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## **IDEAL STUDY REPORT**

# **Mixed method study on household and community factors associated with sustained and spontaneous adoption of key food and nutrition security practices among communities in northern Vietnam**



Chang Thị Dung, a project beneficiary living in Ngai Chu Hamlet of Lai Chau Province is holding her beautiful, healthy baby. - Helen Keller Int'l Vietnam

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This is the final report of the study entitled, “**Mixed method study on household and community factors associated with sustained and spontaneous adoption of key food and nutrition security practices among communities in northern Vietnam**”. The study used both quantitative and qualitative methods to assess the sustainability and spill-over effects of enhanced homestead food production activities up to four years after the projects ended in Son La Province (implemented from 2014-2016) and in Hoa Binh and Lai Chau Provinces (phase I implemented from 2017-2019). The projects were developed and implemented by Helen Keller International Vietnam in close collaboration with many local partners and with support from the Helen Keller International Regional Office Asia.

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## Acronyms

ASC	Agricultural Service Center
CDC	Center for Disease Control
CEMA	Committee for Ethnic Minority Affairs
CF	Community or Commune Facilitator
CHC	Commune Health Center
CI	Confidence Interval
CPC	Commune People's Committee
CU5	Children Under Five Years of Age
DDS	Dietary Diversity Score
DHC	District Health Center
DPC	District People's Committee
EHFP	Enhanced Homestead Food Production
FCS	Food Consumption Score
FGD	Focus Group Discussion
FU	Farmer's Union
Helen Keller	Helen Keller International
HFIAS	Household Food Insecurity Access Scale
HFSN	Household Food Security and Nutrition
HHS	Household Hunger Scale
IDI	In-depth Interview
IYCF	Infant and Young Child Feeding
KII	Key Informant Interview
IDEAL	Implementer-led Design, Evidence, Analysis and Learning
MAD	Minimum Acceptable Diet
MARD	Ministry of Agriculture and Rural Development
MDD	Minimum Dietary Diversity
M&E	Monitoring and Evaluation
MOH	Ministry of Health
NIN	National Institute of Nutrition
OR	Odds Ratio
SD	Standard Deviation
USAID	United States Agency for International Development
VMF	Village Model Farmer
VND	Vietnamese Dong
WASH	Water, Sanitation, and Hygiene
WU	Women's Union



## Executive Summary

### Background and Rationale

Nutrition-sensitive agriculture programs aim to improve diets of vulnerable women, children, and families by strengthening agricultural and food systems to deliver accessible and affordable nutrient-rich foods. To enhance impact, these programs should also focus on improving other key nutrition-sensitive and nutrition-specific behaviors and practices. By increasing production and improving consumption of high-quality food and improving key health, care, and nutrition behaviors, malnutrition and food insecurity can be reduced.

Over a 25-year period, Helen Keller International (Helen Keller) developed an integrated nutrition-specific and nutrition-sensitive program model that uses agriculture as the delivery platform through which disadvantaged household in (primarily rural) food insecure areas receive a package of services to improve household nutrition and food security, and specifically, improve nutrition status of young children and pregnant and lactating women. The multisectoral program, entitled Enhanced Homestead Food Production (EHFP), includes agriculture, nutrition, health, gender empowerment and income generation strategies that simultaneously promote optimal nutrition, care and health practices and establishes a system for year-round food availability and intake of diverse nutrient- (and micronutrient-) rich foods. The model marries production of plant and animal source foods (through home gardens, small animal rearing, and agriculture support mechanisms) with nutrition education and behavior change communication using the essential nutrition actions framework, highlighting promotion of optimal breastfeeding and complementary feeding. Ensuring that adequate water, hygiene, and sanitation (WASH) interventions are promoted is also key to optimize the program's success. The EHFP model targets women, especially pregnant women, and those with children under two years of age, and empowers them as the primary beneficiaries of training, services, and inputs. The model establishes community resources as Village Model Farms (VMF) by providing additional training and inputs so the VMF can serve as a sustainable support mechanism for the household farmers in her group and become a small private enterprise selling or providing future inputs to the community.<sup>1</sup>

Although Vietnam has achieved a significant reduction in malnutrition among children under five years of age during the last decade, malnutrition among young children and women remains a public health concern in Vietnam. The rate of malnutrition is particularly high in the underserved, northern part of the country, with Son La, Lai Chau and Hoa Binh Provinces having the highest prevalence of undernutrition.<sup>2</sup> The EHFP model described above was therefore adopted to the Vietnam context in 2014 and a small project was piloted among 300 households in Son La Province from 2014-2016. It was adjusted based on lessons learned during the pilot and implemented in two phases in Hoa Binh and Lai Chau Provinces from 2017-2021 (Phase 1 among 600 households from 2017-2019 and Phase 2 among 600 households from 2019-2021).

The EHFP model, implemented in many countries throughout Asia, has been monitored and evaluated extensively and has shown improvements in food production, nutrition, food security, women's empowerment, and livelihood indicators among the beneficiary households.<sup>1</sup> To be considered effective, however, development projects should result in changes that last beyond the duration of the projects themselves, without the continued

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<sup>1</sup> Haselow NJ, Stormer A, Pries A. Evidence-based evolution of an integrated nutrition-focused agriculture approach to address the underlying determinants of stunting. *Maternal & Child Nutrition* (2016), 12 (Suppl. 1), pp. 155–168 <http://onlinelibrary.wiley.com/doi/10.1111/mcn.12260/epdf>. May 2016

<sup>2</sup> National Institute of Nutrition, Data bank of Child nutrition situation in Vietnam *Data bank of Child nutrition situation in Viet Nam (from 1999 to 2017)* <http://chuyentrang.viendinhduong.vn/vi/so-lieu-thong-ke/so-lieu-thong-ke.html>

provision of external resources to sustain benefits.<sup>3</sup> Yet, there was inadequate evidence on whether improvements made through implementation of EHFP are sustained by households after the projects' completion. To provide evidence regarding sustainability (and spill-over) of EHFP in Vietnam specifically, as well as to contribute to the general knowledge base on the topic, Helen Keller sought funding from the USAID-funded *Implementer-led Design, Evidence, Analysis and Learning (IDEAL) Activity* through Save the Children, to conduct a study entitled, "Mixed method study on household and community factors associated with sustained and spontaneous adoption of key food and nutrition security practices among communities in northern Vietnam" (abbreviated as IDEAL Vietnam EHFP Study).

### **Study Design and Analysis**

The IDEAL Vietnam EHFP Study used both quantitative and qualitative methods to assess the sustainability and spill-over of EHFP interventions (primarily home food production and consumption and nutrition- and health-related practices) among households that completed EHFP activities in northern Vietnam in the provinces of Son La, Hoa Binh, and Lai Chau. Data collection and analysis included data from both primary sources (IDEAL Study quantitative survey data and qualitative data collected in all three provinces) and secondary sources (the EHFP Baseline and Endline Survey Reports from Phase I of the Hoa Binh and Lai Chau Project). The primary respondents were women with young children who had participated in one of the EHFP Projects (selected in a stratified random sample), as well as other project beneficiaries (VMFs and Community Facilitators - CF) and stakeholders from village to national level. A total of 353 households participated in the IDEAL Vietnam EHFP quantitative survey. About 40% of the households were in Tam Duong District (Lai Chau Province), about 40% were in Lac Son District (Hoa Binh Province) and about 20% were in Phu Yen District (Son La Province). Qualitative data was collected from 108 stakeholders through 28 interviews at national, provincial, district, commune, and village levels in all three provinces. A purposive sampling method was used to ensure that both EHFP-engaged and non-engaged respondents were included.

The study design was somewhat complex as it assessed sustainability of EHFP activities in multiply ways – by comparing EHFP Project outcomes and by assessing households that sustained EHFP activities compared to households that did not sustain activities several years post-project-completion. An analysis was done using three data points (mean scores of key output and outcome indicators from the EHFP Project Baseline, EHFP Project Endline and the IDEAL Study) to give a longer perspective on change in key indicators over time – from before project implementation to several years after implementation ended (at the time of the IDEAL Study data collection). Sustainability of the EHFP intervention was assessed by comparing quantitative output and outcome indicators collected from project beneficiaries during the EHFP Project Endline Survey (from Phase I households in Hoa Binh and Lai Chau Provinces only since there was no endline survey done in Son La Province) and the IDEAL Vietnam EHFP Study. In addition, sustainability and spill-over of EHFP Project interventions/activities at household and community level were assessed in the IDEAL Study by classifying beneficiary households (from all three provinces where EHFP had been implemented) as "sustained" or "un-sustained" based on whether (or not) they had maintained levels of household food production. Qualitative data was collected using in-depth interviews, key informant interviews, and focus group discussions to provide insights to understand the reasons for positive, negative or no changes in key indicators, in sustainability of EHFP promoted activities, and in spill-over of knowledge, practices and resources between the EHFP Project Endline and the IDEAL Vietnam EHFP Study. The qualitative analysis done during the IDEAL Vietnam EHFP Study also explored four key factors of the EHFP Project's effectivity, which is required for sustainability:<sup>3</sup> sustained capacity, sustained linkages, sustained motivation, and sustained resources.

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<sup>3</sup> <https://www.fantaproject.org/sites/default/files/resources/Exit-Strategies-Synthesis-ExecSummary-Jan2017.pdf>

Univariate analysis of the IDEAL Study data was done to describe household characteristics.  $P_1$  value (significant at  $\geq 0.001$ ) was used to compare differences in key outcomes between EHFP Baseline and Endline through Wilcoxon Matched-Pairs Signed-Rank test for continuous variables and Chi-Squared for binary or ordinary ones.  $P_2$  value (significant at  $\geq 0.05$ ) was applied for comparing differences between EHFP Project Endline and the IDEAL Study and between sustained and un-sustained households through Mann-Whitney test for continuous variables and Chi-Squared for binary or ordinary ones. Qualitative data was coded, analyzed, and interpreted using the NVivo software. Framework analysis was used to facilitate the recognition of patterns, including contradictory data or deviant cases.

## Study Results

Sociodemographic characteristics of the IDEAL Vietnam EHFP Study households are:

- Average age of respondent was  $30 \pm 5$  years
- 40% were in Lai Chau Province, 40% in Hoa Binh Province, and 20% in Son La Province
- About 9% of households were classified as poorest, 36.5% as poor, 46% as medium, 8% as rich and 0.1% as richest
- Average household size was  $5 \pm 2$  members
- Average household monthly income was Vietnamese Dong (VND)  $7.4 \pm 1.5$  million
- Ethnicity was about 50% Muong, 20% Hmong, 20% Lao, and 10% Kinh
- 5.1% of the mothers were pregnant at the time of the study
- About 23% of mothers and (15% of fathers) had never gone to school, 12.5% and (17%) finished primary school, 38% and (40%) finished secondary school, 20% and (15%) finished high school, and 6.5% (3%) attended technical school, college, or university.
- About 76% of mothers and 66% of fathers were farmers
- 84% of mothers and 72% of fathers had health insurance
- 2.6% of mothers and 2% of fathers received social insurance

As mentioned above, the EHFP Project's impact and sustainability were assessed in several ways including by measuring change across four project outcomes between the EHFP Project Baseline (2017) and Endline Surveys (2019) in Hoa Binh and Lai Chau Provinces; and between the Endline Survey and the IDEAL Vietnam EHFP Study (2021).

The key results by project outcome are:

- Outcome 1 aimed to increase year-round production of safe and micronutrient-rich foods among beneficiary households. All indicators of home garden production and poultry raising increased significantly between EHFP Project Baseline and Endline Surveys (all  $P_1 > 0.001$ ). Results showed that the proportion of households having a home garden between the EHFP Project Endline and the IDEAL Vietnam EHFP Study did not change significantly (97.4% and 96.6%, respectively,  $p_2 = 0.71$ ) indicating that this activity had been maintained. Likewise, the proportion of households raising poultry did not change between the EHFP Endline (91.7%) and the IDEAL Study (92.4%),  $p_2 = 0.65$ . Although still much higher than at Project Baseline, the average number of different vegetables grown in households' home gardens during the previous month and the average number of poultry currently owned per households decreased significantly between EHFP Project Endline and the IDEAL Study by two types of vegetables (from 9.9 to 7.7 types,  $p_2 < 0.001$ ) and by six poultry (from 41 poultry to 35 poultry,  $p_2 < 0.001$ ), respectively. Qualitative data confirmed the quantitative results with informants noting they maintained techniques for year-round home food production after the project ended and that vegetable production was enough to meet the year-round consumption needs of households; some households even produced an excess of fruits and vegetables for sale to generate income. There were, however, challenges that led to a decrease in home-gardening and livestock production among some households after project support ended. Lack of money to buy vegetable/fruit seeds/saplings, fertilizers, probiotics,

chicks/livestock, and animal feed was mentioned the most; with adverse weather, plant and animal disease, lack of water, lack of local resources for quality seeds and breeds, and lack of market connection for sale of surplus products, mentioned as limiting EHFP production.

- Outcome 2 aimed to increase consumption of micronutrient-rich foods and to improve infant and young child feeding (IYCF) practices among target households, particularly among women of young children and children aged 0-23 months. Households at the EHFP Project Endline had significantly better indicators for household food security level and prevalence than those at the EHFP Project Baseline. There was no difference in household hunger scores between the EHFP Project Baseline and Endline Surveys, as the percentage of households with little or no hunger remained high at about 97%. Two years post-project completion, results showed a continued improvement in household food security with the Household Food Insecurity Access-related Scale Score decreasing by about 2 points between the EHFP Project Endline and the IDEAL Study from  $4.1 \pm 4.4$  to  $1.8 \pm 2.8$ , respectively ( $p_2 < 0.001$ ). The percentage of households who were food secure more than doubled, from 28.5% at EHFP Project Endline to 62.9% in the IDEAL Study ( $p_2 < 0.001$ ). The proportion of households with little and no hunger in the previous 24 hours (based on the Household Hunger Scale Prevalence) and with acceptable food consumption scores in the IDEAL Study were high, 96.9% and 93.8% respectively. For dietary diversity, there was an increase in the average number of food groups consumed by children 6-23 months, from  $3.7 \pm 1.5$  in the EHFP Project Endline to  $4.8 \pm 1.4$  in the IDEAL Study,  $p_2 < 0.001$ . The average number of food groups consumed by women in the previous 24 hours did not change significantly, remaining at around 4 food groups/day. There was an increase in the percentage of children 6-23 months that consumed  $\geq 5$  food groups<sup>4</sup> from 37.0% at EHFP Project Endline to 56.7% in the IDEAL Vietnam EHFP Study ( $p_2 < 0.001$ ), while there was no significant change in the percentage of women who consumed  $\geq 5$  food groups<sup>5</sup> (43.1% to 41.1%,  $p_2 = 0.62$ ) between these studies. The IDEAL study showed that 72.4% of households had high dietary diversity ( $\geq 6$  food groups). Qualitative data supported these results in that many respondents indicated that after guidance from the EHFP Project, mothers had improved knowledge about nutrition, IYCF, dietary diversity and cooking methods and practiced these for their families' food consumption. Reasons for not continuing with promoted practices were that some households could not afford frequent nutritious food, children did not like the more diverse meals, and that changing food behaviours (from traditionally eaten food) is difficult, particularly among grandparents who may be caretaking for the children.
- Outcome 3 aimed to improve water, sanitation, and hygiene practices for target households. The results showed that all WASH indicators increased significantly between the EHFP Project Baseline and Endline (all  $p_1 < 0.001$ ). Although still much higher than at Project Baseline, there was, however, a significant decrease in two out of three indicators regarding WASH practices between the EHFP Project Endline and IDEAL Vietnam EHFP Study. The proportion of households who had a designated place for handwashing with clean water and soap reduced from 77.2% to 61.5% ( $p_2 < 0.001$ ); the proportion of mothers who correctly practiced handwashing at least twice at appropriate occasions during the day declined from 69.5% to 61.8% ( $p_2 < 0.001$ ); but the proportion of households who used an appropriate water treatment method to make water safer for cooking remained the same at 47.4% and 46.7%, respectively ( $p_2 = 0.17$ ). The qualitative data did not provide many insights regarding WASH practices except that

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<sup>4</sup> Minimum Dietary Diversity (MDD): Proportion of children 6–23 months of age who receive foods from at least 5 out of 8 food groups during the previous day (WHO, 2020)

<sup>5</sup> Minimum Dietary Diversity for Women (MDD-W): proportion of women 15–49 years of age who consumed food from at least 5 out of 10 food groups during the previous day (FAO & FHI, 2016)

overall village cleanliness had improved by keeping livestock better contained in barns or pens so that manure is not spread indiscriminately throughout the village streets.

- Outcome 4 aimed to increase income of households from sale of excess EHFP products through access to small-scale food processing facilities and markets. All indicators regarding income from sale of excess EHFP products increased significantly between the EHFP Project Baseline and Endline Surveys (all  $p_1 < 0.001$ ). Although still considerably higher than at Project Baseline, by the IDEAL Vietnam EHFP Study, the average income (in the last three months) from sale of home garden vegetables and poultry was lower than at Project Endline. Income from sale of vegetables was VND 202,700 compared to VND 163,900 ( $p_2 < 0.001$ ) at EHFP Project Endline and the IDEAL Vietnam EHFP Study, respectively; and income from sale of poultry was VND 862,500 in the EHFP Project Endline compared to VND 715,600 in the IDEAL Vietnam EHFP study ( $p_2 < 0.001$ ). In addition, data from the IDEAL Vietnam EHFP Study indicated that only about 16% of households surveyed had sold any fruits, vegetables, or poultry in the past 3 months. Qualitative analysis indicated that the reasons for the decrease in income from selling excess EHFP products includes that vegetable and poultry production is enough for the family's consumption only, disease of plants and animals reduced production, and because many households grow the same seasonal vegetables, there are few local buyers and links to markets are not yet established. In addition, the COVID-19 pandemic in 2020 and 2021 heavily impacted supply chains and access to markets causing instability procuring agriculture resources and in pricing.

As mentioned, the overall aim of the IDEAL Vietnam EHFP Study was to better understand sustainability and spill-over of the EHFP Project activities at household and community level; and this was assessed in multiple ways including by classifying beneficiary households (from all three provinces where EHFP had been implemented) as “sustained” or “un-sustained” based on whether they had maintained levels of household food production or not. The IDEAL Vietnam EHFP Study classified EHFP sustained households (those that continued EHFP activities post project closure) as those having at least nine different vegetables growing in the household garden in the previous month before data collection and those owning at least 41 poultry (either ducks or chicken) at the time of data collection (these were just under the averages at EHFP Project Endline). About 40% of households met the criteria of EHFP-sustained households. Sixty percent of households were considered not sustained because they had less than nine different vegetables in the previous month and owned less than 41 poultry birds. The criteria were quite conservative but allowed categorization of households to assess factors between households that sustained EHFP activities at similar levels as during the project period and those that did not.

Key sustainability and spill-over results from the above analysis of IDEAL Vietnam EHFP Study data showed that:

- Characteristics of un-sustained households included being of Hmong or Lao ethnic groups, living in Tam Duong District of Lai Chau Province, being poor, and having mothers who did not attend high school. Households with mothers whose primary occupation was being a farmer had a higher likelihood of being sustained compared to other occupations ( $\chi^2$  test,  $p=0.03$ ). Analysis showed that the un-sustained households were over twice as likely to be food insecure (OR=2.2, 95% CI = 1.4 – 3.5,  $p=0.001$ ) and 4.5 times as likely to have unacceptable household food consumption status (OR=4.5, 95% CI = 1.3 – 15.6,  $p=0.01$ ) compared to sustained households. Similarly, in un-sustained households, the risk of not having minimum dietary diversity for children between 6-23 months old was 12 times (OR=12, 95% CI = 2 – 72,  $p<0.001$ ) as that of sustained households. Women with young children from un-sustained households were 2.1 times more likely not to reach the recommended minimum dietary diversity than those from sustained households (OR=2.1, 95% CI = 1.4 – 3.3,  $p<0.001$ ). Un-sustained

households were 2.1 times as likely to not have high dietary diversity compared to sustained households (OR=2.1, 95% CI = 1.3 – 3.5, p=0.004).

- Regarding household income, EHFP-sustained households were 2.5 times more likely to generate income from selling vegetables, fruit, or poultry in the previous three months than un-sustained households (OR=2.5, 95% CI=1.4-4.6, p=0.002 for selling vegetables and p<0.001 for selling poultry). In addition, income generated in the last three months from selling vitamin A-rich fruits was VND 348,000 for sustained households, significantly more than that for un-sustained households (VND 21,100) (Krusal-Wallis test, p=0.002).
- The spill-over impact was greater among sustained than un-sustained households. Overall, 78.5% of mothers in the IDEAL Vietnam EHFP Study shared at least one EHFP knowledge or practice with someone around them (e.g., relatives, neighbors, friends); 42.8% of mothers shared at least one EHFP knowledge or practice with members in social groups (e.g., women's association, farmers' association), and 69.7% of mothers shared at least one EHFP resource (such as seeds/seedlings of vegetables or fruits, eggs, and poultry breeds) with surrounding people. Un-sustained households were 3.2 less likely to share knowledge, practices or resources gained from the EHFP project (spill-over) compared to sustained households (OR=3.2, 95% CI = 1.5-6.0, p=0.001). Characteristics of households that were most unlikely to share EHFP knowledge, skills, and resources were from un-sustained households and came from Hmong or Lao ethnic minorities in Tam Duong District of Lai Chau Province. Additionally, some household characteristics such as location, ethnicity, and mother's education ( $\chi^2$  test, p<0.001), and household wealth (post-hoc test, p=0.03) were associated with spill-over impact.

In addition to the quantitative analysis, the qualitative analysis done during the IDEAL Vietnam EHFP Study explored four key factors of the EFHP Project's sustainability: sustained capacity, sustained linkages, sustained motivation, and sustained resources.

- Sustained capacity appears as the most significant achievement of the EHFP Project among the previously targeted communities. Beneficiary households stated that they continued to apply knowledge and skills on how to develop and maintain home gardens as it provides year-round home food production. Examples of practices that were sustained include: keeping home vegetable gardens, creating raised beds, improved fencing, composting, and increasing diversity of vegetables that are nutrient-rich. Many of the sustained households have also improved livestock (e.g., poultry, pigs) production practices, including making barns, disinfecting barns, getting livestock vaccinated, and seeking veterinary services for sick livestock. Targeted mothers and caregivers also maintained practices on proper nutrition care with diverse diets and health care for their children. The sustained capacity of the project was also enhanced by improvement in local facilitators' communication skills and skills to organize the community events. District and provincial managers, however, noted that it was difficult to change ingrained behaviors, especially among ethnic minority groups, so that not all households maintained the EHFP activities without ongoing external training and mentoring.
- Regarding sustained linkages, the core activities of the EHFP Project were closely aligned with national and local government programs (such as the National Program on Nutrition and the National Program on New Rural Development) and thus linkages to these programs have largely been maintained. For instance, local government continue to support households to build hygienic latrines. In addition, the IDEAL Vietnam EHFP Study showed that many village leaders engaged in former EHFP Project activities continue to seek ways to integrate the EHFP activities into the local regular activities and duties of government staff. Community groups (newly established or already present) have also integrated EHFP-related topics into their meetings about every three months.

- Interviewed households also showed sustained motivation, often because they saw benefits to continuing EHFP activities. They kept up practices on home-gardening and nutrition care and shared these with others, whereas local community partners saw the need to replicate EHFP-related communication events (such as cooking demonstrations and contest using EHFP products) to improve awareness on the benefits of providing enough home-grown food and improving IYCF-related behaviors to improve nutritional status of children in local areas.
- In terms of sustained resources, having adequate human resources was most closely linked to sustained capacity to implement EHFP activities. The EHFP Project's initial agriculture inputs (provision of seeds, saplings, piglets, ducklings and/or chicks) were also sustained or expanded, benefiting some households, particularly raising more pigs and poultry. In some areas, production of innovative EHFP products (e.g., cardamon, salmon, goats) was replicated. The spill-over benefits from activities and knowledge gained through the Business Start-up Fund, now managed by the Women's/Farmer's Union, have also proven to be a sustained resource in that they continue to support additional home farmers with small loans. Notwithstanding the positive aspects of these sustained resources, the number of households benefiting from them is still limited.
- Regarding spill-over specifically, much of it happened organically by non-beneficiary households observing positive changes (related to food production, nutrition and IYCF) of beneficiary households and having informal discussions about how to achieve these changes. Non-beneficiary households also learned of EHFP activities at community meetings. Another reason for adoption of EHFP practices by non-beneficiary households was that community facilitators and VMFs intentionally shared knowledge and practices, and once tried, they saw personal benefits. The most shared knowledge and adoption of new practices was about childcare and child feeding, followed by home gardening and poultry-raising.

