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Sustaining Development: Results from a Study of Sustainability and Exit Strategies among Development Food Assistance Projects

Honduras Country Study

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Contents

| | |
|---|-----------|
| Acknowledgments | i |
| Abbreviations and Acronyms | iv |
| Executive Summary | 1 |
| 1. Study Overview and Objectives..... | 7 |
| 2. Conceptual Framework and Hypothesized Factors Predicting Sustainability | 11 |
| 3. Research Methods and Analysis Approach | 13 |
| 3.1 Overview of Data Sources and Timeline..... | 13 |
| 3.2 Qualitative Methods | 14 |
| 3.2.1 Data Collection..... | 14 |
| 3.2.2 Data Analysis | 17 |
| 3.3 Quantitative Methods | 17 |
| 3.3.1 Data Collection..... | 17 |
| 3.3.2 Data Analysis | 19 |
| 3.4 Study Limitations | 21 |
| 4. Project Descriptions and Operating Context | 22 |
| 5. Results: Maternal and Child Health and Nutrition Sector | 24 |
| 5.1 Maternal and Child Health and Nutrition Sector Project Descriptions, Sustainability Plans, and Exit Strategies..... | 25 |
| 5.1.1 Project Descriptions | 25 |
| 5.1.2 Sustainability Plans | 25 |
| 5.1.3 Exit Strategies | 27 |
| 5.2 Sustainability of Maternal and Child Health and Nutrition Service Delivery | 29 |
| 5.2.1 Resources | 31 |
| 5.2.2 Capacity..... | 32 |
| 5.2.3 Motivation..... | 32 |
| 5.2.4 Linkages | 32 |
| 5.3 Sustainability of Maternal and Child Health and Nutrition Service Use..... | 33 |
| 5.4 Sustainability of Recommended Maternal and Child Health and Nutrition Practices | 36 |
| 5.4.1 Health Practices..... | 36 |
| 5.4.2 Home Gardens..... | 38 |
| 5.5 Sustainability of Maternal and Child Health and Nutrition Impacts | 38 |
| 5.6 Maternal and Child Health and Nutrition Sector Sustainability: Lessons Learned..... | 40 |
| 5.6.1 Service Delivery Resources | 40 |
| 5.6.2 Capacity..... | 40 |
| 5.6.3 Motivation | 41 |
| 5.6.4 Linkages | 41 |
| 5.6.5 Service Use, Adoption of Practices, and Impacts | 41 |
| 6. Results: Water and Sanitation Sector | 44 |
| 6.1 Water and Sanitation Sector Project Descriptions, Sustainability Plans, and Exit Strategies | 44 |
| 6.1.1 Project Descriptions | 44 |
| 6.1.2 Sustainability Plans | 45 |
| 6.1.3 Exit Strategies | 46 |
| 6.2 Sustainability of Water and Sanitation Service Delivery | 48 |
| 6.2.1 Resources | 49 |

