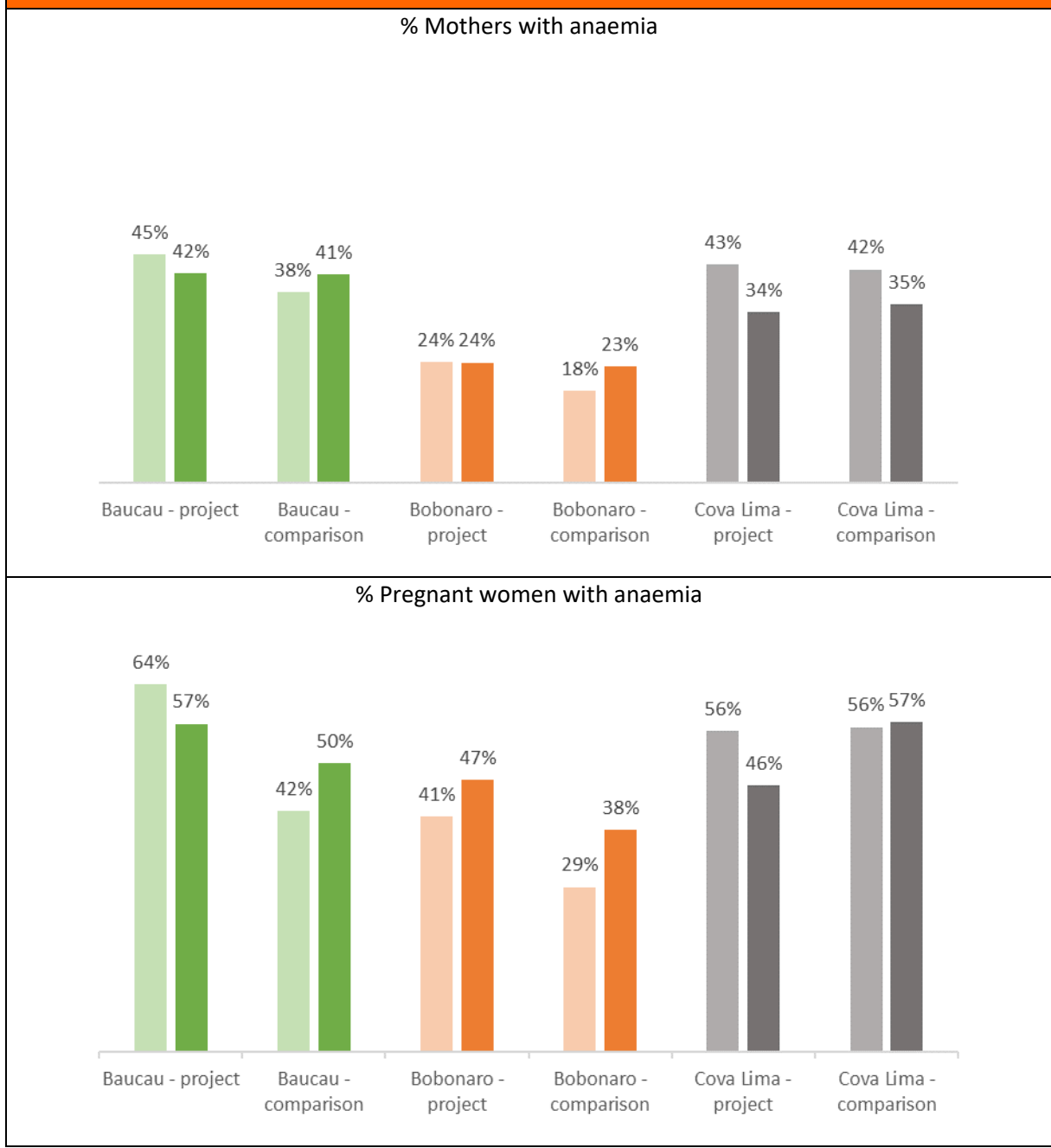
b. % Pregnant women with MUAC <23.5cm



Anaemia is defined among non-pregnant women as Hb<120g/L and for pregnant women Hb<110g/L. Prevalence rates in the baseline and endline samples are shown in Figure 10.5.4. Among mothers of children 0-59 months in project areas, rates have decreased in all three locations. Conversely, anaemia prevalence appears to have worsened in comparison areas of Baucau and Bobonaro, and the decline in Cova Lima does not appear as strong as in project areas.