### **Summary of Study Results/Conclusion**

The EHFP Project succeeded in improving all indicators of the four key project outcomes during the life of the project. Although these indicators were still much better than at Project Baseline, two years post-project (at the time of the IDEAL Study) many of the outcome indicators were not sustained at the level of the Project's Endline, indicating the Project's effectivity was not optimal. Between the EHFP Project Endline Survey and the IDEAL Vietnam EHFP Study, results showed that households maintained the practice of home gardening and livestock raising, but the size of production decreased, primarily due to lack of money and resources. In general, there was no change or there were improvements in food security and dietary diversity among young children, women, and households several years post-project completion, which may be independent of the Project's impact. There was also a decrease in several promoted WASH practices and in income generated from sale of excess EHFP products.

60% of households were classified as un-sustained. Being of Hmong or Lao ethnic groups, living in Lai Chau Province, being poor, and having mothers with less education and who were not farmers was associated with not being able to sustain EHFP practices. Un-sustained households were more likely to be food insecure and have poor food consumption and dietary diversity scores for young children and women. These households were also less likely to generate any income from selling EHFP products. Overall, regarding the Project's spill-over effect, most households shared at least one EHFP knowledge, practice, or resource with others around them whereas about 40% shared at meetings. Members of un-sustained households were much less likely to share knowledge or resources with others.

Even so, despite the challenges faced, qualitative results indicated that many aspects of the EHFP Project's activities and structure were maintained at household and community level, which implies the potential for improving sustainability and effectivity of future projects with additional resources and some adjustments to the design. The main challenges faced to maintaining EHFP activities were insufficient money to invest in household food production, lack of water, suboptimal weather or climatic conditions for growing, plant and animal diseases and lack of local horticulture or veterinary services, difficulty to change diets and IYCF practices, and no accessible market for sale of excess plant and animal products. Key elements of the Project's sustainability and spill-over that were evident include:

- improved capacity of households to implement (and share) EHFP activities,
- maintained linkages to government programs to provide EHFP-related support as part of their regular duties,
- motivation to continue (and adopt) EHFP activities due to visible benefits and through periodic events and meetings, and
- additional community resources available (such as VMFs and CFs who continue to share knowledge and various community groups that include EHFP topics in their meetings).

### **Key Lessons Learned and Recommendations**

The IDEAL Vietnam EHFP Study aimed to garner information to improve the effectivity of the EHFP model, namely it's sustainability and spill-over, by identifying, categorizing, and sharing lessons learned to provide guidance and recommendations to policymakers, project designers, implementers, and local communities for future programming.

Key lessons learned and recommendations for project designers and implementers include:

1. A multi-sectoral approach is critical to ensure integration of agriculture, nutrition, health, gender, and livelihood components important for positive nutrition outcomes and sustainability of effective and comprehensive EHFP Projects.
2. Interventions must align with National Development Programs.
3. Interventions should engage communities and be co-designed with local stakeholders, such as community facilitators or people holding important positions in the community.
4. The home-gardening intervention should use local vegetables and seeds and include techniques for maintaining and storing local seeds/saplings for self-production.
5. The poultry-related interventions should include prevention, treatment, and management of common poultry diseases.
6. Interventions that increase farmers' link to markets and improve market access of households should be given more attention.
7. Additional livelihood and income development initiatives for poor and near-poor households that provide longer term benefits should be included.
8. Develop tailored and adapted interventions that provide more resources for the most vulnerable and for ethnic minorities.
9. Develop interventions, such as seed fairs or home food production fairs, to provide greater awareness and access to climate smart seeds, resilient seeds and seedlings, and animal breed options, particularly among remote areas and those with a high proportion of ethnic minority groups.
10. Strengthen the integration of gender and gender roles in nutrition and food security projects.
11. Develop training programs that support capacity building of CFs and VMFs to provide intensive support to households who failed or had difficulties in following practices introduced by the project



12. Design the EHFP Project with a longer timeframe. Two years is often inadequate to institutionalize change of nutrition-related behaviors, so a three-to-five-year project timeframe is better to entrench newly learned behaviors and provide more time for technical assistance to engender long-term impacts.
13. Strengthen monitoring and evaluation (M&E), dissemination and sharing of the EHFP Project's approach, results, and lessons to promote its sustainability and spill-over impacts.
14. Consider improvements in future study design on sustainability and spill-over of similar nutrition-sensitive agriculture programs including (but not limited to) collecting data on exposure of households to the different interventions/activities, include a control group, and plan for a sustainability study at the project design phase to follow households prospectively and/or at least harmonize study tools used at different times.

Specific recommendations for local governments and communities include:

1. actively integrate effective interventions into regular community activities to ensure sustainability and spill-over of project related improvements.
2. Strengthen the communication capacity of local authorities to effectively convey nutrition and WASH messages.
3. Mobilize existing resources and integrate successful EHFP interventions into community programs.
4. Prioritize replication of the most feasible and effective initiatives, such as bio-composting and raising worms.
5. Form community groups operated by mothers and previous facilitators (e.g., nutrition clubs) to increase mentorship of mothers on essential nutrition actions, WASH, and home-farming.
6. Provide follow-up coaching, mentoring and technical support from District and Commune People's Committees and from local technical agents.
7. Engage community facilitators in relevant activities of agents from local government resources such as from Commune Health Centers and Centers for Agriculture Services.
8. Guide local communities in conducting simple market analyses and assessments on market viability of agriculture products.
9. Include EFHP information, education, and communication activities (e.g., Nutrition Festival Day, cooking demonstration and other events to provide information about nutrition and agriculture) into existing local events at an affordable scale.

### **Study Limitations**

Limitations of the IDEAL Vietnam EHFP Study include:

- Data collection was delayed due to the COVID-19 pandemic restrictions for travel and social distancing requirements. Interviews were subsequently conducted remotely in one of the three project sites, using online platforms. As a result, there was some contextual information lost during some focus group discussions and in-depth interviews.
- Data on exposure levels of households to specific activities during the EHFP Project (i.e., level of attendance and participation in the training, and participation in communication sessions) or after the EHFP Project ended, were not collected. Exploring the exposure of households to specific EHFP activities would be useful in providing a more in-depth look at what project activities contributed the most to the longer-lasting effects of the project.
- The categorization of households as sustained and un-sustained was based on the household average for the EHFP Endline Survey for vegetables grown in the last month

and poultry currently owned, however, the range and standard deviation for these indicators were wide. Consequently, households under the average were considered un-sustained even though some of those households may have maintained or increased their production since the EHFP Endline Survey was conducted.

- The study design was quite complex considering the different data collection periods, sites and tools used for the EHFP Project Endline and IDEAL Vietnam EHFP Study. Data for the IDEAL Study was collected from targeted households in five communes from all three Provinces where EHFP had been implemented, however, project endline data was collected from only four communes in two of the provinces (where the project ended two years ago) as there was no endline data for the EHFP pilot project in Son La Province (that ended four years ago). Although the study still provided an assessment of sustainability and spill-over effects of the EHFP Project, there were limitations in comparing sustainability by geographical areas and periods.
- The IDEAL study design only explored outcome indicators of the intervention households. Due to budget limitations, the study did not include a control group to better assess EHFP Project impact.
- Helen Keller chose to test and implement the EHFP Projects in underserved rural communes, included in Program 135A of the Government, where the proportion of poor households is high (around 50%) as those are the areas that are most in need of nutrition-sensitive agriculture interventions. Because the Project budgets were small, the project scale (number of beneficiary households) was adjusted to ensure the standard EHFP package of activities could be provided to all target households. Even though M&E data from other EHFP Projects showed that certain households (ethnic minorities and poor/very poor households) would likely need additional inputs, training and support, Helen Keller did not have the financial resources to provide additional and differentiated services to these households. Consequently, a high proportion of poor households were classified as un-sustained (74.8%) in the IDEAL Vietnam EHFP Study. Lack of money and resources was the main reason given by households for not sustaining activities.

## 1. Background and Rationale

### Background for Enhanced Homestead Food Production in Vietnam

Although Vietnam has achieved a significant reduction in malnutrition among children under five years of age (CU5) during the last decades, malnutrition remains a prominent public health concern in the country. The rate of malnutrition is particularly high in the northern midland and mountain regions, where Son La, Lai Chau and Hoa Binh Provinces have the highest prevalence of undernutrition. According to the 2013 National Nutrition Survey, the prevalence of stunting and underweight among CU5 were 34.7% and 22.1% in Son La Province; 36.8% and 23.9% in Lai Chau Province; and 26.7% and 19.5% in Hoa Binh Province, which were all significantly higher than the national averages of 25.9% and 15.3%, respectively.<sup>6</sup> The northern region also recorded the highest prevalence of anemia (43.0%) among children under five (CU5) and is one of the two regions with the highest prevalence of vitamin A deficiency (19.2%) among CU5, which were well over the national averages for anemia (29.2%) and vitamin A deficiency (14.2%).<sup>7</sup> For children aged two through four years, the mean intake of animal protein in the northern region was 10.6g/child/day (meeting only 35.0% of the recommended intake), compared to a national average of 16.3g/child/day. Nationally, the daily per capita intake of vegetables met 57% of the quantity recommended by the National Institute of Nutrition (NIN), while vegetable intake was only 28% of the recommended quantity in the northern region.<sup>6</sup> Additionally, among ethnic women of reproductive age, practices and knowledge on antenatal care, postnatal care, breastfeeding, and dietary diversity are still limited.<sup>8</sup>

Agriculture plays a vital role in food production; and it is essential for both food security and nutrition security.<sup>9</sup> Enhancing food intake from foods grown in home gardens and through household owned livestock is one of the key approaches to improve nutrition and food security.<sup>10</sup> However, many households in underserved areas (like ethnic minority and mountainous areas) lack the knowledge and skills to apply sustainable agriculture practices such as using raised beds, fencing, composting, applying bio-pesticide, and livestock production.<sup>11</sup> Income of ethnic minority groups is mostly derived from agricultural activities, thus, an increase in agriculture productivity could increase income and thusly reduce undernutrition, food security and inequity.

Initiated in 1988 in Bangladesh, the Enhanced Homestead Food Production Program has become one of Helen Keller's flagship programs, helping communities establish improved local food production systems by creating homestead gardens yielding nutrient- and micronutrient-rich fruits and vegetables throughout the entire year, complemented by improved rearing of poultry, other livestock, and more recently fish in Asia. The core objective of the EHFP Program is to improve nutrition, food security and livelihoods of poor households in food insecure areas, particularly for women and children living in these households. EHFP enlists women, especially pregnant women, and those with children under two years of age, as the primary beneficiaries of training, services, and inputs. Initial farming inputs, such as quality fruit and vegetable seeds, seedlings, and saplings, as well as quality breeds of improved local poultry or other small animals are provided. These inputs are complemented by the provision of agricultural training on improved year-round food

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<sup>6</sup> National Institute of Nutrition, Data bank of Child nutrition situation in Vietnam *Data bank of Child nutrition situation in Viet Nam (from 1999 to 2017)* <http://chuyentrang.viendinhduong.vn/vi/so-lieu-thong-ke/so-lieu-thong-ke.html>

<sup>7</sup> Le Thi H. and T. Le Danh. "General Nutrition Survey 2009-2010." Vietnam, Ministry of Health, National Institute of Nutrition, UNICEF. 2010

<sup>8</sup> Vietnam MICS survey, 2014

<sup>9</sup> FAO (2017). The future of food and agriculture: Trends and challenges

<sup>10</sup> Rammohan A., Pritchard B., & Dibley M. (2019). Home gardens as a predictor of enhanced dietary diversity and food security in rural Myanmar. *BMC public health*, 19(1), 1145. <https://doi.org/10.1186/s12889-019-7440-7>

<sup>11</sup> FAO (2011). The state of World's land and water resources for food and agriculture: Managing system at risk

production techniques, combined with ongoing education in nutrition, water sanitation and hygiene, gender empowerment, marketing, and financial education. Linkages to the health system for maternal and child services and to markets for sale of EHFP products are also strengthened. Helen Keller's EHFP model incorporates a strong behaviour change communication approach that promotes local production and consumption of nutritious foods and informs and illustrates ways to improve nutrition, agriculture, and livelihoods. Through the establishment of community-based Village Model Farms, EHFP provides on-going technical support to households to expand and sustain production and consumption of micronutrient-rich food all year round. In addition, by working through local partners and women's groups, EHFP builds local capacity and ownership so that project activities can be sustained, while creating an environment conducive to reaching populations beyond the initial project beneficiaries.<sup>12</sup> Because the pathways from agriculture to improved nutrition are diverse and multisectoral, the EHFP model seeks multiple pathways to improved nutrition, by increasing both production and income generation from selling excess fruits and vegetables, and improvements in knowledge leading to better nutrition, hygiene, and healthcare practices. In addition, EHFP also seeks to increase women's agency in household decision making.

Results from monitoring and evaluation of previous Helen Keller EHFP Projects in Asian countries such as Bangladesh, Cambodia, Nepal, Indonesia, and Philippines were very encouraging. Families in communities that received EHFP showed increased availability of micronutrient-rich foods, increased dietary diversity and food consumption, reduced night blindness and anemia among children and non-pregnant women compared to communities without EHFP.<sup>12,13</sup> Therefore, in Vietnam, Helen Keller piloted the EHFP Program in Son La Province from late 2013 to 2016 providing services to approximately 300 households. The project was collectively funded by Irish Aid, the Alstom Foundation, and the Janet Carrus Foundation. After positive results of the pilot project in Son La Province,<sup>14</sup> Helen Keller Vietnam scaled up the program to Lai Chau and Hoa Binh Provinces, also in the northern mountainous area with similar context. The new project, funded by Irish Aid, was conducted in two phases: Phase 1 (April 2017-May 2019) and Phase 2 (June 2019-May 2021) benefiting 600 households in each phase. Helen Keller held discussions with local partners about the lessons learned and sustainability planning at the final review meeting at the end of the project. The local partners committed to promote key elements of EHFP, particularly home-gardening, livestock production and improved nutrition and childcare practices, and to integrate communication on the importance of these practices into their regular activities at District/Commune Centers for Agricultural Services and Health Centers.

### **Rationale for the IDEAL Vietnam EHFP Study**

The EHFP model implemented in many countries throughout Asia has been monitored and evaluated extensively and has shown improvements in food production and consumption, nutrition status, food security, women's empowerment and livelihood indicators among the beneficiary households.<sup>15</sup> An external evaluation of a homestead food production project in Bangladesh comparing current households, former households and controls showed improvement and longer-term positive effects of some key project interventions, such as women's empowerment that resulted in more control of household resources and purchase

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<sup>12</sup> Talukder A, Haselow NJ, Osei AK, et al. (2010) *Homestead food production model contributes to improved household food security and nutrition status of young children and women in poor populations: lessons learned from scaling-up programs in Asia (Bangladesh, Cambodia, Nepal, and Philippines)*. Field Actions Science Reports

<sup>13</sup> Homestead Food Production – A Strategy to Combat Malnutrition and Poverty. Helen Keller Intl-Asia Pacific. 2001

<sup>14</sup> HKI Vietnam, Final report of EHFP outcomes in Son La EHFP Project, 2017

<sup>15</sup> Haselow NJ, Stormer A, Pries A. Evidence-based evolution of an integrated nutrition-focused agriculture approach to address the underlying determinants of stunting. *Maternal & Child Nutrition* (2016), 12 (Suppl. 1), pp. 155–168  
<http://onlinelibrary.wiley.com/doi/10.1111/mcn.12260/epdf>. May 2016

of better food for their children.<sup>16</sup> Evidence from comparing the EHFP baseline and endline surveys done in the expanded EHFP Project area in Vietnam also showed improvement across key indicators.<sup>14</sup>

To be considered effective, however, development projects should result in changes that last beyond the duration of the projects themselves, without the continued provision of external resources to sustain benefits.<sup>17</sup> Yet, there was inadequate evidence on whether improvements made through implementation of EHFP are sustained by households after the projects' completion. Therefore, to provide evidence regarding sustainability (and spill-over) of EHFP in Vietnam specifically, as well as to contribute to the general knowledge base on the topic, Helen Keller sought funding from the USAID-funded *Implementer-led Design, Evidence, Analysis and Learning (IDEAL) Activity* through Save the Children, to conduct a study entitled, "Mixed method study on household and community factors associated with sustained and spontaneous adoption of key food and nutrition security practices among communities in northern Vietnam" (IDEAL Vietnam EHFP Study).

Through the IDEAL Small Grant's program, Helen Keller sought to generate both quantitative and qualitative evidence on drivers, challenges, and factors associated with sustaining agriculture- and nutrition-related practices (acquired during the EHFP Projects) two-four years post-intervention, as well as the effect of sustaining these practices on household food security, income, and women and children's nutrition. The findings and lessons learned from this study were to be used to inform policy and improve the effectivity of nutrition-sensitive agricultural program design (such as the integrated EHFP model) to better ensure sustainability among project beneficiaries and spill-over of knowledge, practices, and resources to non-beneficiary households. Lessons learned and recommendations were to be shared with stakeholders at national and regional meetings or workshops.

## 2. Objectives

**Overall Goal:** The goal of this study is to assess the factors associated with sustained adoption of practices by project beneficiaries and explore spontaneous adoption (spill-over) by non-beneficiaries, within non-emergency food security programming.

### Specific objectives:

Objective 1: Improve understanding of factors associated with sustained results, and how these factors vary across projects post-completion

Objective 2: Explore the likelihood of and factors associated with expanded benefits to new beneficiaries (spill-over effect)

Objective 3: Disseminate findings and recommendations that can be advocated by the government for policy development, and civil society for program strengthening.

## 3. Conceptual Framework

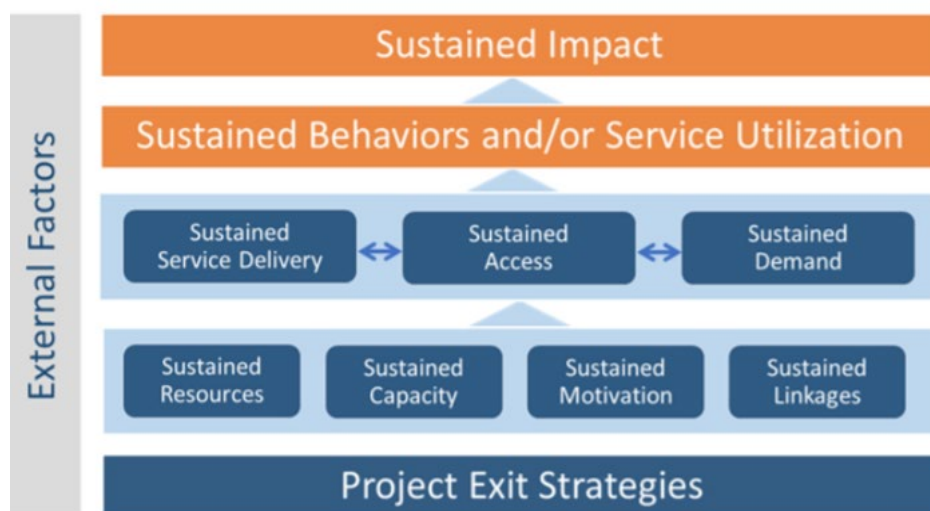
The FANTA sustainability framework (Figure 1)<sup>17</sup> illustrates how development projects can be more effective (if the promoted behaviors and service utilization are sustained) and have more lasting impact when the design includes an exit strategy (ends external inputs) only after project beneficiaries have acquired sustained resources, capacity, motivation, and linkages through sustained service delivery, access, and demand for services. The framework was used to develop tools for the study with quantitative and qualitative questions covering topics related to household nutrition practices, food production, resources, capacity,

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<sup>16</sup> Bushamuka V.N., de Pee S.D., Talukder A., Kiess L., Panagides D., Taher A. et al. (2005) Impact of a homestead gardening program on household food security and empowerment of women in Bangladesh. *Food and Nutrition Bulletin* 26, 17–25

<sup>17</sup> <https://www.fantaproject.org/sites/default/files/resources/Exit-Strategies-Synthesis-ExecSummary-Jan2017.pdf>

motivation, and linkages. Using the FANTA model, the sustainability of EHFP activities requires four key outputs to be sustained: sustained resources, sustained technical capacity, sustained motivation and incentives, and sustained linkages.



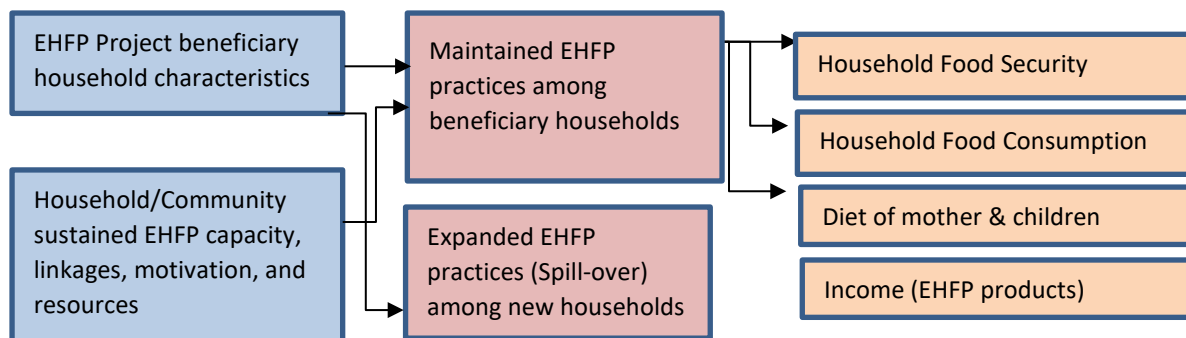
**Figure 1. Sustainability Plans and Exit Strategies Conceptual Framework**

The following were proxy indicators for each of the four output areas.

- Sustained resources:
  - Animal Standard Index
  - Garden Standards Index
  - Food Consumption Score (FCS)
  - Household Food Insecurity Access Scale (HFIAS)
  - Household Hunger Scale (HHS)
  - Household Dietary Diversity Score (DDS)
- Sustained technical and managerial capacity:
  - Village Model Farm
  - Diet of mothers and children (MDD-W, MDD, MAD, breastfeeding)<sup>18</sup>
  - Hygiene practice (water service, handwashing)
  - Children’s care (e.g., prevention and treatment of diarrheal disease)
  - Knowledge (horticultural, poultry, fertilizer, pests and diseases, small scale production of vegetable seeds)
- Sustained motivation and incentives:
  - Income of households from sale of excess EHFP products
- Sustained linkages to other organizations or entities:
  - National government programs
  - Local government and community programs

The Conceptual Framework for sustained or expanded EHFP activities and impacts shown in Figure 2 hypothesizes that household characteristics could independently influence whether EHFP practices are sustained and/or shared, but when these households and communities have sustained capacity, linkages, motivation, and resources, they are more likely to sustain EHFP practices that will then improve project outcomes of food security, food consumption, diets of mothers and children and income from sale of EHFP products.

<sup>18</sup> Minimum Dietary Diversity for Women (MDD-W): proportion of women 15-49 years of age who consumed food from at least 5 out of 10 food groups during the previous day (FAO & FHI, 2016); and Minimum Dietary Diversity (MDD): Proportion of children 6–23 months of age who receive foods from at least 5 out of 8 food groups during the previous day (WHO, 2020)



**Figure 2. Conceptual Framework for sustained or expanded EHFP activities and impacts**

#### 4. Methods

##### **Mixed-Methods Design:**

The IDEAL Vietnam EHFP Study used both quantitative and qualitative methods to assess the sustainability and spill-over of EHFP interventions/activities (primarily home food production and consumption and nutrition- and health-related practices) among households that completed EHFP activities in northern Vietnam in the provinces of Son La, Hoa Binh, and Lai Chau. Data collection and analysis included data from both primary sources (IDEAL Study quantitative survey data and qualitative data collected in all three provinces) and secondary sources (the EHFP Baseline and Endline Survey Reports from Phase I of the Hoa Binh and Lai Chau Project). A comparison was done using three data points (mean scores of key output and outcome indicators from the EHFP Project Baseline, EHFP Project Endline and the IDEAL Study) to give a longer perspective on change in key indicators over time – from before project implementation to several years after implementation ended (at the time of the IDEAL Study data collection).