| | | |
|-----------|---|------------|
| 6.2.2 | Capacity..... | 50 |
| 6.2.3 | Motivation..... | 51 |
| 6.2.4 | Linkages..... | 51 |
| 6.3 | Sustainability of Water and Sanitation Service Use..... | 51 |
| 6.4 | Sustainability of Water and Sanitation Practices..... | 52 |
| 6.5 | Sustainability of Water and Sanitation Impacts..... | 53 |
| 6.6 | Water and Sanitation Sector Sustainability: Lessons Learned..... | 53 |
| 7. | Results: Agriculture, Income-Generating Activity, and Natural Resource Management Sector..... | 55 |
| 7.1 | Agriculture, Income-Generating Activity, and Natural Resource Management Sector Project Descriptions, Sustainability Plans, and Exit Strategies..... | 56 |
| 7.1.1 | Project Descriptions..... | 56 |
| 7.1.2 | Sustainability Plans..... | 58 |
| 7.1.3 | Exit Strategies..... | 59 |
| 7.2 | Sustainability of Agriculture, Income-Generating Activity, and Natural Resource Management Service Delivery..... | 62 |
| 7.2.1 | Model Farmers..... | 62 |
| 7.2.2 | Credit..... | 64 |
| 7.2.3 | Other Services: The Role of NGOs and Municipality Entities..... | 64 |
| 7.3 | Sustainability of Agriculture, Income-Generating Activity, and Natural Resource Management Service Use..... | 65 |
| 7.3.1 | Community Organizations..... | 66 |
| 7.3.2 | Producer Associations, Other Agriculture Associations, and Rural Banks..... | 67 |
| 7.3.3 | Credit..... | 68 |
| 7.3.4 | Training and Technical Assistance..... | 72 |
| 7.4 | Sustainability of Agriculture, Income-Generating Activity, and Natural Resource Management Practices..... | 74 |
| 7.4.1 | Agricultural Production and Sale..... | 74 |
| 7.4.2 | Collective and Individual Sales..... | 76 |
| 7.4.3 | Small Enterprise Development..... | 78 |
| 7.4.4 | Agriculture and Natural Resource Management Practices..... | 79 |
| 7.4.5 | Sustained Practices: Animal Husbandry (SC)..... | 84 |
| 7.4.6 | Sustained Agricultural Practices: Role of Landownership and Training..... | 85 |
| 7.5 | Sustainability of Agriculture, Income-Generating Activity, and Natural Resource Management Impacts..... | 87 |
| 7.5.1 | Income..... | 87 |
| 7.5.2 | Crop Yields..... | 89 |
| 7.5.3 | Household Dietary Diversity..... | 91 |
| 7.5.4 | Household Food Security..... | 93 |
| 7.6 | Agriculture, Income-Generating Activity, and Natural Resource Management Sector Sustainability: Lessons Learned..... | 94 |
| 7.6.1 | Exit Process..... | 94 |
| 7.6.2 | Sustainability Plans..... | 94 |
| 7.6.3 | External Factors..... | 96 |
| 7.6.4 | Summary..... | 97 |
| 8. | Overall Findings..... | 99 |
| 9. | Recommendations..... | 104 |
| | References..... | 106 |

Abbreviations and Acronyms

| | |
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| ADRA | Adventist Development and Relief Agency |
| AIN-C | Atención Integral a la Niñez en la Comunidad (Comprehensive Community Child Care) |
| ASC | agricultural service center |
| CESAMO | local medical and dental health center |
| CESAR | rural health center |
| CHC | community health committee |
| CHW | community health worker |
| CIGRAH | Comercial Internacional de Granos de Honduras (Honduran International Grain Marketing Agency) |
| FANTA | Food and Nutrition Technical Assistance III Project |
| FAO | Food and Agriculture Organization of the United Nations |
| FFP | Office of Food for Peace |
| FGD | focus group discussion |
| FODECO | <i>fondo de desarrollo comunitario</i> (community development fund) |
| FY | fiscal year |
| GMP | growth monitoring and promotion |
| GOH | Government of Honduras |
| HNL | Honduran lempira(s) |
| IGA | income-generating activity |
| IHCAFE | Instituto Hondureño del Café (Honduran Institute for Coffee) |
| IPTT | Indicator Performance Tracking Table |
| MCHN | maternal and child health and nutrition |
| NGO | nongovernmental organization |
| NRM | natural resource management |
| PA | producer association |
| PROGRESA | Proyecto de Gestión Rural en Seguridad Alimentaria (Rural Management and Food Security Project) |
| SANAA | Servicio Autónomo Nacional de Acueductos y Alcantarillados (National Autonomous Service of Piped Water and Sewers) |
| SC | Save the Children |
| UMA | municipal environmental unit |
| USAID | U.S. Agency for International Development |
| W&S | water and sanitation |
| WHO | World Health Organization |
| WV | World Vision |

Executive Summary

Background

To be effective, development projects must result in lasting change. Projects may meet their objectives by improving economic, health, or social conditions while they are operating, but genuine success is achieved only through sustained change that does not depend on continued external resources. To assess the effectiveness of the U.S. Agency for International Development (USAID) Office of Food for Peace (FFP) development food assistance projects' sustainability plans and exit strategies for achieving sustainable impacts after the projects exited their implementation areas, the Tufts University Friedman School of Nutrition Science and Policy, a partner on the USAID-funded Food and Nutrition Technical Assistance III Project (FANTA), conducted a multi-country study of project activities, outcomes, and impacts from 2009 to 2013.