The story for pregnant women is somewhat similar, although prevalences have risen in both project and comparison areas of Bobonaro. DiD estimates for mothers and for pregnant women, however, are not statistically significant.

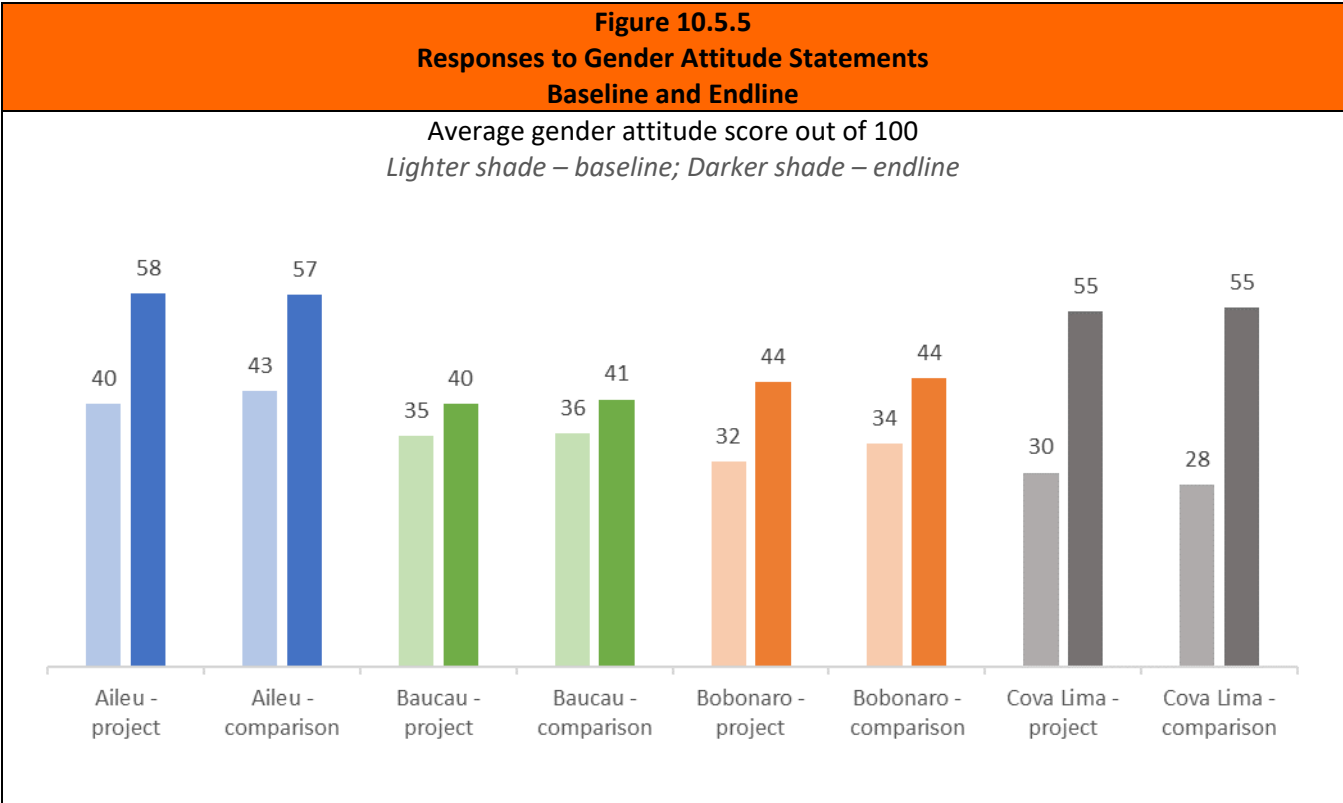
Figure 10.5.4
Anaemia among Mothers and Pregnant Women
Lighter shade – baseline; Darker shade – endline



The final two goal-level indicators relate to gender attitudes and decision-making. The gender attitudes indicator is defined as the average proportion of gender-positive responses to a set of 10 gender attitude statements as follows:

Table 10.5.1 Gender Attitude Statements	
Gender Attitude Statement	Gender-Positive Response:
1. Men must make the final decision about how the household's money is spent	disagree
2. It is natural that men hold the power in the household	disagree
3. Looking after house and home is a woman's responsibility	disagree
4. It is appropriate for women to work outside the home	agree
5. There are times when a woman deserves to be beaten	disagree
6. Women must tolerate violence to keep the family together	disagree
7. If a husband beats his wife, others in the community must intervene	agree
8. It is normal and acceptable for men to harass women in the street	disagree
9. Women are better than men at looking after children	disagree
10. I can make decisions that are important to me - where I go, who I see, etc	agree

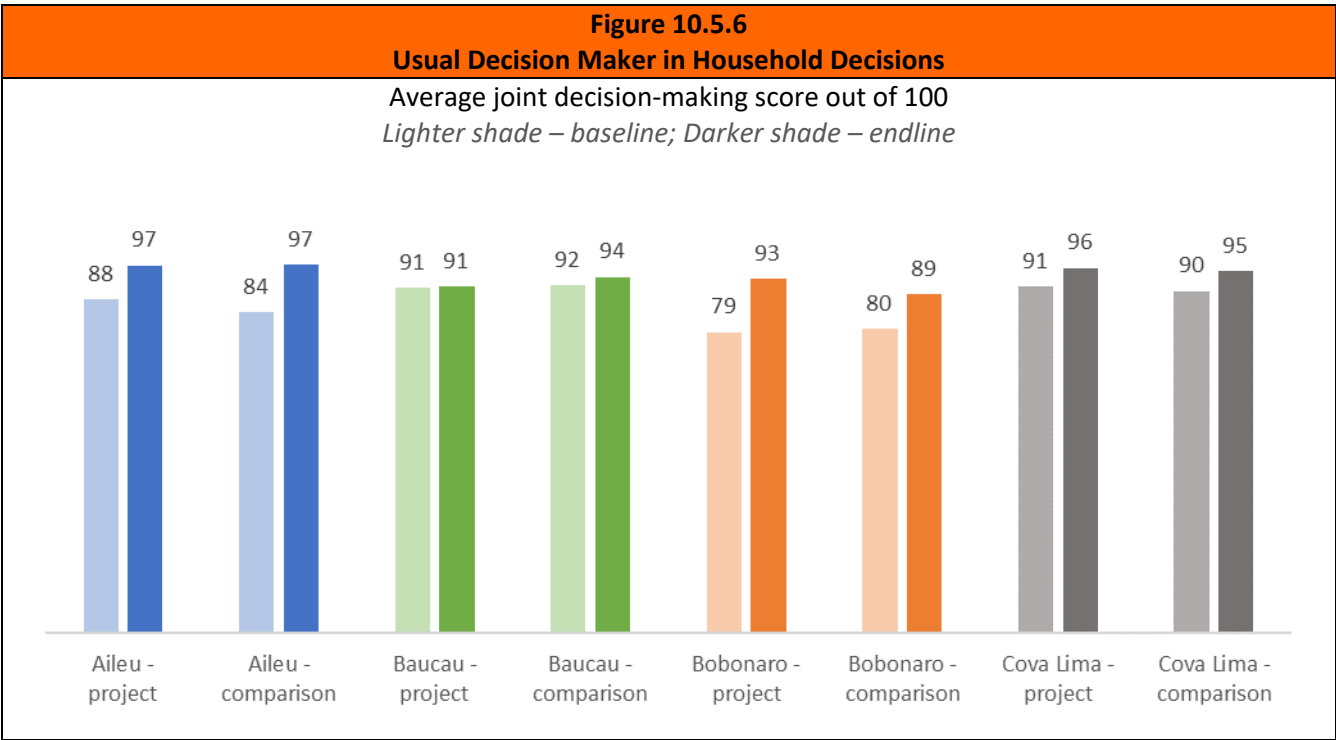
Figure 10.5.5 presents the average gender attitude score by location at baseline and endline. With a maximum score of 100, higher scores are more gender-positive. Scores have increased dramatically between baseline and endline, particularly in Aileu and Cova Lima, but DiD estimates are not.



The final goal-related indicator relates to joint decision-making in the household, and is based around set of six household decisions:

1. What food to cook daily
2. Whether to buy meat at the market to eat
3. How to use eggs from the household's chickens
4. Purchases for the household that involve large amounts
5. Place for treatment when someone is sick
6. Place and person to assist with childbirth

The joint decision-making score is defined as the proportion of decisions made either by a female member, or a male and female household member jointly. Figure 10.5.6 shows the average score out of 100, where a higher score means more decisions are made jointly or by a woman in the household. While scores were already quite high at baseline, the rates have improved since baseline across all locations. There were no significant DiD effects.