The study design assessed sustainability of EHFP activities in multiply ways – by comparing EHFP Project outcomes at Project Endline and two years post project completion; and by assessing households that sustained EHFP activities compared to households that did not sustain activities several years post-project-completion. Sustainability of the EHFP intervention was assessed by comparing quantitative output and outcome indicators collected from project beneficiaries during the EHFP Project Endline Survey (from Phase I households in Hoa Binh and Lai Chau Provinces). Because there was no endline survey data from the EHFP pilot project in Phu Yen District (Son La Province), the EHFP endline data collected in Hoa Binh and Lai Chau Provinces only were used to compare with data from the IDEAL Vietnam EHFP Study. In addition, sustainability and spill-over of EHFP Project interventions/activities at household and community level were assessed in the IDEAL Study by classifying beneficiary households (from all three provinces where EHFP had been implemented) as “sustained” or “un-sustained” based on whether (or not) they had maintained levels of household food production.

Qualitative data was collected using in-depth interviews, key informant interviews, and focus group discussions to provide insights to understand the reasons for positive, negative or no changes in key indicators, in sustainability of EHFP promoted activities, and in spill-over of knowledge, practices and resources between the EHFP Project Endline and the IDEAL Vietnam EHFP Study. The qualitative analysis done during the IDEAL Vietnam EHFP Study also explored four key factors of the EFHP Project’s sustainability: sustained capacity, sustained linkages, sustained motivation, and sustained resources.

**Study participants:** Study participants were selected from targeted households and other beneficiaries of the EHFP projects that ended from two to four years ago in the intervention communes of Son La, Hoa Binh and Lai Chau Provinces. The primary respondents were

women with young children who had participated in one of the EHFP Projects and been the primary recipients of the project’s assistance. In some cases, other household members engaged in project activities were interviewed. In addition to household-level respondents, other project beneficiaries (VMFs and CFs) and stakeholders from village to national level were included in the qualitative study.

**Data collection timeframe:** Jan 2021 to June 2021

**Sampling:**

**Quantitative survey**

The quantitative survey used a stratified (by province and commune) random sample methodology to select households that participated in the pilot project in Son La Province, which ended in 2016, and Phase 1 of the EHFP scaled-up project in Hoa Binh and Lai Chau Provinces, which ended in 2019. A total sample size of 350 households was calculated to show significance of key indicators. The sample was selected from five communes in Son La, Hoa Binh, and Lai Chau Provinces. All households included in the sample had concluded their donor funded EFHP activities two to four years prior, before being selected for this study. Within each household, the survey was administered to a key respondent that had been involved in the EHFP activities.

353 households from five communes were surveyed:

- Tan Lang commune in Phu Yen District in Son La Province
- Yen Phu and Tan Lap Communes in Lac Son District in Hoa Binh Province
- Son Binh and Na Tam Communes in Tam Duong District in Lai Chau Province

**Qualitative interviews and focus group discussions**

Sequential qualitative data was collected using in-depth interviews (IDI), key informant interviews (KII), and focus group discussions (FDG) from national partners (National Institute of Nutrition-NIN, Ministry of Health-MOH, Committee for Ethnic Minority Affair-CEMA, Ministry of Agriculture and Rural Development-MARD); provincial partners (Centers for Disease Control-CDCs); district partners (District People’s Committee-DPCs, Farmer’s Unions-FUs, Women’s Unions-WUs, District Health Centers-DHCs, Agricultural Service Centers-ACs); commune partners (Commune People’s Committee-CPCs, Commune Health Center-CHCs, village model farmers-VMFs, Community facilitators-CF); and households (EHFP sustained and un-sustained households). In total, there were 108 people who joined in the 28 data collection sessions (see Table 1).

A purposive sampling method was used to select informants for the qualitative data. For national and provincial partners, managers, and specialists knowledgeable on project activities or policies relating to nutrition and food security were invited for interviews. With the CFs and VMFs, FDG were conducted with people from two groups 1) strong, enthusiastic, highly committed, skillful; and 2) less active and less committed. The selection criteria included households who did well, and those who failed in EHFP practices. Selection criteria for failed farmers included one or more of the following: death of the project-supported vegetables and animals; low yield of year-round food production; children who remained on the list of those who were “malnourished”; absence from the communications and cooking demonstrations; and low interest in the project services and household coaching and technical support provided. The selection of key informants was conducted together by members of the project team and key government partners in the communes and districts.

**Table 1. Total number of qualitative IDI, KII and FDG conducted**

Stakeholder	Tool	No. of interviews	No. of participants (M/F)	Nation-al	Provin-cial	Lac Son	Tam Duong	Phu Yen
National partners	IDI	4	4 (2/2)	4				



Stakeholder	Tool	No. of interviews	No. of participants (M/F)	National	Provincial	Lac Son	Tam Duong	Phu Yen
Provincial partners	IDI/KII	3	4 (3/1)		4			
District People's Committees	IDI/KII	2	3 (3/0)			2	1	
District technical partners	FGD	3	8 (2/6)			3	3	2
Commune Peoples Committees (*)	IDI/FGD	2	4 (4/0)			3	1	
Commune specialists	FGD	3	21 (5/16)			8	6	7
CFs and VMFs	FGD	3	20 (7/13)			8	5	7
Households	FGD	8	44 (2/42)			30	8	12
<b>Total</b>		<b>28</b>	<b>108 (28/80)</b>					

Notes: \*informants from CPCs in Lac Son and Phu Yen District joined in the FGDs of commune specialists), M = male, F = female, KII = key informant interview, IDI = in-depth individual interview, FGD = focused group discussion. The details of the informants are available to eligible people upon request.

### Measurement/tools:

All data collection tools were developed and administered in Vietnamese and only translated to English for the purpose of this report.

**Quantitative tools.** A household survey tool/questionnaire was designed to measure the four following outcomes:

- Outcome 1: Improved year-round production of safe and micronutrient-rich foods
- Outcome 2: Improved consumption of micronutrient rich foods and IYCF for target households, particularly women of reproductive age and children aged 0-23 months
- Outcome 3: Improved WASH practices for target households
- Outcome 4: Improved income of households from sale of excess EHFP products through access to small-scale food processing facilities and to market

The questionnaire was designed to assess whether EHFP-supported activities and agriculture techniques (e.g., home garden fencing, bed raising) were still being practiced among previously supported households and if households still maintain optimal nutrition practices. The questionnaire was pretested and modified to ensure clarity (See Annex 1 for the quantitative household survey tool). The questionnaire included seven different parts:

#### i. Household information

The first section of the questionnaire includes basic demographic questions regarding household location, education level, number of household members, age of respondent, education of caretakers, employment, income, ethnicity, pregnancy status, having a health insurance card and receiving social insurance. The demographic data was used to further explore the socio-demographic factors that are associated with positive and negative outcomes.

#### ii. Household wealth ranking, drinking water and hygiene

The second section of the questionnaire includes household assets for the calculation of wealth quintiles, the current situation on drinking water, hygiene, and sanitation.

#### iii. Garden and animal index

This section focuses on the Garden Standard Index and Animal Standard Index as well as house finance management. These data will be compared to the EHFP Project Endline data to assess sustainability of promoted home-gardening, and poultry and livestock production practices adopted by targeted households, and the extent to which the adoption of these practices contribute to improved diets.

- Garden Standard Index includes home gardening practices such as fencing, bedding, bio-composting, using herb-based pesticides, year-round production, rotating crops, and diversity of current crops in home gardens
- Animal Standard Index includes poultry production status, facilities for keeping poultry and vaccination
- Homestead food production knowledge includes potential advantages of having home gardens and producing animals, methods to improve soil fertility, important considerations when storing seeds or poultry management
- Income of households from sale of excess EHFP products

#### **iv. Household food security**

Household food security is assessed using Household Food Insecurity Access Scale measurement tool, which has been tested and adapted for the Vietnamese context. The questionnaire consists of nine questions intended to measure levels of food insecurity (access), and nine “frequency-of-occurrence” questions that are asked as a follow-up to each occurrence question to determine how often the condition occurred. The HFIAS occurrence questions relate to three different domains of food insecurity found to be common in a cross-country literature review. The generic occurrence questions are grouped by three domains:

- Anxiety and uncertainty about household food supply
- Insufficient quality (includes variety and preferences on type of food)
- Insufficient food intake and its physical consequences

#### **v. Diet of household members, mothers, and children**

24-hour dietary recall data was collected from mothers to estimate dietary diversity of mothers and their children. Data on household food consumption was collected to calculate FCS and food security scores using the HFIAS.

#### **vi. Children’s healthcare practice and mothers’ knowledge**

This module collected women’s knowledge on nutrition and WASH. It includes dietary diversity, micronutrient and WASH knowledge, and practices on child illness and seeking treatment.

#### **vii. Spill-over of the mother’s knowledge and skills**

This module explored the spill-over effects on women’s knowledge and skills regarding gardening and childcare to surrounding residents.

**Qualitative tools** include interview guides for IDIs and FGDs. These tools aim to give further insights into associated factors and reasons underlying observations of changes between the EHFP Endline and IDEAL Vietnam EHFP Study follow-up. The interview guide addressed the priority questions relating to sustainable results on food production and nutrition care after the project ends; factors motivating for sustainability and spill-over; challenges to sustainability; and recommendations. The interviewers were trained to be flexible in using open-ended questions and guiding discussions to get more in-depth responses. (See Annex 2 for the interview guide).

#### **Data collection:**

##### **Quantitative survey**

Quantitative data collection was conducted in January 2021. The study was conducted during a period similar to the previously conducted EHFP Project Endline Survey to allow for comparability in output and outcome indicators across the separate studies given the influence of seasonality on nutrition, food security, food production and consumption.

Experienced final-year bachelor students from the Hanoi School of Public Health were recruited as enumerators. Local leaders (village heads, commune heads, and Helen Keller field staff) supported the enumerators by introducing them to the project beneficiary households. Each participating household was informed of the purpose of the survey, the information that would be asked of them, any other data to be collected, an estimation of their time commitment needed for the interview, and risks/benefits, if any. Respondents were then asked to give their consent to participate in the survey.

Supervisors visited the scheduled interviews randomly and reviewed all completed questionnaires at the end of each day to check for completeness.

All data was collected using tablets and/or mobile phones through the KOBO online app. Access to data was restricted to enumerators, and only the M&E consultant, Helen Keller manager and advisor could access the data. After data collection was completed, the data was fully analyzed to address research questions and evaluation objectives. The data was also de-identified of all personal identifying information. There were no paper forms to be disposed of.

### ***Qualitative survey***

Interviews and discussions were conducted and recorded. On average, each interview lasted 45-60 minutes. While IDIs and FGDs in Hoa Binh and Lai Chau Provinces were conducted in-person, other interviews with national partners and key informants in Son La Province were conducted virtually due to the COVID-19 pandemic. Convenient online platforms preferred by each group of informants were used by the interviewers for these surveys. For example, Zoom or Microsoft Teams were used for the interviews with national/provincial/district key informants, while Zalo and Facebook Messenger were used to interview village facilitators and farmers as it was familiar and user-friendly for local people. After the interviews, recordings were transcribed into English, and all transcripts uploaded into NVivo version 12 for coding.

### **Data analysis:**

#### ***Quantitative data***

The post-cleaning data was exported to Stata file format (.dta) for analysis. The research team used Stata 14.2 software for data analysis. All personally identifiable information (name, year of birth, village) of the subjects were removed in the analysis files. The research results were analyzed using univariate analysis to describe household characteristics and compared with endline surveys of phase 1 of the EHFP project in Lai Chau and Hoa Binh Provinces to address the project's sustained results and factors associated with sustainability and spill-over.  $P_1$  value was used to compare the difference between EHFP baseline and endline through Wilcoxon Matched-Pairs Signed-Rank test for continuous variables and Chi-Squared for binary or ordinary ones. Meanwhile,  $p_2$  was applied for comparing differences between EHFP Endline and the IDEAL Study through Mann-Whitney test for continuous variables and Chi-Squared for binary or ordinary ones. The correlation between sustainability and other factors was controlled for confounding variables, including ethnicity, household wealth index, mothers' education level, women's occupation, husbands' occupation, number of household members and location. The findings from quantitative data also were supported by qualitative analysis.

#### ***Qualitative data***

The Helen Keller team and M&E consultants oversaw data coding, analysis, and interpretation of the transcripts from 28 IDI and/or FGD. From the interview guide, the research team developed the codebook with key themes and inserted them into the NVivo software. The research team carefully reviewed the transcripts, revised key themes, and added sub-themes. The descriptive labels and codes were then applied. These labels and

codes were organized into categories following the study's key objectives and outcome areas of sustained capacity, resources, motivation, and linkages.

Framework analysis was used to facilitate the recognition of patterns, including contradictory data or deviant cases. Data was interpreted to see the most common codes that emerged per question. The frequencies of codes, the number of times they emerged in a single interview and the number of times they emerged across all interviews, were generated and documented using NVivo. The quotes that reflected the original meaning and 'sentiment' of the interviewee could be retrieved later as illustrative paraphrases of the respondents to provide more insight from the quantitative data and answer the research questions.

#### **Data management:**

**Non-response:** There is a risk that some participants may not be available at the time of data collection. The two most common reasons for non-response and how they should be dealt with are outlined below.

- *Not at home:* When the intended interviewee is not at home, inquiries are made to neighbors as to (1) whether the dwelling unit is inhabited and, if so, (2) what time the residents are usually home. If the dwelling unit is not occupied, no further action is required. Otherwise, two revisits should be made following a phone call, if possible. If nobody is at home on the second visit, then we should skip this household.
- *Refusal:* If households decline to participate in the survey, then the reasons for their declining will be recorded.

**Ethical issues:** The participants that were recruited for this study were comprised of mostly ethnic minority people in rural and mountainous areas. The participants thus could be considered vulnerable and open to exploitation. No personal identifying data was collected from research participants. All information collected through qualitative and quantitative surveys was anonymized during transcription and before analysis, and participants were informed of this during recruitment and the informed consent process. Participants were able to withdraw from the study at any time up to two weeks after data collection and were informed of this before they consented.

All written information was provided in the local language (through the local guide if needed). If the participants were illiterate, all information sheets and consent forms were read out loud and explained to participants. In cases where participants were unable to sign, a thumb impression could be used on the consent form. The study was approved by the institutional review board of the Hanoi University of Public Health according to the Decision No. 437/2020/YTCC-HD3 on December 21, 2020.

## **5. Limitations**

- Data collection for the IDEAL Vietnam EHFP Study was delayed due to the COVID-19 pandemic restrictions for travel and social distancing requirements. Interviews were subsequently conducted remotely in one of the three project sites, using online platforms. As a result, there was some contextual information lost during focus group discussions and in-depth interviews.
- Data on exposure levels of households to specific activities during the EHFP Project (i.e., level of attendance and participation in the training, and participation in communication sessions) or after the EHFP Project ended, were not collected either during EHFP Project Endline or the IDEAL Vietnam EHFP Study. We hypothesized that comparison of the outcome indicators between EHFP Project Endline and the IDEAL Study would reflect exposure of households to home-garden practices and dietary diversity practices for children under two. Exploring the exposure of households to specific EHFP activities

would, however, be useful in providing a more in-depth look at what project activities contributed the most to the longer-lasting effects of the project.

- The categorization of households as sustained and un-sustained was based on the household average for the EHFP Endline Survey for vegetables grown in the last month and poultry currently owned, however, the range and standard deviation for these indicators were wide. Consequently, households under the average were considered un-sustained even though some of those households may have maintained or increased their production since the EHFP Endline Survey was conducted.
- The study design was quite complex considering the different data collection periods, sites and tools used for the EHFP Project Endlines and IDEAL Vietnam EHFP Study. Data for the IDEAL Study was collected from targeted households in five communes from all three Provinces where EHFP had been implemented, however, project endline data was collected from only four communes in two of the provinces (where the project ended two years ago) as there was no endline data for the EHFP pilot project in Son La Province (that ended four years ago). Although the study still provided an assessment of sustainability and spill-over effects of the EHFP Project, there were limitations in comparing sustainability by geographical areas and periods.
- The IDEAL study design only explored the outcome indicators of the intervention households. Due to budget limitations, the study did not include a control group to better assess EHFP Project impact.
- Helen Keller chose to test and implement the EHFP Projects in underserved rural communes, included in Program 135A of the Government, where the proportion of poor households is high (around 50%) as those are the areas that are most in need of nutrition-sensitive agriculture interventions. Because the Project budgets were small, the project scale was adjusted (300 households in the pilot project and 600 households per phase in follow-on project) to ensure the standard EHFP package of activities could be provided to all target households. Even though M&E data from other EHFP Projects showed that certain households (ethnic minorities and poor/very poor households) would likely need additional inputs, training and support, Helen Keller did not have the financial resources to provide differentiated services. Consequently, a high proportion of poor households were classified as un-sustained (74.8%) in the IDEAL Vietnam EHFP Study. Lack of money and resources was the main reason given by households for not sustaining activities.

## 6. Results

### 6.1. Household Characteristics

A total of 353 households participated in the IDEAL Vietnam EHFP study. About 40% of the households interviewed were in Tam Duong District (Lai Chau Province) and about 40% were in Lac Son District (Hoa Binh Province). The remaining 20% of participating households were from Phu Yen District (Son La Province). Regarding the household wealth index, 9.6% of the households were classified as poorest, 36.5% as poor, 46% as medium, and 8% as rich or richest. Each household had on average  $5 \pm 2$  members and an average monthly income of  $7.4 \pm 1.5$  million VND.

**Table 2. General surveyed household characteristics**

Indicators	IDEAL Study (n=353)
<b>Location (%)</b>	
Tam Duong (Lai Chau Province)	40.3
Lac Son (Hoa Binh Province)	40.3
Phu Yen (Son La Province)	19.4
<b>Household Wealth Index (%)</b>	
Poorest	9.6

Indicators	IDEAL Study (n=353)
Poor	36.5
Medium	45.9
Rich	7.9
Richest	0.1
<b>Average number of household members (mean ± SD)</b>	5 ± 2 (2 - 13)
<b>Average monthly income by million VND (mean ± SD)</b>	7.4 ± 1.5 (0-25)

Table 3 shows the sociodemographic characteristics of mothers who participated in the study. Their average age was  $30 \pm 5$  years, with the youngest being 20 years old and the oldest being 46. Close to 50% of respondent were of Muong ethnicity, about 20% were Hmong; 20% Lao, and 10% Kinh. Approximately 5% of the mothers were pregnant at the time of the IDEAL Vietnam EHFP Study. In terms of education level, the proportion of mothers who had finished secondary school was the greatest with 38%, 22.9% had never gone to school, 20.1% finished high school, 12.5% finished primary school, and 6.5% of them attended either technical school, college, or university. Occupation-wise, most of the mothers were farmers (75.9%) or freelancers (15.0%). The proportion of mothers who had health insurance was relatively high, at about 84.1%. However, only 2.6% of them had social insurance.

**Table 3. Sociodemographic characteristics of mother respondents**

Indicators	IDEAL Study (n=353)
Average age of respondents (mean ± SD)	30 ± 5.0 (20-46)
<b>Ethnicity (%)</b>	
Muong	49.0
Hmong	20.7
Lao	19.5
Kinh	10.2
Thai	0.6
<b>Current pregnant (%)</b>	5.1
<b>Education level (%)</b>	
Illiteracy	22.9
Primary school	12.5
Secondary school	38.0
High school	20.1
Vocation	2.0
College and university	4.5
<b>Main occupation (%)</b>	
Farmers	75.9
Casual job	15.0
Business	2.3
Workers	0.3
Gov staff	3.7
Other	2.8
<b>Having health insurance card</b>	84.1
<b>Receiving social insurance</b>	2.6

The sociodemographic information regarding fathers is shown in Table 4. The average age of fathers in this study was  $32 \pm 5$  years, with the youngest being 22 years old and the oldest being 56. Regarding education levels, the proportion of fathers who finished secondary school was similar to that of mothers at about 40%, followed by 17.0% of fathers who finished primary school, 15.2% finished high school, and 15.0% were illiterate. Occupation-wise, most of them were either farmers (65.7%) or freelancers (24.6%). The proportion of fathers who had health insurance was 72.0%, while the numbers with social insurance was very low at only 2%.

**Table 4. Sociodemographic characteristics of fathers**

Indicators	IDEAL Study (n=353)
Average age of respondents (mean $\pm$ SD)	32 $\pm$ 5.0 (22-56)
<b>Education level (%)</b>	
Illiteracy	15.0
Primary school	17.0
Secondary school	39.9
High school	15.2
Vocation	0.9
College and university	2.0
<b>Main occupation (%)</b>	
Farmers	65.7
Casual job	24.6
Business	0.6
Workers	0.6
Gov staff	2.6
Other	5.9
<b>Having health insurance card (%)</b>	72.0
<b>Receiving social insurance (%)</b>	2.0

## 6.2. Project Sustainability

The sustainability of the EHFP Project was assessed in several ways including by comparing quantitative output and outcome indicators collected during the EHFP Project Endline Survey and the IDEAL Vietnam EHFP Study from project beneficiaries (who were primarily women with young children). Because there was no endline survey data from the EHFP Pilot Project in Phu Yen District (Son La Province), the EHFP endline data collected in Hoa Binh and Lai Chau Provinces (in 2019) only were used to compare with data from the IDEAL Vietnam EHFP Study (in 2021). Qualitative data was collected from multiple stakeholders at national, provincial, district, commune and village levels in all three provinces and analyzed to provide insights to understand the reasons for positive and negative changes in key indicators between the EHFP Project Endline and the IDEAL Vietnam EHFP Study.

To show significant changes of outcome indicators from the period before EHFP implementation to the present, the researchers used three data points: the EHFP baseline done in the scale up sites, EHFP endline from the scale up sites and the IDEAL Vietnam EHFP Study.  $P_1$  value measured the significance level of difference between EHFP baseline and endline to see how much better-off targeted households were before and after the project implementation.  $P_2$  value was used to compare the difference between EHFP endline and IDEAL study to explore the sustainability of EHFP outcomes after two-four years of project completion.

There were four similar key outcomes in the Son La Pilot Project and the scale-up project in Hoa Binh and Lai Chau Provinces and therefore these indicators were included in the analysis:

- Outcome 1: Improved year-round production of safe and micronutrient-rich foods
- Outcome 2: Improved consumption of micronutrient rich foods and IYCF for target households, particularly women of reproductive age and children aged 0-23 months
- Outcome 3: Improved WASH practices for target households
- Outcome 4: Improved income of households from sale of excess EHFP products through access to small-scale food processing facilities and to market

### 6.2.1. Year-round production of safe and micronutrient-rich foods

**Table 5. Home garden production and poultry raising among targeted households between EHFP Project baseline, endline and IDEAL Vietnam EHFP Study**

Indicators	EHFP baseline (n=317)	EHFP endline (n=312)	IDEAL study (n=353)	P <sub>1</sub> value	P <sub>2</sub> value
Household has a home garden (%)	90.2	97.4	96.6	<0.001	0.71
Size of current homestead garden (m <sup>2</sup> ; mean ± SD)			169.8 ± 387.7		
Number of unique type of vegetables in the last 1 month (mean ± SD)	4.7 ± 3.9	9.9 ± 6.3	7.7 ± 3.8	<0.001	<0.001
Household raising poultry (%)	81.7	91.7	92.4	<0.001	0.65
Number of poultry currently owned (mean ± SD)	28 ± 43	41 ± 54	35 ± 39	<0.001	<0.001

Outcome 1 aimed to increase year-round production of safe and micronutrient-rich foods among beneficiary households. All indicators of home garden production and poultry raising (Table 5) under the EHFP Project increased significantly between project baseline and endline (all  $p_1 < 0.001$ ). After several years of EHFP project completion, results showed that the proportion of households having a home garden between the EHFP Project Endline and the IDEAL Vietnam EHFP Study did not change significantly (97.4% and 96.6%, respectively,  $p_2 = 0.71$ ). Likewise, the proportion of households raising poultry did not change between the EHFP Endline (91.7%) and the IDEAL Study (92.4%),  $p_2 = 0.65$ . This indicates that home gardens and poultry productions were still being maintained by households. Although still much higher than at Project Baseline, the average number of different vegetables grown in households' home gardens during the previous month and the average number of poultry currently owned per households decreased significantly between EHFP Project Endline and the IDEAL Study by two types of vegetables (from 9.9 to 7.7 types,  $p_2 < 0.001$ ) and by six poultry (from 41 poultry to 35 poultry,  $p_2 < 0.001$ ), respectively.