Twelve FFP development projects in four countries (Kenya, Honduras, Bolivia, and India) were included in the study. Funding for these multisectoral projects ended between 2008 and 2009, providing the study team with an opportunity to observe how their activities, outcomes, and impacts evolved over the 2–3 years after the projects exited. In Honduras, three organizations—Adventist Development and Relief Agency (ADRA), Save the Children (SC), and World Vision (WV)—implemented development FFP projects in the technical sectors of maternal and child health and nutrition (MCHN); water and sanitation (W&S); and agriculture, income-generating activities (IGAs), and natural resource management (NRM). These organizations also implemented cross-cutting infrastructure projects.

Objectives

- Determine the extent to which the activities, outcomes, and impacts of the FFP development projects in Honduras were sustained after the withdrawal of FFP funding.
- Identify project and non-project factors that made it possible to sustain project benefits after the projects ended.
- Assess how project design, sustainability plans, the development of exit strategies, and the process of exit affected sustainability.¹
- Provide guidance to future project implementers and funders regarding how to improve sustainability.

Methods

Qualitative data were collected at the time of the projects' exit, 1 year later, and 2 years later (2009, 2010, and 2011). In 2009, qualitative data were collected through phone interviews with project staff and other stakeholders, as a political crisis made it impossible to conduct fieldwork. In 2010 and 2011, the study team conducted key informant interviews and focus groups discussions in the field with project participants and non-participants, as well as with project staff, service providers, and other stakeholders. The study team also visited and observed farmers' fields, production facilities, and infrastructure created by the projects. In 2011, 2 years after the projects exited, the study team also conducted quantitative follow-up surveys that replicated the projects' endline evaluations to permit statistical comparison of key

¹ This study defines *sustainability plan* as a plan describing those elements of a project that incorporate sustainability concerns and increase the likelihood that project activities and impacts will continue after exit. *Exit strategy* is defined as an operational plan for withdrawing from target communities without jeopardizing progress toward project goals.

indicators at the time of exit and 2 years later. Primary data collection was complemented by information from baseline and midterm evaluation reports, as well as from other project documents.

Results

Sustainability was judged in terms of the continuation of service delivery and service use, the adoption of practices promoted by the projects, and the maintenance or further improvement of project impacts. As successive rounds of data collection were implemented, the study team identified three factors that it considered to be critical to sustainability: an ensured source of **resources** to sustain the activities that contribute to sustainable impact, sufficient technical and managerial **capacity** on the part of project participants and service providers to continue implementing activities independent of the projects, and **motivation** on the part of service providers and project participants to continue engaging in these activities post-project. The study team also found that a fourth factor, **linkages** (including vertical linkages, such as between community health workers and the Government of Honduras health system, and/or horizontal linkages, such as among local committees), was also essential to consider, and appropriate linkages were critical to sustainability for most technical sector interventions. In addition, the study team found that the process of exit affected sustainability. **Gradual exit**, with the opportunity for project participants (individuals and organizations) to operate independently prior to project closure, made it more likely that activities would be continued without project support. The results from each technical sector supported the importance of these factors.

One of the key results applicable to all technical sectors was that evidence of the sustainability of activities, outputs, and impacts at the time of project exit did not necessarily predict sustainability 2 years later. Although there were many examples of project impacts that were substantial and positive at project exit that were maintained or even improved 2 years later, there were also many examples of positive impacts at exit that were not sustained and, in some cases, declined to the project's baseline levels or below. Further, the provision of free resources threatened sustainability by, in some instances, creating unrealistic expectations that could not be met once these resources were withdrawn. Withdrawal of free resources sometimes also reduced the motivation of beneficiaries and service providers. A synopsis of findings by the technical sectors implemented in Honduras follows.

Maternal and Child Health and Nutrition

In the MCHN sector, community health workers (CHWs) provided growth monitoring and supplementary food rations, health talks, and home visits to mothers, and were expected to transition to being supported by the Government of Honduras health system when the project exited. Linkages to the government health system were effective in some cases, but in others, financial constraints meant that CHWs did not consistently receive continued government support (e.g., in the form of training or supplies). Nonetheless, 2 years after project exit, more than two-thirds of former FFP communities still had at least one working CHW, supported either by a Government of Honduras health system service provider or by another nongovernmental organization (NGO).

The majority of mothers continued to make use of growth monitoring services 2 years after project exit, but many shifted from growth monitoring provided in the community by the CHW to growth monitoring provided by public health centers (typically outside the community) or other NGOs. This decline in demand for key CHW services meant that some CHWs stopped working, and almost all stopped making home visits to monitor and encourage good health and hygiene practices. Although mothers cited health benefits as the motivation for participating in growth monitoring, both mothers and CHWs cited the withdrawal of FFP project-provided food rations as one reason for the shift away from CHW-provided

growth monitoring. Mothers largely chose to use other growth monitoring services where material benefits, including meals and food rations, were provided.