Sustainability, and indeed ongoing improvement in the trajectory of project outcomes are promising. Households are motivated and confident to continue their new knowledge, skills and practices. PSF feel empowered and equipped. In its final stage of project activities, BFBH instigated a solid transition plan to transfer ownership and responsibilities to local government partners. This included development of a national module on Nutrition Sensitive Interventions through Parenting Education which utilised the BFBH Parents Club curriculum.

13. Conclusions & Recommendations

BFBH has had impressive uptake and reach, and groups are inclusive of men, women and PWD. The project has achieved outstanding results with respect to improving health and nutrition practices (outcome 1). Many more households are producing superfoods, although the quantities per household are small (outcome 2). Many more households are putting aside savings and earning income from superfoods (outcome 3). The project has instigated a solid transition and the community is motivated and committed to continue (outcome 4). While the project has achieved its gender-related goals, it has not achieved those related to nutrition, at least with respect to the indicators. Reasons for this will need to be further understood and addressed in order for the expansion phase to be successful.

Recommendations

1. Continue to prioritise and tailoring 'superfoods' by location in expansion areas.

The range of superfoods available under the BFBH project, enabling different areas to adopt the particular superfoods that are most suitable to their agro-geographical climate, has proven to be very successful in overall adoption of superfoods.

2. Do not shy away from addressing taboos.

The progress and innovation in addressing taboos in Baucau 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 yield. Ways to address this – whether by improving the availability of water or by pursuing water-saving 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 develop realistic birth plans.

Despite great progress in the number of births taking place at hospital and a high demand for giving birth at hospital, there are still large numbers of mothers giving birth at home (without a skilled birth attendant present) due to being unable to reach hospital or a skilled professional not being available. BFBH should continue to 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 some nutrition-related indicators did not return better results

In particular, these include:

- Diarrhea prevalence despite shifts in hygiene knowledge and access to facilities.
- Stunting, wasting, underweight and anaemia despite improvements in nutritional intake.

Reasons may be due to the way they were measured or because of other factors influencing outcomes. Could the common thread here be water quality and access?

7. Consider ways to further support and develop financial literacy in savings and loans groups, particularly among women

8. Review indicators and/or evaluation methodology, utilising group monitoring data where appropriate.

The project team as well as the communities expressed fatigue at the amount 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. 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 future?

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

The baseline and endline data is 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. The LQAS monitoring data could potentially also be analysed further.

14. Limitations

The results in this Study should be considered bearing in mind that the program operated throughout the COVID-19 pandemic, which will have had implications for health access, utilisation and outcomes. It will also have an impact on incomes and demand and supply of products. Communities were also struck by a number of other adverse events including Fall Armyworm infestations, resulting in crop loss in April 2020, African Swine Fever outbreaks which resulted in significant loss of livestock from September 2019 and unfavourable climate conditions in 2019/20 including drought followed by erratic rainfall and flooding which resulted in delayed planting and crop loss.

Furthermore, data was collected at different points in time: the project started as a pilot project in Aileu municipality in July 2016 with baseline conducted in July 2017, whereas the baseline for expansion districts was conducted in January-March 2018. Endline was conducted in Aileu in November 2021, while Bobonaro, Cova Lima and Baucau were conducted in January-February 2022. Thus results may reflect seasonal as well as locational differences.

Due to restrictions on international travel, the lead evaluator Katy Cornwell was unable to conduct any KIIs or FGDs in person. While the WVTL field team were extremely competent in conducting qualitative studies, some nuances and means of triangulation may have been inadvertently missed.

Sukus in the baseline and endline samples have a varied history with WVTL programming, and in particular the comparison areas should not be considered as true 'control' suku.

15. Annexes

Annex 1: Project design document



BFBH ANCP PDD
Narrative 31 Oct 2017 (includes logframe and theory of change)

Annex 2: Endline evaluation TOR

Annex 3: Overall M&E key evaluation questions

Annex 4: Endline data collection tools

Annex 5: Endline sample size by aldeia

Annex 6: Project ITT and complete set of endline results

Annex 7 WVTL Response