Ly Thi Lang, a beneficiary from Giang Ta Hamlet in Lai Chau Province is carrying her healthy-looking baby on her back while gardening with her husband in their home garden. - Helen Keller Int'l Vietnam

**Qualitative results:**

In 12 IDIs and FGDs conducted among target households, CFs and VMFs during the IDEAL Vietnam EHFP Study, informants noted there was some sustainability of year-round home food production of safe and micronutrient-rich foods in Hoa Binh, Lai Chau, and Son La Provinces after the project ended. The households still maintained the practices and techniques on home-gardening such as raised bedding, fencing, making compost fertilizers, using microorganism enzymes, growing nutrient-rich vegetables throughout the changing seasons, using herb-based pesticide, increasing poultry, and livestock production. Households continued planting a diversity of seasonal nutrient- and vitamin A-rich vegetables and fruits, for example, vegetables with dark leaf (pumpkin leaf, moringa,



spinach, etc.) and orange fruit (e.g., papaya). Despite the different sizes of home-gardens, almost all interviewed households stated that vegetable production was enough to meet the year-round consumption needs of households; some households even produced an excess of fruits and vegetables for sales to generate income.

*In the past, we didn't really do a lot of gardening. We only grew one kind of vegetable and bought others that we liked. Nowadays, the Binh Lu market is suffering from a slump in sales because we rarely buy vegetables due to our home gardens.* - FGD of CFs in Na Tam Commune, Tam Duong District

*Before joining the project, I only planted mustard greens, amaranth, and corn. Now I have more options such as eggplant, pumpkin, and papaya. I have also adopted intercropping.* - FGD of households in Na Tam Commune, Tam Duong District

*With support from the Helen Keller project and officers at different levels, we still raise pigs and chickens, and they are growing quite well. My home garden is still well maintained. Vegetables such as pumpkin, squash, bean, and cucumber are planted in the locality. When the season comes, we make beds and follow the techniques taught to us by the agricultural extension association. I still maintain the home-gardening techniques since Helen Keller's project ended. For example, beds have still been made and fertilizer laid. I also plant fruit trees such as grapefruit, banana, and papaya. I still make organic compost fertilizer using probiotic enzymes.* - FGD of VFMs and CFs in Tan Lang Commune, Phu Yen District

*Before the project, I used untreated manure for planting. Thanks to the project, I know how to compost fertilizer, use microorganism enzymes, and gradually use the compost.* - FGD of households in Tan Lap Commune, Lac Son District

*I often spray a mixture of garlic, chili, and water instead of chemical herbicides.* - FGD of households in Tan Lap commune, Lac Son district

However, the quantitative analysis also showed a significant drop in the number of different vegetables and poultry owned in the IDEAL Study compared to the EHFP Project Endline. From the view of some household respondents who had difficulty and local partners, there were many challenges to maintain home gardens and livestock production. One of the biggest challenges for these households was the lack of money to buy vegetable seeds, fertilizers, probiotics, chicks, and animal feeds. During the EHFP project, the targeted households were provided with free initial agriculture inputs including seed, seedling, chicks, and packs of microorganism/probiotics for composting. Each household was supported with five packets of different vegetable seeds for every season and two packs of probiotics for composting per year (around US\$0.2-0.5/packet of vegetable seed, and US\$1.3/pack of probiotics), 20-30 chicks or ducks for producing eggs and multiplying (around US\$0.5 for one chick or duck). Only VMFs were provided with sows (around US\$80-100/sow). When the sows gave birth, they were responsible for giving back one female piglet to the other households in the village. Although the cost of vegetables, seeds/seedlings, probiotics, and small animals such as chicks or ducks are quite affordable, it is still a key barrier for poor households. Even with households who continued home-gardening and livestock production, lack of capital reduced the scale of production, diversity of vegetables, and number of poultries owned.

*The living condition here is difficult so it is hard for us to do farming. We want to buy more vegetable seeds and chickens, but we don't have enough money to buy them.* FGD of households in Tan Lang Commune, Phu Yen District

*Our income is limited. We don't have money to buy breeds and other supplies. We also don't have money to buy bran for them in the first stages.* FGD of households in Tan Lang Commune, Phu Yen District

Other challenges that led to a decrease in home-gardening and livestock production were adverse weather, climate, and disease. Many interviewed villagers stated that the lack of water and land for gardening, lack of local resources for quality seeds and breeds, lack of local services for farming and livestock in the area, and lack of market connection for sale of surplus products, were barriers to maintaining EHFP activities.

*The biggest difficulties for us in farming are lack of capital, pests and diseases on vegetables and livestock, and limited access to the market for agricultural outputs.*  
- FGD of households in Yen Phu Commune, Lac Son District

*The weather here is harsher than in the lowlands, so it's not suitable to plant anything.* - FGD of households in Tan Lang Commune, Phu Yen District

*There is a shortage of water and more plant diseases and pests.* - FGD of households in Tan Lap Commune, Lac Son District

*The most difficult thing is that seedling sources are not secured. There is no large center for seedling and agricultural services in Phu Yen.* - FGD of VMFs and CFs in Tan Lang Commune, Phu Yen District

## 6.2.2. Consumption of micronutrient-rich foods and IYCF for target households, particularly women of young children and children aged 0-23 months

**Table 6. Household food security and food consumption among targeted households between EHFP Project baseline and endline and IDEAL Vietnam EHFP Study**

Indicators	EHFP baseline (n=317)	EHFP endline (n=312)	IDEAL study (n=353)	P <sub>1</sub> value	P <sub>2</sub> value
<b>Household Food Insecurity Access-related Scale Score (mean ± SD)</b>	5.9 ± 5.0 (0-20)	4.1 ± 4.4 (0-20)	1.8 ± 2.8 (0-17)	<0.001	<0.001
<b>Household Food Insecurity Access-related Prevalence (%)</b>					
Food Secure	23.0	28.5	62.9	<0.001	<0.001
Mildly Food Insecure	18.6	32.1	23.5		
Moderately Food Insecure	34.1	28.9	9.1		
Severely Food Insecure	24.3	10.6	4.5		
<b>Household Hunger Scale Score (mean ± SD, min-max)</b>	0.18 ± 0.49 (0-3)	0.19 ± 0.68 (0-5)	0.23 ± 0.49 (0-2)	0.05	<0.001
<b>Household Hunger Scale Prevalence (%)</b>					
Little to no hunger	96.5	97.1	96.9	0.68	0.86
Moderate hunger	3.5	2.9	3.1		
Severe hunger	0.0	0.0	0.0		
<b>Household Food Consumption Score (mean ± SD)</b>			67.7 ± 21.3 (24.5 108.5)		
<b>Household Food Consumption Classification (%)</b>					
Poor (0-21 scores)			0.0		
Borderline (21.5-35 scores)			6.2		
Acceptable (> 35 scores)			93.8		

Outcome 2 aimed to increase consumption of micronutrient-rich foods and to improve IYCF practices among target households, particularly among women of young children and children aged 0-23 months. Households at the EHFP Project Endline had significantly ( $p_1 < 0.001$ ) better indicators than those at the EHFP Project Baseline for Household Food

Insecurity Access-related Scale Score (4.1 vs 5.9) and the HFIAS prevalence (28.5% vs 23%), respectively. There was no difference in the HHS score and HHS prevalence between the EHFP Project Endline and Baseline (0.19 vs 0.18 ( $p=0.05$ ) and 97.1% vs 96.5% ( $p=0.68$ ), respectively. In addition, the analysis indicated that most food security-related indicators (Table 6) in the IDEAL Study were better compared to those from the EHFP Project Endline. Results showed a decrease in the HFIAS by about 2 points from  $4.1 \pm 4.4$  [0-20] in the EHFP Project Endline to  $1.8 \pm 2.8$  (0-17) in the IDEAL Study ( $p_2 < 0.001$ ). The percentage of households who were food secure more than doubled, from 28.5% at EHFP Project Endline to 62.9% in the IDEAL Study ( $p_2 < 0.001$ ). The proportion of households with little and no hunger in the previous 24 hours (based on the Household Hunger Scale Prevalence) and with acceptable food consumption scores in the IDEAL Study were high, 96.9% and 93.8% respectively. For dietary diversity, there was an increase in the average number of food groups consumed by children 6-23 months, from  $3.7 \pm 1.5$  (1-7) in the EHFP Project Endline to  $4.8 \pm 1.4$  (1-8) in the IDEAL Study,  $p_2 < 0.001$ . The average number of food groups consumed by women with young children in the previous 24 hours remained at around 4 food groups/day ( $4.3 \pm 1.5$  [0-8] in the EHFP Project Endline compared to  $4.2 \pm 1.5$  (1-9) in the IDEAL Study,  $p_2 = 0.52$ ). There was an increase in the percentage of children 6-23 months that consumed  $\geq 5$  food groups (out of 8) from 37.0% at EHFP Project Endline to 56.7% in the IDEAL Vietnam EHFP Study ( $p_2 < 0.001$ ), while there was a slight decrease in the percentage of women who consumed  $\geq 5$  food groups (out of 10) from 43.1% to 41.1% ( $p_2 = 0.62$ ) between the EHFP Project Endline and the IDEAL Vietnam EHFP Study. In addition, the IDEAL study showed that 72.4% of households had high dietary diversity ( $\geq 6$  food groups).

**Table 7. Dietary diversity among targeted children under 2 years old between EHFP Project baseline and endline and IDEAL Vietnam EHFP Study**

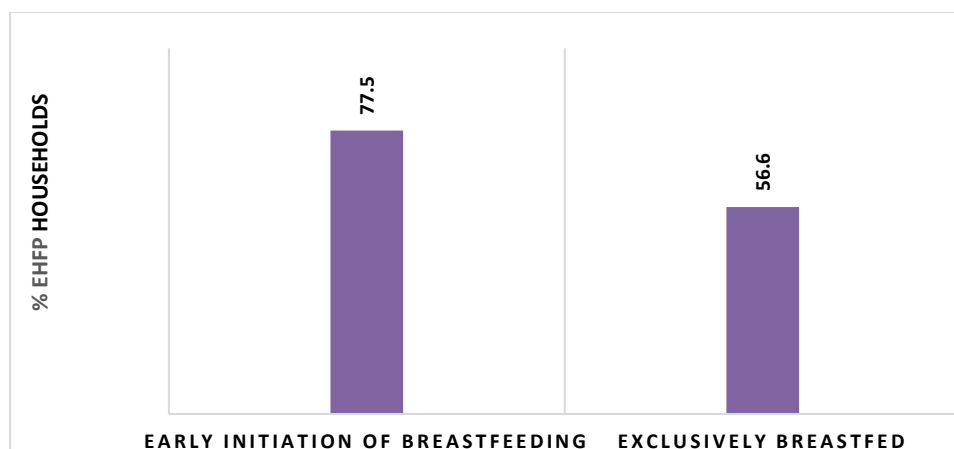
Indicators	EHFP baseline (n=236)	EHFP endline (n=46)	IDEAL (n=60)	P <sub>1</sub> value	P <sub>2</sub> value
Average number of food groups consumed by children 6-23 months (mean $\pm$ SD)	$3.6 \pm 1.5$ (1-7)	$3.7 \pm 1.5$ (1-7)	$4.8 \pm 1.4$ (1-8)	0.14	<0.001
Children 6-23 months that consumed $\geq 5$ food groups (out of 8) MDD - %	28.8	37.0	56.7	<0.001	<0.001



Bui Thi Tiep, a beneficiary in Chi Dao commune, Lac Son district, Hoa Binh Province is preparing a nutritious meal for her baby - Helen Keller Int'l Vietnam

There was no significant difference in the average number of food groups consumed in one day for children aged 6-23 months between EHFP Project Baseline and Endline (around 4 groups,  $p_1 = 0.14$ ), but the average number of food groups consumed in one day ( $\sim 5$  groups) was significantly higher in the IDEAL Study. The proportion of children between 6-23 months who reached the minimum dietary diversity (at least 5 out of 8 healthy food group a day)

increased approximately 8 percentage points (from 29% at EHFP baseline to 37% at EHFP endline,  $p_1 < 0.001$ ) and increased another 20 percentage points (from 37.0% at EHFP endline to almost 57.0% in the IDEAL study,  $p_2 < 0.001$ ).



**Figure 3. Early initiation and exclusive breastfeeding among targeted children aged under 2 (n= 83) in the IDEAL Vietnam EHFP Study**

The proportion of children under two years who were breastfed within one-hour post-birth was 77.5% (as reported by the mother) and the proportion of those who were being exclusively breastfed (at the time of the IDEAL Vietnam EHFP Study) was close to 57%. The EHFP Endline did not collect this data.

**Table 8. Dietary diversity among targeted women of young children between EHFP Project baseline and endline and IDEAL Vietnam EHFP Study**

Indicators	EHFP baseline (n=317)	EHFP endline (n=312)	IDEAL study (n=353)	P <sub>1</sub> value	P <sub>2</sub> value
Average number of food groups consumed by women of young children (mean ± SD)	3.3 ± 1.0 (0-7)	4.3 ± 1.5 (0-8)	4.2 ± 1.5 (1-9)	<0.001	0.52
Women who consumed ≥ 5 food groups (out of 10) – MDD-W (%)	11.4	43.1	41.1	<0.001	0.62

All indicators of dietary diversity for women increased significantly at the EHFP Endline, compared to those at EHFP Baseline (all  $p_1 < 0.001$ ). The average dietary diversity score of women with small children stayed relatively unchanged in the IDEAL Study ( $4.2 \pm 1.5$ ) compared to the EHFP Endline ( $4.3 \pm 1.5$ ),  $p_2 = 0.52$ . There was very little change in dietary diversity for women between the EHFP Endline and the IDEAL Study. Although not significant, there was a slight decrease in the proportion of mothers who consumed at least 5 food groups per day from 43.1% in the EHFP Project Endline to 41.1% in the IDEAL Study.

**Table 9. Dietary diversity among targeted households in IDEAL Vietnam EHFP Study**

Indicators	IDEAL (n=353)
Average number of food groups (out of 12) consumed by households (mean ± SD)	6.8 ± 1.9 (1-12)
Household dietary diversity classification (%)	
Lowest dietary diversity ( $\leq 3$ food groups)	4.0
Medium dietary diversity (4 and 5 food groups)	23.8
High dietary diversity ( $\geq 6$ food groups)	72.4

Data from the IDEAL Vietnam EHFP Study showed that the mean number of food groups consumed by households in the previous 24 hours was about 7, with the minimum number being 1 and maximum being 12. The proportion of households with high, medium, and low dietary diversity were 72.4%, 23.8%, and 4.0% respectively.

**Qualitative results:**

In general, the quantitative data showed no change or positive changes in food security and dietary diversity among young children, women, and targeted households after two to four years of EHFP project completion. The qualitative interviews also supported these results. Before the project, children's meals might only include rice or whatever else was available in the household. After guidance from the EHFP Project's nutrition communication and cooking demonstrations, mothers/caregivers knew to practice dietary diversity in their families' food consumption. They have continued to apply these practices even after the project ended. The interviewed people shared some practices they still use. For example, interviewees noted that children should have frequent meals every day, children's meals should be prepared with a variety of foods including rice, vegetables, fruits, meat/eggs/milk, and cooking oil/fat, and information on methods of cooking to maintain nutrients bioavailability should be practiced.

*Q: About the knowledge learned from the project, such as preparation for nutritious meals or taking care of your children? Do you still remember?*

*A: Yes, we do. First, we should have enough number of meals for children. Second, we should cook meals with vegetables, fruits, eggs, fish, shrimp, crabs, etc. for children. Children should eat at least three meals per day. - FGD of households in Yen Phu Commune, Lac Son District*

*In the past, women often prepared meals for small children without vegetables; the children's meals were only served with meat. However, they learned how to add organic supplements such as peanut oil, sesame oil or cooking oil, or how to put extra vegetables in daily meals. This is wonderful, and perhaps such things are what we learned from Helen Keller; the project gave clear and detailed instructions to us. - FGD of DHC, WU, ASC in Lac Son District.*

*Before, we just fed them what we had. After being trained by the project, we know how to take better care of our children and what to feed them. For example, we change their meals every day with different types of food. We also feed them pumpkin and spinach because they are good for our children's health. - FGD of households in Tan Lang Commune, Phu Yen District.*

Representatives from FGDs of the Commune People's Committee and District management stakeholders indicated that there was positive impact of sustainable nutrition and childcare practices on improving nutritional status among children under five in the local areas.

*Four years after the project ended, the stunting rate decreased from 21% to 18.7%, and the underweight rate decreased from 13% to 10.8%. The malnutrition rate decreased by about 1% every year. This is a result of a combination of interventions such as the training and communication for mothers on childcare knowledge. Nutrition care practices for children are also improved, and mothers know how to take care of their sick children – FGD of CPCs and CFs in Tan Lang Commune, Phu Yen District.*

*Though Helen Keller's EHFP Project in Yen Phu Commune ended two years ago, knowledge on childcare, antenatal and postnatal care, and home-gardening are still practical. Thanks to the communication sessions conducted by the project, the malnutrition rate among children under five years (in Yen Phu Commune) decreased from 14% to 12% (in 2020). When the project started four years ago, the rate of malnutrition among children under five years old in Tan Lap Commune was 13.75%, but this rate decreased to 11.4% in 2020. – FGD of DHC and WU in Lac Son District.*

Reasons for not continuing with promoted dietary diversity practices among low-performing households were also identified and discussed. Financial issues proved to be a key barrier, especially in mountainous and remote areas where the proportion of poor households, according to the Household Wealth Index, is quite high. Respondents from poor households mentioned that they cannot afford frequent nutritious food such as meat or fish. They said that ensuring dietary diversity also costs more money than their regular food habits. Future EHFP-type projects therefore need to ensure that livelihood development support for poor and near-poor households are more intensive, in addition to existing interventions that focus on ensuring access to locally available and affordable diverse food.

*It is because of money shortage. Of course, many households want to buy meat or fish to feed their children, but without money, they have no other alternative but to feed their children vegetables only.* - FGD of CFs in Na Tam Commune, Tam Duong District

*Although we do farming, we don't have enough rice for our children. Sometimes, we don't even have money to buy eggs and other foods. We don't know how to describe our difficulties.* - FGD of households in Tan Lang Commune, Phu Yen District

In addition, parents in the poor households usually work far from home to earn a living. They have to leave their children at home with grandparents. Some of those grandparents participated in monthly cooking demonstrations and communication sessions on behalf of their daughters/daughter-in-laws, while others did not. It can also be challenging to guide and change traditional and customary practices that are ingrained in the perception and habit of older people.

*As far as I know, mothers breastfeed their babies exclusively for the first six months. However, because of their economic conditions, they must go to work, so they can only breastfeed their babies in the morning or when they are at home. During the day, babies stay at home with their grandmothers, and are fed rice flour soup. In general, with regards to the diversity of vegetables and fruits, some grandmothers can give it to their babies, but other cannot.* - FGD of VMFs and CFs in Tan Lang Commune, Phu Yen District



Bui Thi Xuan, a beneficiary from Dinh Cu Commune in Hoa Binh Province is breastfeeding her baby. - Helen Keller Int'l Vietnam

*When we conduct cooking demonstrations, we can help them prepare nutritious meals with a variety of foods for children, but it is quite difficult to change the cooking customs and habits of grandparents that have existed for a long time. For example, the young children*

*have to eat rice which their grandparents chew, or the meals are not (considered) nutritious enough. So, it's a bit difficult to change their behavior.* - IDI of CDC Hoa Binh Province

Another reason behind un-sustained dietary diversity practices among households is that the preparation of a meal with adequate dietary diversity can be more complicated. Some children did not like these meals as they are used to meals/food cooked in the previous way. It is also likely that some mothers lacked cooking skills or did not follow the instructions given in the monthly cooking demonstrations. A limitation of the EHFP project appears to be inadequate support for households having difficulties in following practices introduced by the project.

*Q: You made a variety of good recipes, and the kids did not like them. How could they prefer plain rice?*

*A: They are familiar with that style. They prefer it over nutritious food. Some mothers complained that the recipes were too complicated, plus their kids did not enjoy it much.* - FGD of CFs in Son Binh Commune, Tam Duong District

### 6.2.3. WASH practices for target households

Outcome 3 aimed to improve water, sanitation, and hygiene practices for target households. The results showed (Table 10) that all WASH indicators increased significantly between the EHFP Project Baseline and Endline (all  $p_1 < 0.001$ ). Although still much higher than at Project Baseline, there was, however, a significant decrease in two out of three indicators regarding WASH practices between the EHFP Project Endline and IDEAL Vietnam EHFP Study. The proportion of households who had a designated place for handwashing with clean water and soap reduced from 77.2% to 61.5% ( $p_2 < 0.001$ ); the proportion of mothers who correctly practiced handwashing at least twice at appropriate occasions during the day declined from 69.5% to 61.8% ( $p_2 < 0.001$ ); but the proportion of households who used an appropriate water treatment method to make water safer for cooking remained the same at 47.4% and 46.7%, respectively ( $p_2 = 0.17$ ).

**Table 10. WASH practices among targeted households between EHFP baseline and endline and IDEAL Vietnam EHFP Study**

Indicators	EHFP baseline (n=317)	EHFP endline (n=312)	IDEAL (n=353)	P <sub>1</sub> value	P <sub>2</sub> value
Households with a designated place for handwashing where water and soap are present (%)	24.9	77.2	61.5	<0.001	<0.001
Mothers washing hands at the appropriate times (%)	46.4	69.5	61.8	<0.001	<0.001
Households using an appropriate treatment method to make water safer (%)	17.4	47.4	46.7	<0.001	0.17

#### **Qualitative results:**

The qualitative data collected in this section failed to provide reasons for the significant decrease of the WASH indicators between the EHFP Project Endline and the IDEAL Vietnam EHFP Study. [Note that hand washing practices were also discussed with hygiene and nutrition care practices.] Meanwhile, regarding the treatment of livestock manure, several interviewees stated that the situation has improved. Cattle are kept in barns instead of being left to wander and spread manure indiscriminately on village roads. As such, households can collect livestock manure for composting, while also keeping the surrounding environment hygienic. Livestock are also kept separate from the houses, which has helped improve hygiene in areas where people live and eat.

*Before the project, we didn't tell our children to wash their hands after playing. Now we ask our children to wash their hands frequently, especially before meals. When*

*pregnant, we also take better care of ourselves. We eat more nutritious meals and take more rest breaks.* - FGD of households in Tan Lang Commune, Phu Yen District.



Community members in Lac Son District installing a biogas system to improve the environment cleanliness and increase energy efficiency by using human waste for cooking and lighting. - Helen Keller Intl Vietnam

*In the past, we didn't have barns for livestock, so we couldn't collect livestock manure. Therefore, manure discharged by wandering livestock had a bad impact on the environment and was also wasted as it was not being used as fertilizer for plants. Now, we know how to make use of manure by composting and using as fertilizers for plants. We also build manure storing compartments, and build the barns away from the main house, preserving the hygiene of the environment. Before, the coops/barns were always placed under the stilt floor or beside our houses, but now they are far from our houses.* - FGD of CFs in Na Tam Commune, Tam Duong District.

Building hygienic latrines are aligned with national target programs and are one of the criteria for New Rural Development of local governments. Local authorities have therefore continued to motivate and mobilize local resources (finance and materials) for households to build hygienic latrines even after the project's end. In addition, in some communities, biogas systems have been installed to collect human waste and convert that to energy for cooking and lighting.