In addition, the practice of exclusive breastfeeding until 6 months of age was well maintained 2 years after exit, but most other health practices (e.g., continued feeding during episodes of diarrhea, timely introduction of complementary feeding, and handwashing) declined, in some cases dramatically. Declines in the prevalence of stunting between project baseline and endline, though, were maintained or improved 2 years after exit.

Water and Sanitation

The FFP development projects in Honduras worked with existing community-based water committees or created new ones to provide, maintain, and manage piped water to households and to promote the construction of latrines or toilets. Projects provided high-quality materials for construction and repairs and trained water committee members in the technical and administrative aspects of managing the piped water systems, including how to set fees at a level that would sustain the systems. Project sustainability plans for this intervention were based on collecting household water fees that would provide the resources to maintain and repair the systems when needed. This plan worked, as households were motivated by the tangible benefit of having access to piped water in the home. Projects also planned to establish linkages between water committees and the municipalities to provide ongoing training and resources, but these linkages were not generally implemented, as water committees preferred to manage their budgets independently. Households' access to piped water was well maintained, and the great majority of piped water systems were maintained at the community level by the water committees 2 years after the projects exited.

Water quality testing and water purification were less well maintained: few water committees were arranging for water quality testing 2 years after exit or were applying chlorine at the water tank, as the project had encouraged. One reason for this is that motivation was lacking, since households objected to the taste of chlorine. In addition, because project staff took responsibility for arranging for water quality testing up to the time of project exit, water committees had not taken on this responsibility and had no independent experience managing water quality testing prior to exit.

The provision of piped water demonstrates that the convergence of three critical factors (resources, capacity, and motivation) and a process that allowed water committees to operate independently for extended periods of time before project exit contributed to the largely successful sustainability of the project-provided piped water systems 2 years after exit. The case of water quality testing and purification demonstrates how the lack of a critical factor (motivation) and absence of a period of independent operation can be detrimental to sustainability.

Agriculture, Income-Generating Activities, and Natural Resource Management

The goal of the agriculture, IGA, and NRM components of the FFP development projects in Honduras was to improve household income and food security by teaching farmers to apply productivity-enhancing agricultural practices, encouraging them to produce non-traditional crops, and promoting sales of crops and processed products. The basis for the sustainability of these interventions was that profits would provide the resources for the inputs needed to continue applying the practices farmers had learned, farmers' capacities would be maintained through continued application of the learned practices, and farmers would be motivated by increased production and associated income.

Project staff taught model farmers to train other farmers in improved practices. The model farmers were given free inputs to use on their own land as an incentive throughout project implementation, but the study results show that model farmers stopped providing training once the project-provided inputs and incentives were withdrawn. Two years after exit, the percent of farmers applying the improved practices

taught in the projects fell in all project areas, although this decrease was less pronounced in project areas where exit was more gradual. Farmers who owned their own land were more likely to continue using project-supported improved practices, as were farmers trained by the projects. Similarly, NRM practices, such as reforestation and terracing, which were intended to improve productivity as well as resilience to climate and other shocks and stressors, declined when inputs (such as seedlings) and training were no longer provided.

Integral to all of the projects' implementation strategies was the formation of producer associations that were intended to be a mechanism for sharing information and for collective marketing to obtain better prices for products. Two years after the projects exited, farmer participation in producer associations had declined. Farmers cited the cost of membership and an inability to produce a sufficient quality and quantity of products to participate in collective marketing efforts as inhibitors to engagement in this activity. Farmers also expressed reluctance to engage in collective marketing and a preference for selling independently. Indeed, the follow-up survey found that most farmers were marketing their crops as individuals, and this fraction had increased since project exit.

Projects also organized small enterprises to process agricultural commodities for sale. In addition, WV, which worked in a coffee-producing region, linked coffee farmers with exporters for long-term contracts that included access to technical assistance and credit. Two years after exit, the proportion of farmers engaged in agricultural sales fell in areas where marketing support had been provided by the project and without charge until project exit. The proportion of farmers engaged in sales was sustained in many areas where farmers had established and were independently nurturing links to commercial markets at the time of exit. The change in yields for project-targeted staple crops was inconsistent, in part due to climate shocks over the 2-year period. Nonetheless, household food security as measured by months of adequate household food provisioning was sustained or improved 2 years after exit in all three project areas and dietary diversity was sustained or improved over the same period in two of the three project areas.