*Tan Lap Commune assigned the village women's unions with the mission to form community groups that provide quarterly monitoring and support for building sanitary latrines in the villages. When the project ended two years ago, the rate of hygienic latrines was 50%, now it is 81%. We consider an overall sanitary facility to include both a bathroom and a latrine.* - FGD of CPCs in Lac Son District

*Hygienic latrines are often one of the criteria associated with national target programs such as the New Rural Program and the Environment and Sanitation Program. Through training and support on building hygienic latrines from the project, targeted households not only built hygienic latrines but also motivated other households in the village to build hygienic latrines. In the last 1-2 years, many families have also built latrines, combined with a bathroom. Previously, there were around 50 latrines; now, there are more than 200. My commune mobilized support from other programs, and now 85% of households have hygienic latrines.* - FGD of CHCs and WUs in Tam Duong District



#### 6.2.4. Income of households from sale of excess EHFP products through access to small-scale food processing facilities and to market

Outcome 4 aimed to increase income of households from sale of excess EHFP products through access to small-scale food processing facilities and markets. All indicators regarding income from sale of excess EHFP products (Table 11) increased significantly between the EHFP Project Baseline and Endline Surveys (all  $p_1 < 0.001$ ).

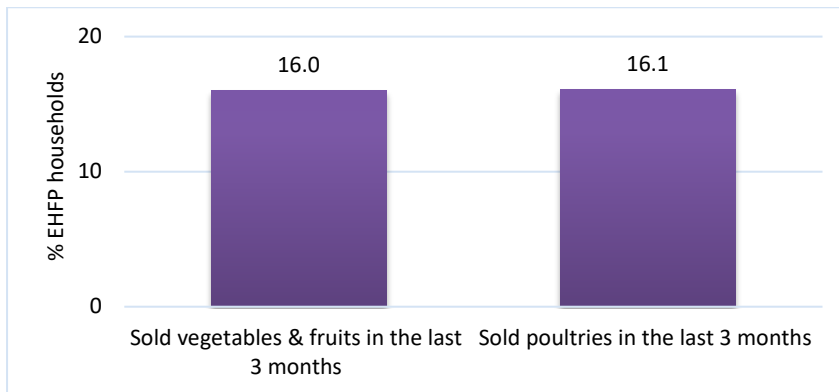
**Table 11. Income from sale of excess EHFP products among targeted households between EHFP baseline and endline and IDEAL Vietnam EHFP Study**

Indicators	EHFP baseline (n=317) Mean $\pm$ SD	EHFP endline (n=312) Mean $\pm$ SD	IDEAL Study (n=353) Mean $\pm$ SD	P <sub>1</sub> value	P <sub>2</sub> value
<b>Average money from selling home garden products in the last 3 months (thousand VND)</b>			565.5 $\pm$ 251.7		
Average amount of money made from selling yam, cassava, and others of the same type (thousand VND)			250.9 $\pm$ 152.6		
<b>Average amount of money made from selling vegetables from home gardens (thousand VND)</b>	27.0 $\pm$ 203.8	202.7 $\pm$ 306.7	163.9 $\pm$ 1.082	<0.001	<0.001
<i>Yellow vegetables like pumpkin, carrots</i>	0.02 $\pm$ 0.4	1.2 $\pm$ 3.3	1.7 $\pm$ 3.2	<0.001	<0.001
<i>Dark green leaf</i>	21.3 $\pm$ 50.2	188.1 $\pm$ 246.9	156.4 $\pm$ 104.0	<0.001	<0.001
<i>Other vegetables</i>	5.7 $\pm$ 12.5	13.7 $\pm$ 25.3	5.7 $\pm$ 10.6	<0.001	<0.001
<b>Average amount of money made from selling fruits from home gardens</b>			150.8 $\pm$ 168.1		
<i>Mango, papaya, yellow fruits</i>			132.9 $\pm$ 166.6		
<i>Other fruits</i>			17.8 $\pm$ 18.5		
<b>Average money from selling poultry in the last 3 months (thousand VND)</b>	463.7 $\pm$ 390.3	862.5 $\pm$ 716.4	715.6 $\pm$ 402.6	<0.001	<0.001

Generally, although still considerably higher than at Project Baseline, by the IDEAL Vietnam EHFP Study two years post-project completion, the average income (in the last three months) from sale of home garden vegetables and poultry was lower than at Project Endline. Income from sale of vegetables was Vietnamese Dong (VND) 202,700 compared to VND 163,900 ( $p_2 < 0.001$ ) at EHFP Project Endline and the IDEAL Vietnam EHFP Study, respectively. However, among those vegetables, income from selling vitamin A-rich vegetables (e.g., ripe pumpkin, carrots) increased significantly from VND 1,200 to VND 1,700 ( $p_2 < 0.001$ ) between Project Endline and the IDEAL Study. The average income from selling poultry in the last 3 months went down by VND 147,900, from VND 862,500 to VND 715,600 after several years since project completion ( $p_2 < 0.001$ ).

In addition, data from the IDEAL Vietnam EHFP Study indicated that only about 16% of households surveyed had sold any fruits, vegetables, or poultry in the past three months. Although data was not collected at EHFP Project Endline on all types of fruits and vegetables sold, the IDEAL Study results showed that households were receiving income from sale of some EHFP products several years after the project's completion. The average household income from selling home garden produce (e.g., tubers, vegetables, and fruits) was VND 565,500, and the average income from selling tubers (e.g., yam, cassava) was VND 250,900. Households also collected VND 150,800 from selling fruits, including VND

132,900 from selling vitamin-A-rich fruits (e.g., mango, papaya, persimmon) and VND 17,800 from selling other fruit types (e.g., longan, avocado).



**Figure 4. Percent of EHFP households selling vegetables, fruits, or poultry in the last three months from IDEAL Vietnam EHFP Study**

**Qualitative results:**

Households participating in the FGDs stated that vegetable and poultry production is used for their family’s consumption first with only excess produce sold for household income. Households with a large area of land, combine planting vegetables with fruit trees to increase income.

*For surplus vegetables, we can’t eat them all. We usually sell or give them away.*  
 - FGD of households in Tan Lang Commune, Phu Yen District

*I have an area of 1100m<sup>2</sup> of land. I subtract 300m<sup>2</sup> for planting citrus fruits, and on the remaining 700m,<sup>2</sup> I grow vegetables like kohlrabi, cauliflower, cabbage, carrot, and Malabar spinach. In general, I have a harvest every year. Although the project was closed in 2016 and we were no longer supported, we have kept following the techniques we learned from the project.* - VMFs and CFs in Tan Lang Commune, Phu Yen District

*Now, villagers know how to improve production to increase their incomes. Their incomes come from rice, cardamom, raising buffaloes, pigs, goats and now salmon.*  
 - FGD of CHCs and WUs in Tam Duong District.

The quantitative analysis, however, showed a significant decrease in household incomes from sale of vegetables and poultry between the EHFP Project endline and the IDEAL Vietnam EHFP Study. Interviewed households stated that home-gardens are heavily affected by pests, while poultry, pigs and cows are also susceptible to different diseases. This reduced the productivity of home farming, and thereby limited household income from selling surplus products.

*My home-garden has a lot of disease problems. There is leaf spot disease that can’t be controlled.* - FGD of households in Yen Phu Commune, Lac Son District

*The weather here often causes breeds to be infected by diseases. Therefore, they often died. This has a negative impact on family incomes. Pigs often got blue ears disease, constipation, or other diseases, and many of them died. Many chickens also died. Therefore, the economic development here is poor. Animals easily get cholera disease.* - FGD of CPC in Tan Lang Commune, Phu Yen District

The scale of home farming production is usually quite small so that products are sufficient for household consumption only. When vegetables are in season, because many households are producing the same vegetables and have enough for their families, any surplus is difficult to sell. Meanwhile, during transition seasons when crops are not ready to be harvested, households do not have vegetables to sell.

*In the season of vegetables, we have a lot of vegetables but cannot sell them. However, in the transition time between seasons, there are not enough vegetables for sale.* - FGD of households in Yen Phu Commune, Lac Son District

Villagers in the three project sites had not yet developed a stable market connection in their areas for the sale of surplus EHFP products. Apart from households that undertook large-scale production as livelihood development models, EHFP households generally sell surplus home-farming products at an individual level at local markets. Furthermore, profits from the sale of vegetables and poultry are not stable as they depend on market prices, which are relatively low, and on diseases.

*Regarding (selling at) the market, we get a very small profit. Goose is very cheap, only VND 80,000-90,000/kg, sometimes only VND 70,000/ kg* - FGD of facilitators in Na Tam Commune, Tam Duong District

*The price of vegetables at the market is very low, so people don't want to grow and sell vegetables there.* - FGD of households in Tan Lap Commune, Lac Son District

In addition, the COVID-19 pandemic in 2020 and 2021 heavily impacted the market linkages caused by supply chain disruptions. Restrictions on social distancing interrupted the supply of seed, bird breeds, fertilizer, animal feed, and drove up their prices. The harvested products from farming were not sold at the right time due to restricted travel and trade during the lockdown, further pushing down prices. Household incomes from the sale of agricultural produce has therefore been significantly reduced.

*The animal feed price generally depends on market prices. The price is unstable, going up and down. During the period of the COVID epidemic, we were forbidden to transport livestock to other communes. I could not get them through the quarantine station, so the price went down. I couldn't sell them. This year because of the Covid-19 pandemic, the cost of pigs went from 80,000 VND per kilo down to 60,000 – 65,000 VND per kilo; the pigs are high quality, but still there are no buyers. We suffered a big loss, 2.5 million VND per pig. Previously, a sack of livestock bran cost 300,000 VND, now it has increased to 400,000 - 420,000 VND per sack. The price of piglets is also high, but the pork continues getting cheaper. In general, it is becoming more and more difficult.* - FGD of VMFs, FCs in Tan Lang Commune, Phu Yen District

#### **6.2.5. Sustained capacity, sustained linkage, sustained motivation, and sustained resources**

Quantitative results have shown that many EHFP households have continued to produce vegetables and fruits for home consumption year-round. Although there was a significant decrease in some indicators e.g., the number of different vegetables, number of poultry owned, decrease in WASH practices, and decrease of household income from sale of surplus EHFP products, some of the project changes related to household and community infrastructure have continued. Qualitative IDI and FGD further explored four key factors of the EFHP's sustainability, namely: sustained capacity, sustained linkage, sustained motivation, and sustained resources.

## **Sustained capacity**

Sustained capacity is the most significant achievement of the EHFP project. Through qualitative data, 19 IDIs and FGDs recorded the sustained capacity of beneficiary households, VMFs and CFs of the EHFP project. Sustainability in capacity was at both the household level and community (VMF and CF) level. Individual households and VMFs, have continued keeping home gardens and raising livestock with improved techniques and care practices as well as improved household nutrition and childcare practices. Meanwhile, village and commune facilitators, not only improved their knowledge on home-farming and nutrition, but also, increased their capacity and skills on communication, management and organizing community events and communication groups.

Comments from district and provincial managers from CDCs, Agricultural Services Centers, and Farmer's Unions, highlighted that it was very hard to change local people's attitudes and habits. Many noted that it was harder for ethnic minorities to change ingrained behaviors and maintain the recommended EHFP practices after the project ended. However, maintaining home vegetable gardens with various crops and increasing diversity of foods consumed in daily meals, especially in children's diets, are visible evidence of sustained knowledge and practices from the EHFP project.

*It's very difficult to change the habits of local people, however people have maintained poultry and cultivation production practices. For example, in the past, people raised chickens for meat; now, they raise flocks of chickens to lay eggs to supplement meals for children. They also know about the importance of balancing in cultivation. In the past, people mostly planted corn; now, they pay attention to planting wet rice and growing soybeans and all kinds of crops to make the garden harmonious, suitable for the meals, and with enough nutrients. The Thai ethnic people here do not have the custom of growing vegetables, but they have maintained their vegetable gardens. I think that the project has a certain vitality and durability. We think that the similar projects will probably be practical for people in mountainous ethnic areas like Son La Province. - IDI of CDC Son La Province*

*I must confirm that the home vegetable garden is a success. I have been a direct supporter for two years in a commune where people were unaccustomed to growing vegetables near their home, but now they do very well. They saw the effectiveness of maintaining vegetable gardens, especially seasonal vegetables. Now, people know that growing vegetables at home has many advantages and is better than on the hill. Instead of growing only 1-2 types of vegetables on the hill, they grow a variety of vegetables in home gardens to change and improve their meals. - FGD of District Management Board in Tam Duong District*

Interviewed households stated that there were a lot of differences in home-farming before and after the EHFP Project. Formerly, local people were unaccustomed to growing vegetables in their garden. They usually picked vegetables in the wild or grew them in small areas on a hill far from their houses. They did not know how to make the beds before sowing, and there was no fencing or composting. They only grew a few local vegetables and there was no diversity. After two-four years of the project, many previously targeted households continue to maintain their home-garden production practices such as making beds, making fences, bio-composting, using herb-pesticide mixture from chili and garlic, growing a variety of seasonally nutrient-rich vegetables and fruits. The farming techniques they were trained on are simple and efficient so it motivated households to continue following them even after the project ended. The chairman of Tan Lang commune in Phu Yen district, where the project finished four years ago, said that 80% of targeted households still maintain home-farming techniques.

*Before the project, villagers knew how to get vegetables in the wild such as bamboo shoots and natural plants but didn't know how to grow vegetables in the garden seasonally. After the project, the villagers learned how to grow vegetables in the home-garden for their daily meals. They are now aware of what vegetable to plant by season and how to use fertilizers, and where to learn more techniques. These are good things. In addition to the beneficiary households of the project, the Women Union and Farmer Union have also transferred and shared their experience among other members, and have also discussed for replication - FGD of Farmer's Union and District ASCs in Phu Yen District*

*I have maintained home gardening techniques. Before the project, we only sowed seeds all over the soil without preparing any raised beds. After being trained by the Helen Keller project, we learned how to prepare and divide the soil into raised beds to cultivate different types of vegetables separately. – FGD of CFs in Na Tam Commune, Tam Duong District*

*Before, we just grew vegetables on the hill. We just threw the seeds there, so they never grew that well. After the project, we learned how to make beds to avoid flooding. We also learned composting to make organic fertilizers; thus, the soil is spongy, and vegetables can grow better. Farming is a lot easier with the trained techniques. - FDG of households in Tan Lang Commune, Phu Yen District*

*I have participated in the project activities since the project started. Before the project me and my family grew vegetables in the field and did not know how to make beds. But since the project training, my family and others now make beds before sowing: sowing the right way brings good results. My family has quite a large area of arable land. I also grow fruits such as oranges, grapefruit, and other fruit trees in around on three quarters of the land. But one quarter is for the vegetable garden. In the garden, I also grow seasonal vegetables. In general, we do not have to buy vegetables anymore. - FGD of VMFs and CFs in Tan Lang Commune, Phu Yen District*

*In the past, vegetables were planted without beds and sprayed with pesticide indiscriminately. Now they know how to raise beds and grow vegetables very well. 80-90% of vegetable gardens have fences. - FGD of the District Management Board in Tam Duong District*

*The total number of households in the commune supported by the project is 328 households. So far, about 80% of the households still maintain their farm models using the technologies guided by the project. - FGD of the Commune Peoples' Committee in Tan Lang Commune, Phu Yen District*

Livestock rearing has also improved, with many interviewed households maintaining and expanding poultry and pig production. Households are knowledgeable on livestock production and disease prevention; and are now able to limit a disease's impact on production. They now know to make barns separately for chickens, ducks, and pigs, to get them vaccinated, to disinfect the barns, and seek veterinary services for sick livestock.

*With support from Helen Keller's project and officers at different levels, we raise pigs and chickens. They are also growing rapidly. – FGD of VMFs and CFs in Tan Lang Commune, Phu Yen District*

*Households knew how to get their livestock vaccinated, so the pandemic was under control. – FGD of DHC, WU and ASC in Lac Son District*

*Regarding livestock raising techniques, people already knew that they needed to buy veterinary drugs for treating sick livestock. In the past, people just slaughtered sick livestock for food. Now, with any signs of sickness, people will buy medicine. Moreover, they know how to spray disinfectant to clean the breeding facilities.*

– FGD of CFs in Na Tam Commune, Tam Duong District

*There are differences in farming before and after the project. After being trained in raising chickens, we can prevent them from infectious diseases. We have applied what they taught us. For example, we feed garlic to chickens to prevent them from getting sick.* – FGD of households in Tan Lang Commune, Phu Yen District

*People with good financial conditions also set up partitions to raise chickens, ducks, and pigs separately. Now, livestock no longer run free around. Livestock is raised in confinement as farmers have a higher consciousness of security and environmental issues.* – FGD of CFs in Na Tam Commune

*In most communes, the women pass on their experience in raising and hatching chickens from household to household. Because at that time (the project time was four years ago – interviewer), the project also provided five hens and one rooster. The households increased the number of chickens in the flock by multiplying them. The women also shared information among one another and replicated it in other Women Unions and other communes.* – FGD of FU and ASC in Phu Yen District

*For poultry production, local people are aware of the need to maintain a part of the herd instead of slaughtering all poultry. They now keep some for reproduction.* – FGD of the management board in Tam Duong District

Sustainability of capacity is also significantly shown in increasing knowledge and skills on nutrition care and feeding children among targeted mothers and caregivers. The beneficiary mothers/caregivers now practice what they learned from the project, such as preparing nutrient-rich meals and diverse nutrient foods for children, balancing the four food groups instead of buying instant porridge or noodles for children. Women know that they need to seek health care services and vaccination for their children at Commune Health Centers.

In the final review meeting at the end of EHFP projects, local partners strongly agreed with the sustainability plan in which communication sessions and roll-out trainings to share home-farming and nutrition care knowledge will be integrated into the regular activities of local partners such as District Health Center, Agriculture Service Centers, Women's, or Farmer's Unions, even without financial support from the project. We are unable to evaluate the quality and the scale of the training and communication that are conducted by local partners. However, from our discussions, such training and community communication sessions now occur once every three months. Staff from local partners are responsible for facilitating these activities as a part of their job duties. In Lac Son District, interviewed households shared initiatives in which mothers established community groups by themselves to continue cooking demonstrations or share experiences on childcare or agriculture production. While activities cannot be run monthly due to lack of finances, they are held at least once every three months. Mothers/caregivers and villagers (from both previous beneficiary households and non-beneficiary households) have met each other to share experience and knowledge on nutrition and childcare.

*As for nutrition, mothers gained a lot of knowledge. Before the project, they didn't know how to feed their children. They also often bought instant porridge and instant noodles for their children. Through the project's training on nutrition and childcare, mothers changed their minds. Although the project has been inactive for more than two years, mothers, nutritional facilitators, and beneficiaries still have knowledge.*

*And now we still convene community groups on nutrition once every three months. I often share with the non-beneficial households the knowledge that the project brought to the beneficiary mothers. - FGD of CHCs and WUs in Lac Son District*

*Since women were engaged in the project, they've strengthened their knowledge on nutrition, healthcare, and home food production which we find the most effective. They are proactive and able to develop plans to decide on production and animal raising models to assure food security for their home and locality – FGD of DHC, WU and ASC in Lac Son District*

*Before, I did not have any knowledge about nutrition for young children. After being guided by the project, we now know how to make nutritious meals for our children as well as how to promote these practices among other households. – FGD of the CPC in Tan Lang Commune, Phu Yen District*

*The project ended in 2019. After two years, the skills of the mothers in taking care of their children have become very good. Community groups have organized and engaged women to raise the awareness of society. – FGD of CPC in Lac Son District*

*Mothers also know that, in particular months, they need to bring their babies to the commune health center for vaccination, and they were also taught about how to care for their babies. The participants in the project were trained in the practice of cooking porridge as well as in how to obtain more nutrients. Regarding protein and other substances, women knew how to prepare them to provide a high supplement for their children. They also learned to add vegetables, eggs, meat, and fish. – FGD of CFs in Na Tam Commune, Tam Duong District*

*I am a local person and I sometimes visit the households, especially those in the two communes where the project was completed nearly two years ago. Almost all households still maintain the practices on supplement nutrition for their children. They absorbed most of this knowledge from the media, especially directly from hands-on training in the nutrition communication sessions. They still continue doing them. In the past, they didn't know about the four food groups, or the six steps of hands-washing, but after participating in this program, many households now know about these things and still maintain the practices. – FGD of the District People's Committee in Lac Son District*

For CFs and VMFs, sustained capacity is demonstrated by their continued efforts to share the knowledge and skills on home-gardening, nutrition care and childcare with other households. In addition, these facilitators have increased their communication skills, capacity, and confidence in organizing local events. This also enhances the sustainability of local human resources to continue communication activities in the community.

*Facilitators and health workers at the commune and village levels are well updated with information. Their knowledge and skills in childcare are improved by counseling others. The malnutrition rate has dramatically reduced since the project was implemented in these communes. In addition, communication events such as nutritional festival days have had a great impact on enhancing women's capacity in organizing such large communication groups and events. Commune and village Women's Unions now apply these organizing skills in practical activities at the local level. They can organize similar activities in the four communes in an excellent manner. This is what they have achieved -- they can organize and manage the activities very well. – FGD of DHC, WU and ACS in Lac Son District*

*During the implementation of the project from 2017 to 2019, there were many trainings on improving knowledge and enhancing skills for nutritional and agricultural facilitators so that they would be able to impart these knowledge and skills to locals. There were training courses on nutrition, communication skills, gender equality and household economic management. Each course had its benefit, and the participants could apply all the skills and knowledge learned in their life and share with others. – FGD of CFs in Lac Son District*

*We really appreciate the training sessions on entrepreneurship and economic management. Previously, most of the participants were in poor and near-poor household. After participation in the project's training sessions, we found that there was a positive effect on these households. The role of women in these families was enhanced, which I find very effective, and I am working to develop this further. – FGD of CFs in Lac Son District*

### **Sustained Linkages**

The qualitative IDI and FGDs explored the sustained linkage between the EHFP project's activities and national and local government programs. The EHFP project applied a multi-sectoral approach that involved the participation of health and agricultural sectors. Helen Keller also worked with a wide range of local partners and stakeholders, including Health Centers, People's Committees, Centers for Agricultural Services, Farmer's Unions, Women's Unions and Youth Unions. The local facilitators and partners at commune and district levels were engaged in the implementation, monitoring and supervision of the project activities. Additionally, the EHFP's interventions were closely aligned with local development programs and local human resources.

For the nutrition component, communication on nutrition care, health care and cooking demonstrations were still being integrated into the regular activities of District and Commune Health Centers. Nutrition communication is one of the targets of the National Program on Nutrition, which District Health Centers are meant to be promoting. For example, in Lac Son District, the DHC encourages and provides technical support to Commune Health Centers to establish community communication groups on nutrition, also called "nutrition clubs", in the villages. Through community club activities, previous facilitators and beneficiary households can continue to share and demonstrate good nutrition practices, childcare and healthcare practices for pregnant and lactating women with other non-beneficiary households in the villages.

*Q: How do you maintain the activities of nutrition clubs or communication activities to demonstrate good practices of proper nutrition or healthcare to pregnant and lactating women?*

*A: This is our targeted program, and whether we are supported by the project or not, we must sustain this activity. – FGD of DHC, WC and ACS in Lac Son District*

*Absolutely we will maintain these activities through the district health center. We will provide instructions to communes and villages so that we can sustain community communication groups on nutrition in each village. – FGD of DHC, WC and ACS in Lac Son District*

Facilitators stated that although nutrition education and awareness-raising sessions were not organized exclusively for beneficiaries anymore as they were during the EHFP project time, the sessions have now been integrated into regular village meetings or meetings of Women's/Farmer's Union once every two or three months. It was noted that it was advantageous if the facilitators held leadership positions in the community such as the village head, chairwoman/chairman of village women's/farmer's union, or village health



workers, because their improved awareness and knowledge made them more confident to share information with community members, and the activity was linked to their responsibilities in the community.

*After the project ended, we continued to advocate to local people on how to prepare nutritional food for children at regular village meetings, and meetings of the Women Union branch. Because I'm also the head of the Women Union branch in my village, I hold monthly meetings with our members. In these meetings, we now integrate communication on health issues for women. – FGD of CFs in Lac Son District*

*We have nutrition groups. They are tied to the role of population collaborators who monitor activities of nutrition groups. The nutrition groups organize communication activities, which are integrated into the meetings of village women's/farmer's unions. The people who take part in the communication are previous facilitators trained by the project. Maintaining this activity is also the desired outcome of the commune. – FGD of CPC in Lac Son District*

Not only have communication on nutrition care practices continued, but techniques related to homestead gardening, poultry and livestock rearing, and livelihoods also continue to be shared and exchanged in the village meetings. In this way, behaviors that were promoted during the EHFP project continue to be sustained.

*Communication is still maintained in Yen Phu Commune. As for my job, I have regular meetings with the veterans' association, farmer's union, youth union and women's union. This month, at the end of the meeting, we held a 15–20-minute session to talk about what crops to grow, what animals to raise, how to prevent pests and diseases, and what kind of plant protection agents to spray with the corresponding weather in my village. These activities are conducted monthly. – FGD of facilitators in Lac Son District*

*In the monthly meeting at the beginning of each month, the communist party committee's secretary and the village head introduce the main activities in the village for the month, following which those activities are carried out. The frequency of village meetings depends on the number of local unions (such as women's union, veteran's union, or farmer's union) in the village. The subjects discussed vary from issues of growing seeds/plants to livestock reproduction. For example, recently, in a meeting of the farmer's union in my commune, we implemented the cultivation of *Ganoderma lucidum* to develop household economies. - FGD of CFs in Lac Son District*

For WASH components, the local governments continued to motivate and support households to build hygienic latrines even after the project was phased out. Since this is an indicator of the National Program on New Rural Development, local governments are required and therefore motivated to continue even without the projects' support.

*Q: Has it been sustainable to scale up building hygienic latrine after the project ended?*

*A: Following the district's target setting, we continued to encourage the Commune Health Centre and People's Committee to coordinate with villages to maintain and integrate this activity. Even after the project phased out, we had to implement this activity because it is under the National Health Targeted Program, and we can't leave it out. – FGD of DHC, WU and ACS in Lac Son District*

## **Sustained motivation**

It has been challenging for local people and authorities to continue some of the activities and practices after the project ended, without additional external funding. However, the qualitative analysis showed that a lot of knowledge, practices and skills in home-gardening, poultry and livestock production, consumption of nutrient foods, childcare and WASH continued to be applied and adapted among the former beneficiary households and replicated through spill-over effects to non-beneficiary households. Thus, there has been sustained motivation to continue these practices and share knowledge.

Reasons for sustained motivation noted in the FGD and IDI include: home-garden and livestock production can provide enough vegetables and meat for household consumption, and even income from sales of excess products; people do not have to take time to hike the hills far from their houses to pick vegetables, and it is easy to get the fresh and delicious vegetables at home; and more diverse diets provide better nutrition for children.

*I grow a lot of vegetables. On each bed, I grow a few different varieties. I grow morning glory, spinach, jute vegetables, amaranth, eggplant, squash, and papaya. My family has enough vegetables to eat, and we don't have to buy them outside.*  
– FGD of households in Yen Phu Commune, Lac Son District.

*Before, there was very little livestock production. Some households did not even have any poultry or livestock. Now, every household has some chickens, and people don't need to buy chicken meat from outside.* – FGD of CFs in Na Tam Commune, Tam Duong District.

*Before, they had to hike 2-3km to the hill to pick enough vegetables to last for 2-3 days. They realized that it took much time and reduced vegetable nutrition, plus vegetables kept for a long time were not delicious. Now, with a home garden, it is easy to have vegetables for daily meals; just pick vegetables at home, boil them, and enjoy them.* – FGD of the District Management Board in Tam Duong District

*I have had vegetables for all seasons: amaranth, Malabar spinach, squash, and pumpkin. Recently I planted a pumpkin. I harvested pumpkin fruit and leaves for sale.* – FGD of VFMs and CFs in Tan Lang Commune, Phu Yen District

*There have been obvious changes. In the past, mothers only added cooked rice to porridge to feed their babies. Now they know how to grind rice into fine rice flour with a grinder. Before, babies were totally fed with cooked rice, but now fruits and veggies are added to their meals. Eggs or fish are also added.* – FGD of CFs in Na Tam Commune, Tam Duong District

An interviewed representative from Lac Son DHC stated that the activities from the project, such as community communication groups on nutrition and cooking demonstration contests held during Nutrition Festival Days, are very practical, interesting, and are worth sharing with others and being scaled up. They expect these kinds of activities to be expanded and replicated in the communes outside the former EHFP project area. If these events continue to be organized, they will motivate confidence and excitement of local women in home-farming, nutrition care for their children and families, and women's voice in the community events as well.

*The competitions on nutritional knowledge and cooking demonstrations on the Nutritional Festival Day are very useful. I am setting up a model to demonstrate and expand these activities to the non-intervention communes. I think it is practical and interesting -- mothers were so excited to be engaged in the Nutritional Festival Day because they could use what they learned and practice at home; they gradually felt*

*much more confident from such events.* – FGD of DHC, WU and ASC in Lac Son District

As mentioned in the sustained linkage section, the indicators on nutrition care and WASH are some of the main indicators of the National Targeted Programs on Nutrition and New Rural Development, which are associated with the socio-economic development targets and ranking of each district and commune. Although it might be on a smaller scale than the EHFP Project, local managers familiar with the EHFP interventions, can replicate EHFP activities and approaches to ensure nutrition and WASH are integrated in the regular activities of the local government, as this is a requirement for them. Thus, this is another motivation that could sustain EHFP activities.

*The program on water sanitation and environment, along with similar programs, must be sustained because they are under the National Health Target Program. If we have support from the project, it is good. If not, the district must find a way to sustain these activities.* – FGD of DHC, WU and ASC in Lac Son District

### **Sustained Resources**

The most sustainable resource from the EHFP Project are human resources. The previously targeted households, VNFs and CFs have sustained capacity and have been key drivers and advocates of sustaining and scaling up the EHFP's activities and practices within their communities (see the qualitative analysis on sustained capacity above).

Other sustained resources are seen when certain project activities are maintained and/or replicated by project stakeholders or other groups after the project ends. For example, the activity of the Business Start-up Fund is now managed by Women's and Farmer's Unions in two provinces, the positive results from innovative livelihood development models that increased the diversity of products produced and sold is being replicated by other farmers, and the practice of transferring piglets from VMF or households given breeding sows during the EHFP Project to other households has continued in some sites.

The EHFP Project team worked with the local government to establish the Business Start-up Fund, which was handed over for management to the Women's Union in Lac Son District (Hoa Binh Province) and the Farmer's Union in Tam Duong District (Lai Chau Province). The Business Start-up Fund started to support targeted households in Hoa Binh and Lai Chau Provinces with small loans for increasing production from 2017. As of December 2021, Start-up Funds has accumulated to VND 1,270 million (640 million in Hoa Binh Province and 630 million in Lai Chau Province) and benefited 189 households from eight project communes (including four communes included in the IDEAL Vietnam EHFP Study). Eligible households are approved for a loan from VND 7,000,000 to VND 20,000,000 (\$300-\$900) during 12 to 18 months for crop and livestock production (or other small, related businesses) to generate household income, thereby contributing to improved household food security. After every loan round ends, new households are assessed for borrowing loans under the new round. At the end of the project, Helen Keller worked with District People Committee to handover the Business Start-up Fund to the Women's Union in Hoa Binh Province and the Farmer's Union in Lai Chau Province. They have continued to manage loans, review proposals, and select the eligible households for new rounds. The financial support from the Business Start-up Funds over time will reach a larger number of beneficiaries, and thus it is considered a sustained resource of the EHFP project.



Bui Thi Tiep, a beneficiary from Chi Dao Commune of Hoa Binh Province is feeding her chickens. The chicken production was funded by a loan through the Business Start-Up Fund. - Helen Keller Intl Vietnam

*Helen Keller provided a fund of more than 600 million VND. The fund is being used efficiently and helps to improve the women's capacity. We use the fund for different capital cycles. Thus, a greater number of pregnant women and mothers with small children benefit from the program. – FGD of DHC, WU and ASC in Lac Son District*

Local people have created sustainability in resources and household income when they promote livelihood development and increase the diversity of products produced from rice, buffalos, pigs, goats, and typical local products as cardamom, and take advantage of favorable climatic conditions for new products such as raising salmon in Lai Chau Province.

*It depends on the development level of each village. In a village with a better living condition, people's awareness is higher to support each other to develop. For example, in Son Binh commune, many households have incomes over 100 million per year. Villagers now know how to improve production to increase their income resources. Their incomes come from rice, cardamom, raising buffalos, pigs, goats and now salmon. There is a combination of positive factors, including decent living conditions of villagers, their effort for production development, and the support from the projects. – FGD of CHCs and WUs in Tam Duong District*

The project's practical approach was highly appreciated by the leader of the Department of Maternal and Child Health. VMFs were provided with incubators and sows, but they had to share with other households. This motivates sharing and sustaining resources.

*The great thing about Helen Keller's approach is that people were given incubators, but on the condition that they had to incubate their neighbors' poultry also. It meant that the neighbors brought eggs and the people who have the incubator had to incubate their neighbors' poultry' eggs. Or a VMF was given a very good breeding sow, but when the VMF's sow gave birth, the VMF had to give one piglet back to another household in the village once the piglet is released from the barn. It's very nice that people get something, but they don't enjoy it alone, they have to be responsible for the community. I think that is really "giving people a fishing rod, not a fish". – IDI of the Maternal & Child Health Department, MOH*

Two years after the project ended in Tan Lap and Yen Phu Communes, households receiving sows from the project continued to transfer the female piglets to other households. Sow breeding and transferring piglets have contributed to sustained resources.

*Regarding the breeding techniques, the first five village model household farms that received sows during the EHFP Project transferred piglets to more than 30 households within the two years after the project ended. This success will further help with the replication and shows the proficiency of the program. – FGD of CPCs in Lac Son District*

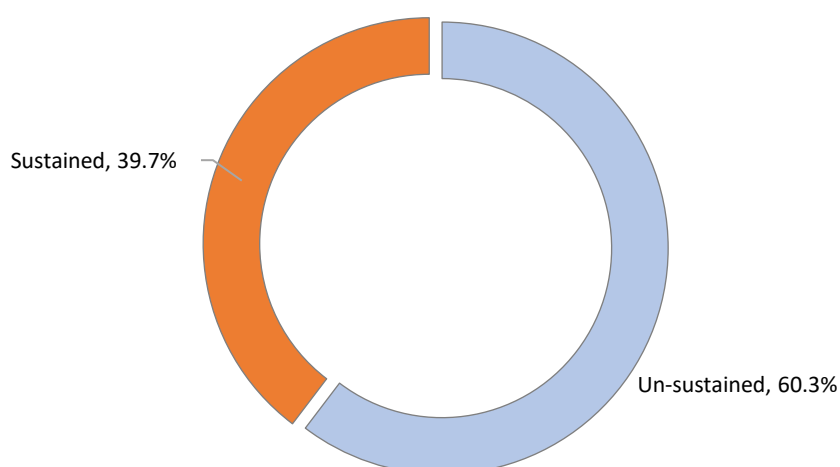
Similarly, sustained resources are also shown in providing initial poultry and seeds coupled with technical knowledge and practical skills to better ensure that production is maintained much longer than the life of the project. From the initial support from the project, households have increased their production over the years and created the sustainability of resources.

*Although the initial support of the project was not very much, for example, in the poultry support program, the project supplied 15-20 heads per household, but many households have now increased their poultry flocks to 200-300 heads. – FGD of CPCs in Lac Son District*

*Beneficiary households are still maintaining their fruit and vegetable gardens, as well as chicken and pig farm models. They expand their farming from the seedlings and breeds supported by the project, and then they expand to other households. – FGD of CPC in Tan Lang Commune, Phu Yen District*

However, notwithstanding the above positive aspects of sustained resources, the impact and number of targeted households benefiting from the Business Start-up Fund and transferring piglets from sow production, was still limited. The Business Start-up Fund model had not been established in the pilot project in Son La province, thus, targeted households there have not benefited from this intervention. For Lai Chau and Hoa Binh Provinces, all beneficiaries also cannot receive the loans at the same time because of the limited funds and the requirement of 12 to 18 months for a loan round. In addition, the number of households who were given female piglets from VMFs is still small compared to the whole village. This action also depends much on the commitment of VMFs and villagers.

### 6.3. Household sustainability



**Figure 5. Proportion of sustained and un-sustained households from IDEAL Vietnam EHFP Study (n=353)**

EHFP Project Endline results showed that on average households had 9.6 different vegetables (in home gardens) and 41 poultry birds (either chicken or duck) at endline. Therefore, the IDEAL Vietnam EHFP Study used the cut-off point of 9 different vegetables grown in home gardens in the past month and 41 poultry currently owned at the time of the IDEAL Study to classify households into “sustained” or “un-sustained” categories. At the time of conducting the IDEAL Study, households with at least 9 different vegetables in the previous one month or 41 poultry owned would be classified as sustained (i.e., had continue to practice the two key EHFP promoted agriculture activities). Based on these criteria, about 40% of the households were sustained and 60% were un-sustained, two-four years post-project completion (Figure 5).

### 6.3.1. Correlation between household characteristics and sustainability of households

An analysis was done to look at the correlation between sustainability (categorized as sustained or un-sustained) of EHFP target households several years post EHFP Project completion and possible confounding variables including location, ethnicity, number of household members, household wealth, mothers’ education, mother’s occupation, and husbands’ occupation.

**Table 12. The association between household characteristics and sustainability of households**

Indicators	Un- sustained household n (%)	Sustained household n (%)	P value
<b>Location</b>			
Tam Duong District (Lai Chau Province)	110 (77.5)	32 (22.5)	<0.001
Lac Son District (Hoa Binh Province)	70 (49.3)	72 (50.7)	
Phu Yen District (Son La Province)	33 (47.8)	36 (52.2)	
<b>Ethnicity</b>			
Muong	80 (46.2)	93 (53.8)	<0.001
Hmong	60 (82.2)	13 (17.8)	
Lao	49 (71.0)	20 (29.0)	
Other (Kinh and Thai)	24 (63.3)	140 (39.7)	
<b>Number of household members</b>			
5 and less than	139 (59.4)	95 (40.6)	0.63
Higher than 5	74 (62.2)	45 (37.8)	
<b>Household Wealth Index</b>			
Poor	122 (74.8)	41 (25.2)	<0.001
Medium	79 (48.7)	83 (51.2)	
Rich	12 (42.9)	16 (57.1)	
<b>Mothers’ education level</b>			
Illiteracy	76 (56.7)	58 (43.3)	<0.001
Primary to secondary	102 (81.6)	23 (18.4)	
High school and above	35 (37.2)	59 (62.8)	
<b>Mother’s occupation</b>			
Farmer	153 (57.1)	115 (42.9)	0.03
Other (workers, gov staff etc.)	60 (70.6)	25 (29.4)	
<b>Husbands’ occupation</b>			
Farmer	137 (59.1)	95 (40.9)	0.49
Other (workers, gov staff, etc.)	76 (62.8)	45 (37.2)	

The correlation between household characteristics and the sustainability of EHFP households is exhibited in Table 12. In general, there were significant differences in the proportion of un-sustained vs sustained EHFP households based on project location, household ethnicity, household wealth, and mothers’ education level ( $\chi^2$  test,  $p < 0.001$ ) as well as mother’s occupation (post-hoc test,  $p < 0.03$ ).

Notably, the proportion of un-sustained EHFP households in Tam Duong District of Lai Chau Province (77.5%) was significantly higher than in Lac Son District of Hoa Binh Province (49.3%), and Phu Yen District of Son La Province (47.8%) (post-hoc test,  $p < 0.001$ ). Ethnicity also seemed to contribute to households being sustained or not sustained. The proportion of un-sustained households among the Hmong ethnic group (82.2%) and Lao ethnic group (71.0%) were both higher than that of Kinh and Thai household (63.3%) and Muong households (46.2%) (post-hoc test,  $p < 0.001$ ). Meanwhile, based on mothers' education level, the EHFP un-sustained proportion was highest in two groups: mothers who finished primary school and those who finished secondary schools (81.6%), followed by those who did not go to school (56.7%), and lowest in the group of mothers who finished high school or above (37.2%); and the differences are pairwise (post-hoc test,  $p < 0.03$ ). Although not as significant of a difference, households with mothers who were farmers had a lower proportion of un-sustained households (57.1%) compared to households with mothers who had different jobs (70.6%) ( $\chi^2$  test,  $p = 0.03$ ).

The IDEAL Vietnam EHFP Study also found a relationship between whether the EHFP model was sustained and the household wealth index ( $\chi^2$  test,  $p < 0.001$ ). A higher proportion of poor households (74.8%) were categorized as un-sustained compared to medium (48.7%) or rich households (42.9%) (post-hoc test,  $p < 0.001$ ). Note that the EHFP Project sites were selected in the poorest mountainous communes that were included in the government's Program 135A where 50% of households are considered poor. This partly explains the high proportion of poor households among un-sustained households (74.8%). However, this result also raised the consideration that the project sustainability may have been improved if the EHFP Project had explicitly targeted the poorest households with increased technical and resource-related assistance.

### 6.3.2. Correlation between household food security and sustainability of households

As seen in Table 13, households who were un-sustained were twice as likely to suffer from food insecurity compared to those who were sustained (OR=2.2, 95% CI = 1.4 – 3.5,  $p = 0.001$ ). However, no association between hunger and the EHFP model sustainability was found ( $p = 0.82$ ).

**Table 13. The association between sustainability of households and household food security**

Indicators	Un- sustained household (n =213), %	Sustained household (n =140), %	OR (95%CI)	P value
<b>Food insecure</b>				
Yes	44.1	26.4	2.2 (1.4 – 3.5)	0.001
No	55.9	73.6		
<b>Hunger</b>				
Yes	3.3	2.9	1.2 (0.3 – 4.0)	0.82 <sup>F</sup>
No	96.7	97.1		

F:  $\chi^2$  fisher exact test

### 6.3.3. Correlation between household food consumption and sustainability of households

Results shown in Table 14 indicate that former EHFP households who were un-sustained were 4.5 times as likely to have unacceptable household food consumption compared to EHFP sustained households (OR=4.5, 95% CI = 1.3 – 15.6,  $p = 0.01$ ).

**Table 14. The association between sustainability of households and household food consumption**

Indicators	Un-sustained household (n =213), %	Sustained household (n =140), %	OR (95% CI)	P value
<b>Unacceptable household food consumption</b>				
Yes	8.9	2.1	4.5 (1.3 – 15.6)	0.01
No	91.1	97.9		

#### 6.3.4. Correlation between minimum dietary diversity and sustainability of households

Table 15 shows that 6-23 months old children of un-sustained households were 12 times as likely to not reach the minimum dietary diversity compared to those from sustained households (OR=12, 95% CI = 2 – 72, p<0.001).

**Table 15. The association between sustainability of households and minimum dietary diversity of children**

Indicators	Un-sustained household (n =41), %	Sustained household (n =19), %	OR (95% CI)	P value
<b>Children 6-23 months that consumed ≥ 5 food groups (out of 8)</b>				
No	58.5	10.5	12 (2.0 – 72.0)	<0.001
Yes	41.5	89.5		

As seen in Table 16, this study did not find any association between sustainability of former EHFP households and early initiation of breastfeeding (p=0.13) or exclusive breastfeeding (p=0.51) for children under 2 years of age.

**Table 16. The association between sustainability of households and early initiation of breastfeeding and exclusive breastfeeding**

Indicators	Un-sustained household (n =52), %	Sustained household (n =28), %	OR (95% CI)	P value
<b>Early initiation of breastfeeding among children 0-23.9 months</b>				
No	17.3	32.1	0.4 (0.2-1.3)	0.13
Yes	82.7	67.9		
<b>Exclusively breastfed among children 0-23.9 months</b>				
No	40.7	48.3	0.7 (0.3-1.8)	0.51
Yes	59.3	51.7		

Table 17 shows that women with young children living in un-sustained households were 2.1 times as likely to not reach the **minimum dietary diversity** compared to those from sustained households (OR=2.1, 95% CI = 1.4 – 3.3, p<0.001).

**Table 17. The association between sustainability of households and minimum dietary diversity of mother**

Indicators	Un-sustained household (n =213), %	Sustained household (n =140), %	OR (95% CI)	P value
<b>Women of young children consumed ≥ 5 food groups (out of 10)</b>				
No	66.2	47.9	2.1 (1.4 – 3.3)	<0.001
Yes	33.8	52.1		

As seen in Table 18, un-sustained households were shown to be 2.1 times as likely to not have high dietary diversity compared to sustained households (OR=2.1, 95% CI = 1.3 – 3.5, p=0.004).



**Table 18. The association between sustainability of households and household dietary diversity**

Indicators	Un-sustained household (n =213), %	Sustained household (n =140), %	OR (95% CI)	P value
Households had high dietary diversity (consumption of $\geq 6$ food groups out of 12 groups)				
No	33.3	19.3	2.1 (1.3-3.5)	0.004
Yes	66.7	80.7		

### 6.3.5. Correlation between income from sale of excess EHFP products and sustainability of households

The study found an association between the sustainability of households and selling excess EHFP produce and poultry (Table 19). The average number of vegetables sold by sustained households in the previous 3 months was 2.5 times that of un-sustained households (OR = 2.5, 95% CI = 1.4 – 4.6, p=0.002). Similarly, sustained households also sold 2.5 times as many poultry as un-sustained households did in the previous 3 months (OR=2.5, 95% CI=1.4-4.6, p<0.001).

**Table 19. The association between sustainability of households and selling vegetables and poultry in the last 3 months**

Indicators	Un-sustained household (n =213), %	Sustained household (n =140), %	OR (95% CI)	P value
<b>Household selling vegetables or fruits in the last 3 months</b>				
Yes	10.9	23.6	2.5 (1.4 – 4.6)	0.002
No	89.1	76.4		
<b>Household selling poultry in the last 3 months</b>				
Yes	9.6	24.6	2.5 (1.4-4.6)	<0.001
No	90.4	75.6		

As seen in Table 20, sustained households had a significantly higher household income generated by selling fruits from home gardens in the previous three months than the un-sustained households. The average income from selling all kinds of fruit and specifically selling vitamin A-rich fruit (mango, papaya, persimmon, etc.) was much higher among sustained households than un-sustained households at VND 348,000 vs. VND 21,100 (Krusal-Wallis test, p=0.002) and VND 317,300 vs VND 11,700 (Krusal-Wallis test, p=0.02), respectively. The sustained households also gained higher average incomes than the un-sustained households for selling tubers and vegetables, but these results were not significant.

**Table 20. The association between sustainability of households and income from selling vegetables, fruits, and poultry**

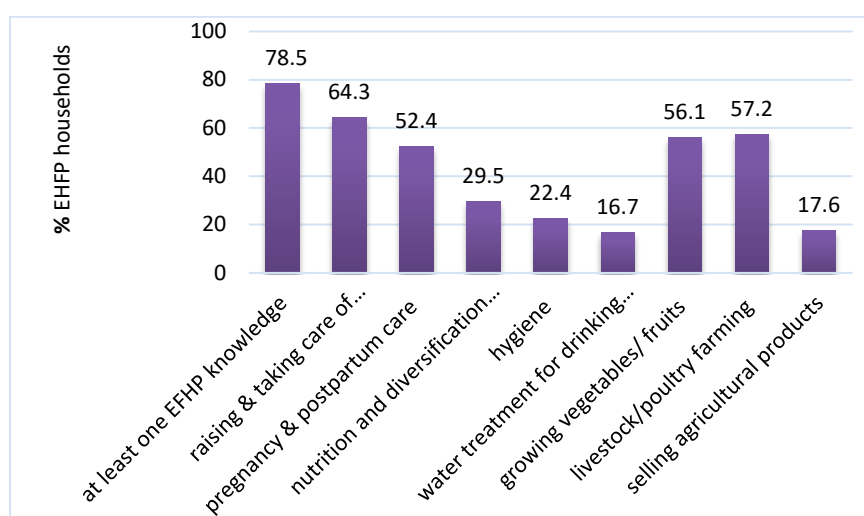
Indicators	Un-sustained household (n =213)	Sustained household (n =140)	P value
Average amount of money made from selling yam, cassava, and others of the same type (thousand VND)	221.2 ± 126.2	309.7 ± 186.4	0.16
Average amount of money made from selling vegetables from home gardens (thousand VND)	78.6 ± 501.1	293.5 ± 589.7	0.08
Yellow vegetables like pumpkin, carrots	0	4.3 ± 50.7	0.22
Dark green leaf	78.6 ± 501.1	274.8 ± 590.8	0.13
Other vegetables	0	14.4 ± 160.0	0.08

Indicators	Un-sustained household (n =213)	Sustained household (n =140)	P value
Average amount of money made from selling fruits from home gardens ( <i>thousand VND</i> )	21.1 ± 275.3	348.0 ± 897.4	0.002
Mango, papaya, yellow fruits	11.7 ± 139.8	317.3 ± 983.2	0.02
Other fruits	9.4 ± 137.0	30.7 ± 239.3	0.15

## 6.4. Spill-over impact

### 6.4.1. Status of spill-over among EHFP household respondents

Regarding the spill-over of knowledge gained during the EHFP Projects, 78.5% of mothers had shared at least one EHFP knowledge or practice with their surrounding people (relatives, neighbors, etc.) between the time the EHFP Project ended and the IDEAL Study.

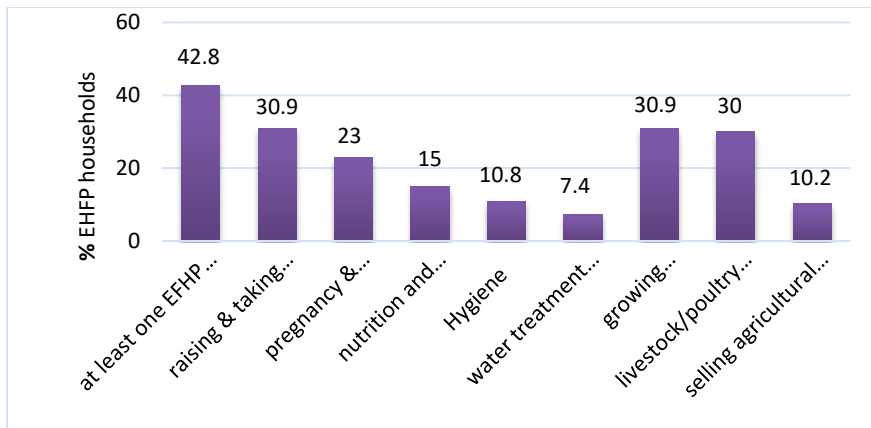


**Figure 6. Percent of former EHFP households sharing knowledge by type of knowledge shared with relatives and neighbors**

More specifically, Figure 5 shows that:

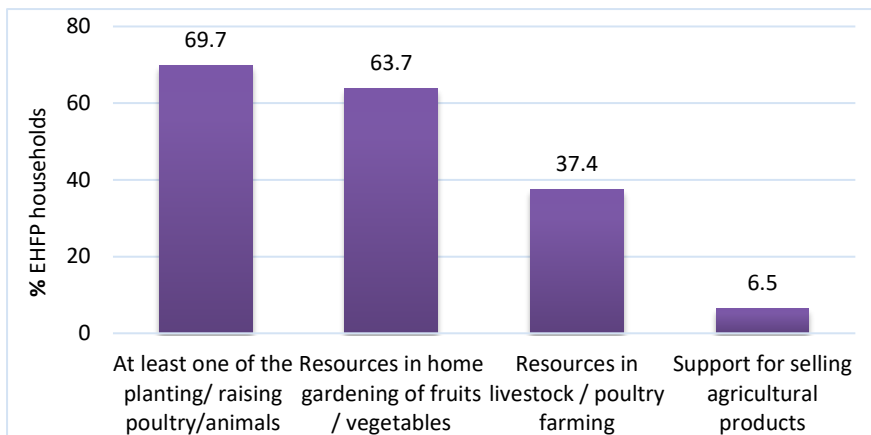
- 64.3% of the sharing was about knowledge on raising children and taking care of children when sick
- 57.2% was about knowledge in livestock/poultry farming
- 56.1% was about knowledge in growing vegetables/fruits in the home garden
- 52.4% was about knowledge in pregnancy and postpartum care
- 29.5% was about knowledge on nutrition and diversification of meals
- 22.4% was about hygiene knowledge
- 17.6% was about knowledge in selling agricultural products
- 16.7% was about knowledge on water treatment for drinking and living

As seen in Figure 6, about 43% of mothers shared at least one EHFP knowledge or practice with members in social groups (women's association, farmers' association, etc.). They usually shared with the groups about knowledge on raising children and taking care of children when sick (30.9%); knowledge on growing vegetables/fruits in the home garden (30.9%); knowledge on livestock/poultry farming (30.0%); and knowledge on pregnancy and postpartum care (23.0%).



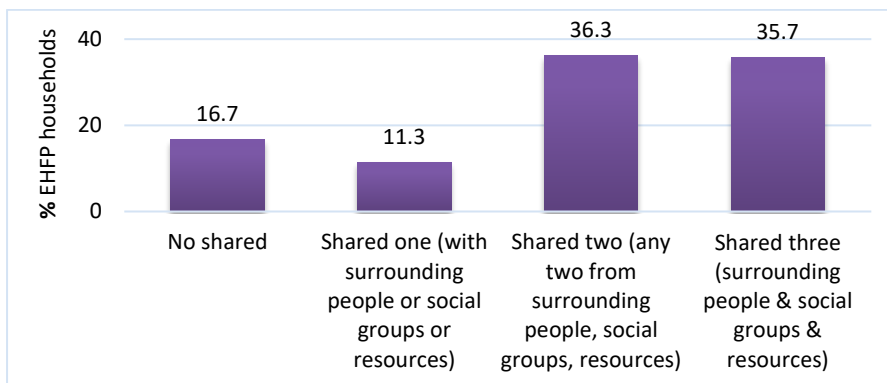
**Figure 7. Percent of former EHFP households sharing knowledge by type of knowledge shared with members in social groups**

As shown in Figure 7, close to 70% of mothers shared at least one EHFP resource with their surrounding people (relatives, neighbors, etc.). 63.7% of them assisted their surrounding people by providing seeds/seedlings of vegetables or fruits, and 37.4% assisted in terms of eggs or breeds.



**Figure 8. Percent of former EHFP households supporting others in home gardening/ animal raising**

Combining all three forms of sharing (sharing knowledge with surrounding people, sharing knowledge with social groups, and sharing resources), about 17% of the women who participated in the interviews never shared any EHFP knowledge or resources with anyone, 35.7% of them practiced all three forms of sharing, 36.3% practiced two forms of sharing and 11.3% only practice one form.



**Figure 9. Spill-over impact from EHFP households to others by type of sharing**

## **Qualitative Results**

The IDEAL Vietnam EHFP Study also assessed spill-over using qualitative data collected from household, commune, and district stakeholders in all three provinces where EHFP Project activities had been implemented two-four years prior. Sharing of knowledge, practices, and resources, particularly from former EHFP target households, VMFs, and CFs, was explored in a series of FDG. In-depth interviews were also conducted at district and provincial levels.

### ***Spill-over sustained capacity***

The sustainability of knowledge and practices on home food production, proper nutrition, hygiene, and children's and mother's care was recorded among the previous beneficiary households. In addition, key food and nutrition security practices have been adopted among non-beneficiary households and showed the spill-over of sustained capacity. The reason for spontaneous adoption of non-beneficiary households is that the knowledge was often shared by the project's community facilitators and through VMFs, and they noticed the benefits and effectiveness of applying the practices and recommendations introduced by the project.

*The beneficiaries clearly see the benefits of applying the project's practices. The households who were not the direct beneficiaries also found that the project's practices useful for their household, so they learned to follow. There were households that did not have children under two years of age and were not included as project beneficiaries, but they still followed the VMFs because it was also widely communicated by the VMFs to apply the project's practice and knowledge into their lives. – FGD of CFs in Lac Son District*

Supporting the quantitative results, the most shared knowledge is about childcare and how to feed children to provide proper nutrition.

*The amount of knowledge learned and practiced is very high. For example, a pregnant mother who did not join the project was taught on how to raise her children by another mother who joined the project. Therefore, the effectiveness of this project was very high. In the project villages, people often learned from the ones who were in the project. – FGD of CHCs and WUs in Tam Duong District*

*Q: Is there anyone here who has shared childcare knowledge to other mothers who didn't join the project? Are there any changes in the way they take care of their children?*

*A: Yes. After we shared the knowledge with them, many of them changed their ways of raising their children. The most significant change is the way they feed their children. We advise mothers to take better care of their children's health and provide them with various nutritious foods. – FGD of households in Tan Lang Commune, Phu Yen District*

In addition, knowledge on home-garden production, crop cultivation, and poultry/livestock raising has been widely shared among villagers from both beneficiary and non-beneficiary households.

*Q: Did the villages change in the two years since the project finished and no longer offered supported?*

*A: I can't evaluate all of them, but I witnessed a few things as follows: When I go to villages that are close to each other, beneficiary households grow vegetables, and non-beneficiary households also know how to grow vegetables. This is a very good*

*example of sustainability and spill-over.* – FGD of the District Management Board in Tam Duong District

*Q: Since the project ended, as an agricultural facilitator, will you continue transferring your acquired knowledge to households still in difficult conditions, or communicating further with them?*

*A: Yes, when we gather together, I urged those who have not prepared soil beds for cultivation to do it before sowing seeds of vegetables. I also tell them that raised beds would make it easier for them to go back and forth taking care of the plants. Besides, it is easier to spray water and pick up veggies than it was in the past; it is also easier to add fertilizer evenly.* – FGD of CFs in Na Tam Commune, Tam Duong District

*The practices are replicated because they are still effective. After the project's completion, the beneficiary households were aware of the increase in the quality of daily meals, so it was spread and replicated to the others in Women's Unions as well as other communes. In most communes, the women pass on their experience in raising and hatching chickens from household to household. For example, at the time of the project, the project provided five hens and one rooster, the households were trained to multiply and increase the number of chickens in the flock. The households shared their experience with others and replicated it for the other Women's Unions and other communes.* – FGD of ASC and WU in Phu Yen District

*There was a program providing technical instructions on growing mushrooms. At that time, it only took place in the Tan Lang Commune but then spread to the other communes. Now some households in Chieng Village in Muong Lang Commune have also learned how to produce mushrooms to sell at the market to increase their income.* – FGD of ASC and WU in Phu Yen District

Much of the spill-over happens organically with knowledge and practices shared via the village relationships. The local people have a close connection in their community. Thus, previous beneficiary households, VMFs and CFs continue sharing knowledge and practices they learned from the project to their family members, relatives, friends and neighbors. The informal way is friendly chatting between neighbors, or at community gatherings such as wedding, funerals, or ceremonies. The more formal way for sharing is through the regular village meetings, which are organized by the local social groups such as Women's Union, Farmer's Union, Veteran's Union, and Youth's Union (see more in the sustained linkage).

*The mothers who participated in the project before generally still maintain and do well with the practices learned from the project. They share with their family members or their relatives who have babies. They can also guide and teach their children to do the same.* – FDG of VMFs and FCs in Tan Lang Commune, Phu Yen District

*As neighbors, when sitting and chatting with each other, I often talk to them about the project to encourage them to raise some livestock.* – FGD of CFs in Na Tam commune, Tam Duong District

*In general, when the project was closed, the activity of facilitators also stopped. It was stopped because they didn't have the funds for their operation, and the facilitators had to work. Now knowledge is shared in the form of mothers sharing, or whoever has knowledge will tell the others in the village. When they go somewhere or meet someone, they can share with them - for example, sharing can happen at*

*funeral gatherings or village meetings.* – FGD of VMFs and CFs in Tan Lang Commune, Phu Yen District

*Through the project, social groups such as farmer's, women's and youth's associations, continue to carry out advocacy activity, maintain the farm models and replicate them to other households.* – FGD of CPC in Tan Lang Commune, Phu Yen District

In addition, local management and technical agencies have participated in the spill-over of sustained capacity. For example, CDC shared the EHFP Project's activities via the media, the District Agricultural Service Center has transferred farming techniques during the community refresher training, and the District Health Center replicated the model on nutrition communication to other communes.

*When we cooperated with Helen Keller to hold festivals in the communes, our communication staff recorded and reported the festivals' images and activities. Information on these festivals was shared with the communes of Tam Duong District. The images and articles related were also communicated to all provinces.* – IDI of CDC Lai Chau Province

*It's much different. Before, projects only supported us by providing oranges, bananas, and papayas. Now we have a variety of crops and farming techniques. The Agricultural Extension Centre has transferred the farming techniques to every household. Not only the households in the project but also those not in the project know how to take care of their gardens. That means they can maintain them well. They also know the technique of making beds and planting vegetables of all kinds. They plant vegetables according to the season, for example, spinach, gourds, sweet leaves, and all kinds of vegetables.* – FGD of CPC in Tan Lang Commune, Phu Yen District

*For instance, I am planning to expand more nutrition clubs in non-intervention communes. We set up a pilot nutrition club in each commune. I learned from Helen Keller's project and the regional projects to build up more clubs to expand the model across the district.* – FGD of DHC, WU and ASC in Lac Son District

### **Spill-over of sustained resources**

The quantitative data showed that nearly 70% of mothers shared at least one EHFP resource with their surrounding people (relatives, neighbors, etc.). The shared resources usually are seeds/seedlings, eggs, and breeders. The qualitative analysis also supported these findings. Households that can produce seedlings will share with others. The previous VMFs who were provided with sows continue to give piglets to others. It is one of the ways for the spill-over of inputs. Households who do not have land for home-gardens can even borrow land from other households to grow vegetables.

*When the project started, we had 12 model farms. Now about 70-80% of the households are model farms. They all know how to implement and maintain their home-farming. If a household can plant the seedlings, they will share them with the other households so that they can work together to provide nutritious daily meals for their children.* – FGD of CPC in Tan Lang Commune, Phu Yen District

*A household received a sow from the project; after their sow gave birth, they gave one female piglet to another household in the village. In this way, more and more people have received sows and understand breeding techniques.* – FGD of CPCs in Lac Son District

Q: For households that did not grow veggies in their home garden, where did they get veggies?

A: Some have grown veggies on the land of hilly tea plantations or on land borrowed from another household. – FGD of CFs in Na Tam Commune, Tam Duong District

#### 6.4.2. Correlation between spill-over and household characteristics

**Table 21. The association between household characteristics and spill-over**

Indicators	Not spill-over n (%)	Spill-over n (%)	P value
<b>Location</b>			
Tam Duong (Lai Chau)	44 (31.0)	98 (69.0)	<0.001
Lac Son (Hoa Binh)	11 (7.8)	131 (92.2)	
Phu Yen (Son La)	4 (5.8)	65 (94.2)	
<b>Ethnicity</b>			
Muong	11 (6.4)	162 (93.6)	<0.001
Hmong	18 (24.7)	55 (75.3)	
Lao	26 (37.7)	43 (62.3)	
Other (Kinh and Thai)	4 (10.5)	34 (89.5)	
<b>Number of household members</b>			
5 and less than	37 (15.8)	197 (84.2)	0.52
Higher than 5	22 (18.5)	97 (81.5)	
<b>Household Wealth Index</b>			
Poor	36 (22.1)	127 (77.9)	0.03
Medium	18 (11.1)	144 (88.9)	
Rich	5 (17.9)	23 (82.1)	
<b>Mothers' education level</b>			
Illiteracy	9 (9.2)	89 (90.8)	<0.001
Primary to secondary	39 (35.8)	70 (64.2)	
High school and above	5 (11.9)	37 (88.1)	
<b>Women's occupation</b>			
Farmer	50 (18.7)	218 (81.3)	0.08
Other (workers, gov staff etc.)	9 (10.6)	76 (89.4)	
<b>Husbands' occupation</b>			
Farmer	42 (18.1)	190 (81.9)	0.33
Other (workers, gov staff etc.)	17 (14.1)	104 (85.9)	

*p values from  $\chi^2$  test with  $P \leq 0.001$ ; or from post-hoc test with  $p \leq 0.05$*

Some household characteristics such as location, ethnicity, and mother's education ( $\chi^2$  test,  $p < 0.001$ ), and household wealth (post-hoc test,  $p = 0.03$ ) were associated with spill-over impact (of knowledge, practice, or resources) and are presented in Table 21.

- Location played a factor in spill-over: the proportion of households who did not share any knowledge/skills or resources in Tam Duong District (Lai Chau Province) was 31.0%, which was much higher than Lac Son District of Hoa Binh Province (7.8%) and Phu Yen District of Son La Province 5.8%) (post-hoc test,  $p < 0.001$ ).
- Ethnicity may have influenced whether former EHFP households shared or not. The proportion of households that did not have any spill-over among the Lao ethnic groups (37.7%) was higher than among Hmong households (24.7%), and much higher than that of Kinh households (10.5%), and Muong households (6.4%) (post-hoc test,  $p < 0.001$ ).
- The household wealth index was also correlated with spill-over, with the difference statistically significant at 0.03 (post-hoc test,  $p \leq 0.05$ ). Poor households (22.1%) and rich households (17.9%) had a higher percentage of household with no spill-over compared to households of medium wealth (11.1%).
- Mother's level of education was strongly correlated with spill-over of knowledge, practice, or resources from former EHFP Project households to others. Mothers with no formal education (90.8%) and mothers who finished high school (88.1%) were more likely to

share with others than mothers who either finished primary school or secondary school was 64.2%) (post-hoc test,  $p < 0.001$ ).

### 6.4.3. Correlation between spill-over and homestead food production practices

Un-sustained households were 3.2 times as likely to not-spill-over EHFP-acquired knowledge, practices or resources compared to the sustained households (OR=3.2, 95% CI = 1.5-6,  $p = 0.001$ ).

**Table 22. The association between the sustainability of household and spill-over impact**

Indicators	Not spill-over (n =59, %)	Spill-over (n =294, %)	OR (95% CI)	P value
<b>Sustained households</b>				
No	47 (22.1)	166 (77.9)	3.2 (1.5 – 6.0)	0.001
Yes	12 (8.6)	128 (91.4)		

## 7. Challenges to the sustainability and spill-over of the EFHP's practices

The IDEAL Vietnam EHFP Study collected qualitative information on difficulties sustaining and sharing EHFP-acquired knowledge, practices, and resources. Because the EFHP Project ended two-four years prior in the sites surveyed during the IDEAL Vietnam EHFP Study, its sustainability and spill-over faced various challenges. The challenges were explored via the qualitative IDIs, KIs and FGDs, especially from comments and discussion of un-sustained households, relating to the maintenance and scaling up of home-gardening practices, livestock and poultry raising, diversifying diets for children and education, information, and communication activities of support groups. The most mentioned challenge was the lack of money and no more direct support when the project closed. For example, lack of money to invest in inputs for gardening (such as fertilizers) and to expand livestock and poultry production; lack of financial support for VMFs or CFs to conduct the regular communication sessions or communication events such as the Nutrition Festival Day. The next group of challenges are adverse weather, climate, and disease conditions. Also, there is a lack of water for gardening; shortage of land for both gardening and livestock; lack of local resources for quality seeds/saplings/breeds, farming and livestock services and supplies; lack of market connection for sale of surplus products; limited awareness and hard-to-change behaviors related to local customs and culture; and the short project timeframe making it difficult for creating the long-term impacts.

### 7.1. Challenges to the sustainability and spill-over of the home-gardening and livestock/poultry production practices

#### **Lack of money to invest in gardening and livestock/poultry production.**

FGDs stated that one of the reasons for households to delay the EFHP practices on production (such as making beds, making fencing, composting, or not continuing/expanding farming, and raising livestock) is that they do not have the income to invest in them. For example, they have to buy nets, seeds, breeds, animal feed, fertilizer, and pay for farming and livestock services and supplies.

**Lack of money to invest in gardening:** Households must usually spend some money on equipment such as nets and inputs such as vegetable seeds and fertilizer.

*Some gardens do not have fences. The family couldn't invest in the B40 net, but instead, they could only buy a green net like the one over there. Those nets last only for one crop. They will be damaged by sun and rain. The household will have to buy a new net each year. Such investment costs about a few hundred thousand*



*dongs. It's expensive for them.* – FGD of CFs in Son Binh Commune, Tam Duong District

*The third difficulty is the lack of seeds (or breeding animals).* – FGD of households in Yen Phu Commune, Lac Son District

**Lack of money to invest in livestock and poultry production:** Husbandry requires more investment than the cultivation of vegetables and fruits. Money is needed to buy breeds and feed. It is quite expensive to buy breeds of pig, cow, buffalo, and horse for some households. Thus, it will be more difficult to expand or reinvest livestock production.

*We are raising chickens, but we don't have money to buy more breeds.* – FGD of households in Tan Lang Commune, Phu Yen District

*Regarding raising livestock, the problem is that there is no capital. Now a horse costs tens million VND, and a calf also costs ten million VND. Now there's no such support program from the commune for the poor households. So many people want to raise cows, horses, or buffaloes, but they do not have the capital. It would be great if the project could come back and support raising cows, buffaloes, horses, and goats.* – FGD of VMFs and CFs in Tan Lang Commune, Phu Yen District.

*We lost the capital when some pigs died. Now, if we borrowed money, we may not be able to pay it back. People don't have money, and thus, buying 1-2 pigs is so expensive. Later, when we sell, the price of pigs may go down.* – FGD of households in Yen Phu Commune, Lac Son District

*This season, I could grow corn on our farm, but not in the next season. Therefore, it would be expensive to raise chicken when I will have to buy corn from the market.* – FGD of CFs in Son Binh Commune

**Shortage of inputs for agricultural production, such as water for gardening, and land for gardening and raising livestock.**

**Lack of water for gardening:**

*In our current situation, the difficulty is water shortage, especially in the dry season like this. We even have a lack of clean water for domestic use, let alone watering veggies.* – FGD of CFs in Na Tam Commune, Tam Duong District

*The first difficulty is there is no water for irrigation. Water is only available when the dam's sluice gate is open so water can flow down to the fields. Otherwise, we don't have water.* – FGD of households in Yen Phu Commune, Lac Son District

*I also plant vegetables, and for this season, I do not grow many because of the water shortage. We had plenty of water and planted more than we needed and sold the surplus in the past. For now, there's no clean water, and there's a shortage of water, so I only plant enough for my family.* – FGD of households in Tan Lap Commune, Lac Son District

**Shortage of land for gardening:**

*The household of Ly Thi Cu, for example, had a piece of spare land near the house to grow vegetables in the past, but that land is now used to build a toilet. She has no more land to grow vegetables.* – FGD of CFs in Son Binh Commune, Tam Duong District

*We don't have enough planting area for seedlings. We also prepared some bags of soil to plant more (seedlings), but it's still not enough (space).* – FGD of households in Tan Lang Commune, Phu Yen District

*Most of the households here don't have enough land for farming. We also have land on the hill, but it is barren and hard for farming.* – FGD of households in Tan Lang Commune, Phu Yen District

**Shortage of land for livestock raising:**

*We cannot raise any livestock or poultry because we don't have land.* – FGD of households in Tan Lang Commune, Phu Yen District

*I don't want to increase the size of our livestock herd because my family has little land, and we don't have a barn for livestock production.* – FGD of households in Tan Lap Commune, Lac Son District

**Adverse weather and climate.**

Adverse weather and climate can impact directly to decrease yields and outputs of agricultural products.

*The productivity is not too high. It depends on the weather, climate, and people's hard work. For example, a crop could get high yields this year, but it can lose yield in the following year due to adverse weather. For example, this year the wind blew down all the corn.* – FGD of CHCs and WUs in Tam Duong District

**Pests reduce crop yields, and livestock and poultry often die due to disease or were stolen.**

**Hard to get rid of pests:** Vegetables can be heavily affected by pests, and it is hard to get rid of them.

*Pests are impossible to eradicate.* – FGD of CFs in Na Tam Commune, Tam Duong District

*There is leaf spot disease that can't be controlled.* – FGD of households in Yen Phu Commune, Lac Son District

**Livestock and poultry die due to diseases:** Interviewed households mentioned the various diseases on poultry, pigs, and cows that caused their deaths including, African swine fever, head edema, and blue ears disease of pigs, nodular dermatitis of cows, and chickens having bloody stools. Because of practices such as free-ranged raising and unhygienic barns, diseases' spread, and their effect becomes more severe. The death of poultry and livestock causes heavy loss of a households' income.

**Q:** *What are the major difficulties preventing you from increasing the number of livestock?*

**A:** *Livestock may usually be dead from plague or stolen.* – FGD of CFs in Na Tam Commune, Tam Duong District

*The sows provided by the project have been very effective, but recently, African swine fever appeared in Yen Phu, so the number of pigs have been lost by half, and*

*now only a few households still have them. – FGD of CHCs and WUs in Lac Son District*

*The shortage of capital. The capital source of this rural area program is very limited. So, for my family, if in every pig litter, 9 out of 10 piglets die, we have almost nothing left. They died due to head edema. At that time, the weight of piglets was about 20 kg, so the total loss of our family was 25 million VND. – FGD of households in Yen Phu Commune, Lac Son District*

*My chicken laid eggs, and only 23 chickens were alive. That time, the commune representative came back to check. The chicken had something causing smelly feet and then died during the rainy season. Maybe the chicken breeds were not suitable for our area. – FGD of CFs in Son Binh Commune, Tam Duong District*

*Here there are many diseases, each with different causes. The problem is that the livestock of the villagers is mainly free-range, free-range is not safe, and disease may spread wildly. The barn is usually not hygienic enough. The breeding process is not clean, so it also causes the disease. – FGD of ASC and WU in Phu Yen District*

#### **Lack of resources for quality seeds and breeds in the local areas.**

*When we buy seeds at the local store, sometimes we buy the right kind of seed and sometimes we don't since it's the same packaging, then we have poor harvests. For example, the fruits were not as it is said on the packaging, or the vegetable seed is of poor quality, unlike the vegetable seed provided by the project. – FGD of VMFs and CFs in Tan Lang Commune, Phu Yen District*

**Lack of veterinary services and supplies:** There is no local source of veterinary medicine and vaccine are not readily available. Vaccines are also expensive and due to availability and expense, households often must wait to purchase them, and sometimes it is too late so that the animal dies.

*The difficulty of the households is the lack of breeds, and the source of preventive medicine in raising livestock and poultry is rare. – FGD of VMFs and CFs in Tan Lang commune, Phu Yen district.*

*We have difficulty regarding the need for regular vaccination. It is hard to get animals vaccinated here. Now, there are many different diseases on buffaloes, cows, and pigs, for example, African cholera on pigs, but it is hard to find the vaccine. It takes so long to get the vaccine; if you make a registration this week, you will have to wait until the following week to get the vaccination. It is very expensive. A vial of vaccine nodular dermatitis is 1.3 million VND. Households must register to use one vial of vaccine together for their livestock. On average, each injection, including the fees, is from 70,000 to 80,000 VND. I saw people register for vaccination, but they would have to wait for a week to get it. The buffaloes and cows with nodular dermatitis here often weaken quickly and will be buried. – FGD of VMFs and CFs in Tan Lang Commune, Phu Yen District*

#### **No one consumes vegetables in the household.**

Some households explained that the reason why they did not maintain the home-garden is that their households do not have consumption needs.

*People no longer want to grow vegetables since it takes time to take care of and water them, and there's no one to consume those vegetables. – FGD of households in Tan Lap Commune, Lac Son District*

### **Lack of market connection.**

Many interviewed households stated that low and unstable prices reduce the motivation of households to grow vegetables and expand livestock production. In addition, the small production scale of households means there is not enough agricultural products to provide the market with a stable supply over a long time. Thus, it limits the increase of households' income from home-farming.

*Many people have vegetables to sell while there are fewer buyers so it's not worth it for people to sell. – FGD of households in Tan Lap Commune, Lac Son District*

*Yes, I mean raising pigs. Whenever I want to sell them, the price goes down while the bran is expensive. The price of pigs is cheap when I want to sell. – FGD of households in Tan Lap Commune, Lac Son District*

*Promoting business knowledge and market understanding as well as participating in local fairs. I was able to attend the project's fairs in Bac Ninh Province. The items at the fair were all high quality and could be sold quickly. However, it is difficult to maintain stable supplies of these goods because we can't maintain them for a long time. The reason is also because these are products produced in small quantities mainly to serve the family demand. Therefore, it is not enough to supply the market for all year round. That means our production model is not large enough to provide a large and stable quantity for the market. If we want to develop this model successfully, we need to set up a production group which is like a cooperative. For example, 10 VMFs in this area have to sign a commitment to raise chickens to supply the market for a certain period, while small-scale family production is unstable. – FGD of CFs in Lac Son District*

### **Market disruption due to COVID**

As noted earlier, in recent years, the COVID-19 pandemic has been one of the key challenges that caused supply chain disruptions. The price of breeds and animal feed increased while the price of livestock was unstable. The restrictions on social distancing made it more challenging to sell or buy home-farming's products at the market. Thus, it directly affects the sustainability and spill-over of the EFHP' practices.

## **7.2. Challenges to the sustainability and spill-over of proper nutrition and childcare practices**

### **Children did not like the more nutritious foods introduced to them.**

*If only our kids ate the food. We cooked one or two times, but our kids did not eat, and we had to throw the meal out. – FGD of CFs in Son Binh Commune, Tam Duong District*

### **Lack of money to buy diverse nutrient foods.**

*Some mothers said they had no money. They could not buy enough nutritious foods. – FGD of CFs in Son Binh commune, Tam Duong district.*

*Q: According to the project's guidance, you need to provide your children with various nutritious foods and change their meals regularly. Will you be able to do that?*

*A: Honestly, I can do it if I have the right conditions; otherwise, it's hard to do. We feed our children whatever we have because we don't have the conditions to follow the guidance. - FGD of households in Tan Lang Commune, Phu Yen District*

### **Mothers work far from home.**

*The parents who are in the working-age group must work far away. Grandparents are the main caregivers of the children. Changing behavior and perception for the caregivers who are old grandparents is not easy. – FGD of DHC, WU and ASC in Lac Son District*

### **Limited awareness and hard-to-change behaviors related to local customs and culture.**

*Some mothers weaned their children onto rice. They haven't changed their custom yet. – FGD of CHCs and WUs in Tam Duong District*

*Q: I understand that meat is expensive so some might not be able to buy it frequently. But most of you have veggies around the house, why don't they make porridge with veggies for their kids?*

*A: They do not want to. It is also traditional custom and old habit. The kids are used to that cooking style from an early age, it becomes their habit, and they continue to follow it - FGD of CFs in Son Binh commune, Tam Duong District*

### **No money after the project ends for information, education and communication activities and support groups.**

*We need a funding source to organize monthly group meetings. We assume that when the project phased out, we wouldn't have any source to maintain this activity, so it is difficult to reconvene women for a meeting. – FGD of DHC, WU, ASC in Lac Son District*

*Without the project support, my commune health center would not be able to organize Nutritional Festival Days. It must have funds. To organize those festivals, it must have coordination and direction of the Commune People's Committee and the Women's Union, and financial support from the project. – FGD of CHCs, WUs in Tam Duong District*

### **7.3. Challenges to the sustainability and spill-over of the project's continued activities and outcomes**

Other challenges mentioned were the short timeframe of the project and shortage of local government's personnel. The provincial representatives in Hoa Binh and Son La Provinces suggested that two years is relatively short for establishing long-term sustainability. They felt that projects aiming to improve nutrition and food security, especially for ethnic minority communities, should be about five years.

### **The project timeframe is short. It is hard to create long-term impacts.**

*A challenge that I would like to share with you is the perception and capacity of the local people. It takes a long time for them to perceive new knowledge. If the project's interventions are implemented in a short period, we hardly see the impacts. – FGD of DHC, WU and ASC in Lac Son District*

*If we design a project with many interventions, we think people will not fully understand it in short time. Projects in mountainous areas should be designed with a longer duration. For example, instead of designing a project of about 2-3 years, the intervention projects should last about five years. We think that the Helen Keller activities or any project related to nutrition should be set for about five years, which is reasonable. Of course, longer than five years is better, but about five years for projects is good enough. I think we should go slowly but steadily in mountainous areas and take longer time than in other areas, such as in urban areas or in lowland provinces. – IDI of CDC Son La Province*

### **Shortage of local government’s human resources to operate and sustain the support from the project.**

One of the disadvantages/difficulties of district Women’s Union (and Farmer’s Union) to manage and develop the Start-up Fund is the limitation of human resources (both quantity and capacity). To operate the Start-up Fund well, it is necessary to have a professional management and specialized staff. However, Women’s Union’s personnel also have to be responsible for many other tasks of governmental administration. Thus, it is a challenge for the sustainability and scaling up of resources.

*We are not aiming to launch a micro-finance program because we are working as governmental administration staff. If we take this task, we will establish another system in which we need to hire a manager and an accountant so the program can rely on itself. We haven’t thought about this idea so far. In the future, when we have strong finances, we will make a proposal. We are entitled to propose, and it will be approved, and then we will operate the system with counselling support. We definitely can manage. – DHC, WU, and ASC in Lac Son District*

## **8. Conclusions**

### **8.1. Project sustainability**

Quantitative analysis comparing the EHFP Project Endline and the IDEAL Vietnam EHFP Study data revealed both positive and negative results regarding the sustainability of various EHFP Project activities, outputs, and outcomes.

In terms of agricultural production, the proportion of households who had home gardens and raised poultry when the project ended was similar to two years post-project completion. The average number of different vegetables in the home gardens and the average number of poultry decreased by two vegetables and six poultry, respectively, between Project Endline and the IDEAL Study, although these numbers were still considerably higher than at Project Baseline. The EHFP project’s practices and techniques on home-gardening that are still being maintained are raised bedding, improved fencing, bio-composting, growing a variety of nutritious vegetables and fruits seasonally, and using herb-based pesticides. The poultry and livestock production techniques still maintained include making barns for livestock, getting them vaccinated, disinfecting barns, and seeking veterinary services for sick livestock.

Regarding household food security, there was an apparent improvement several years after project completion at the time of the IDEAL Vietnam EHFP Study that was at least partially independent of the EHFP Project’s impact. The average household food insecurity score decreased by more than two points. At the same time, the number of households who were food secure almost doubled, from 28.5% to about 63%. The proportion of households who did not experience hunger anytime in the previous 24 hours did not change and was high at Project Baseline, Endline and IDEAL Study (about 97%). The proportion of households with

acceptable food consumption scores was also very high at 94% at the time of the IDEAL Study.

Regarding dietary diversity, there was no increase in the average number of food groups consumed by women with young children in the previous 24 hours, which remained at four food groups/day. However, among the 6-23 months old children group, the average number of food groups consumed in the previous 24 hours increased by one food group in the IDEAL Vietnam EHFP Study (4.8), compared the EHFP endline (3.7). The proportion of those who reached the minimum dietary diversity rose about 20 percentage points (from 37% to 57%) among children and decreased 2% among women with young children (from 43.1% to 41.1%). The sustained households continued to use proper nutrition care and childcare practices, including preparing meals with nutrient-rich foods from home-gardens, using proper cooking techniques to retain more nutrients, and seeking health care services for children and pregnant women. These positive outcomes of sustainable nutrition and health care practices may have contributed to improved nutritional status among children under five at the previous project communes.

Regarding WASH, all indicators improved significantly between EHFP Project Baseline and Endline. Although still quite a bit higher than at Project Baseline, there were declines observed in two out of three WASH-related indicators between the EHFP Project Endline and the IDEAL Vietnam EHFP Study. The proportion of households who had a designated place for handwashing with clean water and soap reduced 15.7% (from 77.2% to 61.5%, respectively), the proportion of mothers who correctly practiced handwashing at least two appropriate occasions during the day went down 7.7% (from 69.5% to 61.8%, respectively), but the proportion of households who used at least one treatment method before using water for cooking showed no change (at 47.4% and 46.7%, respectively). The qualitative FGDs noted that handwashing was maintained and that there was an improvement in livestock manure management for composting, which resulted in more hygienic environment in villages. In addition, building hygienic latrines has continued as it is aligned with the local government's program.

The average household income from sale of excess EHFP products (in the previous three months) decreased two years post-EHFP Project completion, although it was still considerably higher than at Project Baseline. Specifically, household income from selling vegetables fell by VND 40,000 (from 202,700 to 163,900) and income from selling poultry fell by VND 147,000 (from 862,500 to 715,600) between the EHFP Project Endline and the IDEAL Vietnam EHFP Study. Qualitative data indicated that income from the sale of surplus products is not stable as crop production, price, market access, climate and weather conditions, and disease, on which the income from home agriculture production depends, all fluctuate.

In addition, the qualitative analysis explored four key factors of EFHP's sustainability, including sustained capacity, linkage, motivation, and resources. Regarding sustained capacity, individual households and VMFs have sustained their knowledge and practices (learned during the project) on year-round home food production and improved nutrition practices and care. For instance, they maintain home vegetable gardening including improved bedding, fencing, composting, and growing a diversity of nutrient vegetables. They have improved livestock (including poultry) production, such as making separate barns for livestock, getting them vaccinated, disinfecting barns, and seeking veterinary services for sick livestock. Targeted mothers and caregivers have sustained their knowledge and skills on nutrition care, feeding children with diverse diets and seeking the nearest health care services and vaccines for their children in the areas where they live. For CFs and VMFs, sustained capacity involved sharing their knowledge and utilizing their communication skills to educate, provide information and organize community events.

Regarding the sustained linkages, the EHFP project activities align with the national and local government programs, such as the National Program on Nutrition and the National Program on New Rural Development. Thus, the local governments in the previous project sites tried to integrate communication activities into their regular activities. Some examples of these communication integrations were at community groups/clubs, village meetings and meetings of local social groups such as Women's/Farmer's/Youth's Union. The local governments also have sought and mobilized support from various sources to continue the activities within the national targeted program.

For sustained motivation, households continue practices on home-gardening and nutrition care because they are aware of its benefits, such as providing enough food and better nutrition for their households and can get extra income from the sale of excess EHFP products. Also, the EHFP's outcomes are associated with the local government's targeted programs and the socio-economic development targets; thus, this has motivated the local government to sustain the related practices and activities.

For the sustained resources, the most sustainable resource from the EHFP project is human resources, who are the previous targeted households, VMFs and CFs having sustained capacity. They have contributed to maintain and scale up the EHFP's practices in their communities. The structure of the EHFP also has provided some on-going benefits by requiring VMFs to share the benefits of the EHFP project's initial inputs, such as breeding pigs and poultry and sharing piglets and incubator time with other community members. Another sustained resource is the activity of the Business Start-up Fund, now managed by Women's/Farmers Union, which continues to provide small grants for small household agriculture business ideas.

## **8.2. Household sustainability**

Approximately two-fifths of the participating households were classified as 'sustained', meaning that they continued key EHFP-acquired activities after two-four years of the project's completion. Households' sustainability was associated with improved food security ( $p < 0.001$ ), acceptable household consumption ( $p = 0.01$ ), and better dietary diversity ( $p = 0.004$ ). Sustained households were more likely to sell vegetables, fruits ( $p = 0.002$ ), and poultry ( $< 0.001$ ) compared to un-sustained ones. Incomes generated from selling fruits in general ( $p = 0.002$ ) and from selling vitamin-A-rich fruits ( $p = 0.02$ ) were higher, and the difference was statistically significant. In addition to that, sustaining the EHFP model contributed to improved dietary diversity of children between 6-23 months of age ( $p < 0.001$ ) and of mothers with young children ( $p < 0.001$ ).

Many of the 60% of households categorized as "un-sustained" came from Tam Duong District (Lai Chau Province), were of Hmong and Lao ethnicities, were poor, had mothers (of young children) who had either finished secondary school or lower ( $p$  values  $< 0.001$ ), and had mothers (of young children) that were not farmers ( $p = 0.03$ ) but engaged in other work for income.

## **8.3. Spill-over impact**

Overall, nearly 78.5% of EHFP households (the interviewed mother) included in the IDEAL Vietnam EHFP Study said that they had shared at least one EHFP knowledge or skill/practice with someone around them (e.g., relatives, neighbors). 70% of them shared at least one EHFP resource (such as seeds/seedlings of vegetables or fruits, eggs, and poultry breeds) with their surrounding people. Almost 43% of mothers/family members shared at social groups (e.g., women's association, farmers' association) in which they participated. Combining all three forms of sharing (sharing knowledge with surrounding people, sharing



knowledge with social groups, and sharing resources), about 17% of the women who participated in the interviews never shared any EHFP knowledge or resources with anyone, 35.7% of them practiced all three forms of sharing, 36.3% practiced two forms of sharing and 11.3% only practice one form. Knowledge and practices were shared with relatives, friends and neighbors during everyday informal conversations or at community gatherings. The more formal way for sharing was through the regular village meetings, which are organized by local social groups such as Women's Union, Farmer's Union, Veteran's Union, and Youth's Union.

Un-sustained households were 3.2 times less likely to share knowledge, practices or resources gained from the EHFP project (spill-over) compared to sustained households (OR=3.2, 95% CI = 1.5-6.0, p=0.001). Characteristics of households that were most unlikely to share EHFP knowledge, skills, and resources were from un-sustained households and came from Hmong or Lao ethnic minority groups in Tam Duong District of Lai Chau Province. Additionally, some household characteristics such as location, ethnicity, and mother's education ( $\chi^2$  test, p<0.001), and household wealth (post-hoc test, p=0.03) were associated with spill-over impact.

## 9. Recommendations

The IDEAL Vietnam EHFP Study aimed to garner information to improve the effectivity of the EHFP model, namely it's sustainability and spill-over, by identifying, categorizing, and sharing lessons learned to provide guidance and recommendations to policymakers, project designers, implementers, and local communities for future programming. Recommendations were developed based on the quantitative and qualitative analysis results and comments from the interviewed beneficiaries, partners, and stakeholders from the commune to national levels. Recommendations provide suggestions for a future project that might apply the EHFP model. The recommendations also detail how the current local governments benefited from the EHFP model and promoted its sustainability and spill-over effect after ending.

### 9.1. To Helen Keller, donors, and other development organizations who want to scale up the EHFP model

In addition to using a multi-sectoral approach and including integrated interventions of agriculture, nutrition, health, women's empowerment, and livelihood development, which are main components of the EFHP model, the following elements should also be considered during the project design:

- Develop interventions that align with the National Development Programs to motivate the sustainability of the interventions after their completion. Consult the related national and local partners during the project design to identify locally appropriate and specific interventions.
- Develop interventions that engage communities and co-design them with existing community facilitators or people who have an important position in their community, such as village head, chairman of Women's/Farmer's Unions, and Village Health Workers. They will be key stakeholders to integrating the project's practices into regular community events.
- Develop interventions that focus on use of local vegetables and seeds and include techniques for maintaining and storing local seedlings for self-production. This will help households be more self-sufficient in their vegetable source, not having to rely on the market, especially important for Lao and Hmong households in Lai Chau Province.
- Develop poultry-related interventions that address prevention, treatment, and management of common poultry diseases.

- Develop interventions that increase farmers link to markets and improve market access of households. Support greater market access for selling home-farming products (e.g., vegetables, poultries, etc.) to improve household's income.
- Pay more attention to livelihood development initiatives for poor and near-poor households, in addition to the EHFP interventions.
- Develop interventions that allocate more tailored and adapted interventions for the most vulnerable ethnic minorities, such as Hmong and Lao households, to provide technical assistance where it is most needed. The interventions also need to support intensified behavioral change communication strategies in these groups to ensure greater sustainability and spill-over in these vulnerable populations.
- Develop interventions such as seed fairs to provide greater awareness and access to climate smart seeds and resilient seeds, seedlings, and breeds' diversity for ethnic minority households. Promote sharing of resources (seeds/seedlings/breeders) among the EHFP's households and how to work together to access the market to sell their excess product. Additionally, improving their communication capacity can encourage them to share the knowledge and skills they learned from the project with their surrounding people and members of groups they participate in.
- Strengthen the integration of gender and gender roles in the project's interventions, especially in nutrition and food security projects such as the EHFP. Involvement of other household members in the project's activities, especially husbands, will motivate the effectiveness and sustainability of communication activities in nutrition and childcare during and after the project's ends.
- Develop training programs that increase the support skills of community facilitators. Community facilitators should have behavior change communication skills and pay more attention to supporting households who failed or had difficulties in following practices introduced by the project. For example, they prepared meals with nutritious and diverse foods, but their children did not eat them; or they used packs of probiotics for composting, but the quality of compost was not good as they expected.
- Design the EHFP Project with a longer timeframe to better ensure lasting change. At least three years, but preferably five years, is necessary for projects on nutrition and food security to ensure more sustainable changes among the targeted communities, especially among ethnic minority and poor communities.
- Strengthen, M&E, the dissemination and sharing of the EHFP Project approach, results and learned lessons, and findings from the IDEAL Vietnam EHFP Study on factors associated with the EHFP Project's sustainable and spill-over. This will contribute to changes in policies that reinforce the sustainability of the projects on nutrition and food security among ethnic minority and poor communities.
- Consider the following improvements in future study design on sustainability and spill-over effects of similar nutrition-sensitive agriculture programs like the EHFP:
  - Collect data on and analyze level of exposure of households to specific interventions of the EHFP Project to better understand the effectiveness of the interventions.
  - Include a control group, if possible, to better assess and understand the impact of EHFP sustainability and spill-over effects.
  - Plan for a sustainability study at the project design phase so that survey tools can be harmonized between baseline, endline and post-project and funding can be included, as possible.
  - Conduct a prospective study (follow respondents over time) as part of the project data collection if funding allows to gain more accurate insights on changes in EHFP activities over time.
  - For the poor households, include additional and differentiated activities and support in the project's design and include a model in the study to access the added benefit of these to project activity uptake and sustainability.

## 9.2. To the local governments and communities where the EFHP project ended.

The most important recommendation for local governments and communities is to actively integrate effective interventions into regular community activities to ensure sustainability and spin-over of project related improvements. Other suggestions for local governments and communities include:

- Continue to integrate and support nutrition education and awareness-raising. Strengthen local authorities' capacities to effectively convey nutrition and WASH messages to improve the proportion of children and mothers who reach the minimum dietary diversity and maintain mothers' regular washing hands with soap and households' water treatment. Integrating household nutrition and WASH activities with a home garden, pond, stable/house models will further increase the effect of EFHP on food security and nutrition.
- Encourage local managers to identify approaches to sustain the interventions' effectiveness by integrating the related activities into the regular activities of the local government or mobilizing the cooperation between the existing resources and programs in the community.
- Prioritize replicating the most feasible and effective initiatives. For example, EFHP promotes initiatives that are low cost but very practical and effective such as bio-composting and raising worms. If these initiatives can be integrated with the routine activities of district and commune agriculture extension, they will improve the local agricultural and environment. These activities also are in line with the National Rural Development Program.
- Develop the community groups operated by the mothers and previous community facilitators to increase the mentorship of mothers on how to follow practices on essential nutrition actions, WASH, and home-farming.
- The groups of CFs, VMFs, and business start-ups will need follow-up coaching, mentoring and technical support from the DPCs, CPCs and local technical agents such as DHCs, CHCs, ASCs, WUs and FUs.
- Engage and use the local nutrition and agricultural facilitators in the relevant activities of local health and agricultural centers to strengthen the sustainability of capacity and human resources. For example, the previous community facilitators of the EFHP Project can support CHC in the activities such as counselling villagers on family planning, encouraging villagers for antenatal check-ups at CHCs, supporting weight and height measurement of children, etc.
- Local government has the role of guiding people to take advantage of and explore local favorable conditions to promote livelihood development and create locally specific products. Local communities are encouraged to apply the trained principles and knowledge on business start-up and household economic management to increase the diversity of products from rice, buffalos, pigs, goats, local products as cardamom; and to take advantage of favorable climatic conditions for new products such as salmon (an example from households in Lai Chau Province). Thereby, this will increase sustained resources and income.
- Local government can flexibly adapt the EFHP's intervention in locally specific conditions. For example, local partners highly appreciated the effectiveness and wide impacts of the communication events, such as Nutrition Festival Day. However, such events require funding. It is recommended that the local government can flexibly conduct similar events on a smaller scale and integrate them into the local events celebrating Women's Day (October 20<sup>th</sup> is Vietnamese Women's Day and March 8<sup>th</sup> is International Women's Day) or Family Day (June 28<sup>th</sup> is Vietnamese Family Day). This is an initiative from the Women's Union in Lac Son District, Hoa Binh Province. They stated that the activities of Nutrition Festival Day, such as cooking demonstrations and Question & Answer sessions on nutrition care, are similar to the activities of the above celebration days relating to women and family. This may also be an effective way to promote sustained capacity and linkages.

## **10. Annex**

**10.1. Annex 1: Household survey questionnaire**

**10.2. Annex 2: IDIs/FGDs guide**