Among the key lessons learned for this sector were that withdrawal of material incentives threatened the sustainability of service delivery and other activities, and sustainability was greater when withdrawal of support was gradual so that individuals and organizations could develop independence in applying practices and implementing activities (e.g., commercialization) prior to project exit. The critical factors of resources, capacity, and motivation were essential. Vertical linkages to market institutions and buyers were also key for this sector.

Conclusions and Recommendations

The results of the study support the conclusion that the three critical factors—resources, capacity, and motivation—are all essential to the sustainability of project activities, outcomes, and impacts, while the fourth factor, linkages, must also be considered in project design and implementation. Sustainability is more likely when project withdrawal is gradual, and when beneficiaries, both individuals and organizations, have an opportunity to operate independently while project staff are still available to offer guidance.

In addition, the study found that indications of impact at the time of exit do not necessarily assure that those impacts will be felt after exit. Impact and sustainability are distinct achievements, and an exclusive focus on impact at exit may jeopardize sustainability over the longer term. For example, providing free resources (such as food or agricultural inputs) may maximize short-term impact, but their withdrawal may jeopardize sustainability if no provision has been made for these resources to be replaced. Providing free resources itself poses risks for sustainability, as these may lead to unrealistic expectations that cannot be met after project exit.

The results of the study in Honduras led to the following recommendations for project designers and managers, donors/funders, and for future research.

Recommendations for Project Designers and Managers

- Explicit sustainability plans and exit strategies should be incorporated into development project plans from the beginning.
- Assumptions underlying sustainability plans should be realistically assessed, taking into account the time horizon, contextual factors, and available resources; projects based on unrealistic expectations (or hopes) should be adjusted accordingly.
- Exit strategies should clearly allocate responsibilities for phase-over.
- Project exit should be gradual; support should be progressively withdrawn so that organizations and individuals (and, as appropriate, their linkage partner) have a significant period of independent operation before project exit.
- Sustainability strategies should incorporate clear and realistic plans for continued access to resources, capacity, and motivation over the long term.
- Plans for linking project activities to external entities should consider carefully whether the institutions involved in these planned linkages have the resources, capacity, and motivation to sustain them.
- Linkages should be established early so that linkage partners (including commercial entities) have time to develop relationships and procedures and have time to test and modify them before project exit.
- Provision of free resources should be avoided, or should be structured as a one-time donation that will result in ongoing service delivery or service use without further free resources. If free resources are provided, projects should identify locally available replacement resources and build in a shift to cost-sharing these resources and, ultimately, to full beneficiary payment for any goods and services prior to project exit.

Recommendations for Donors/Funders

- Criteria for project success should incorporate indicators for sustainability, not only impact indicators, possibly by means of staged evaluations with indicators adjusted for the stage of implementation.
- Progress toward sustainability should be monitored throughout the project cycle (e.g., at baseline, midterm, and endline) so that identified modifications can be implemented as necessary in ongoing and/or future projects.
- The project cycle should allow sufficient time to build capacity and have a period of independent operation of activities and linkages prior to project exit.
- Projects should be required to maintain archives of baseline, midterm, and endline evaluations, as well as associated data, along with information derived from routine project monitoring and associated reporting so that these are accessible for learning.

Recommendations for Future Research

- Incorporate into sustainability studies, when possible, a control (randomly assigned) or comparison group to permit an experimental research design in order to strengthen conclusions.

- Collect information on outcomes and impacts at the level of the target communities and beyond, rather than focusing only on the intended direct beneficiaries. That is, design sustainability studies to capture not only direct, but also second- and third-order indirect effects (for example, project impact not only on agricultural income, but on household income from all sources, and not only on agricultural households, but on all households in the target communities).
- Consider studies to compare the long-term impacts on low-income communities of targeting project resources to the poorest of poor recipients versus targeting those with more resources.

1. Study Overview and Objectives

To be effective, development projects must result in lasting change. Projects may meet their objectives by improving economic, health, or social conditions while they are operating, but genuine success is achieved only through sustained change that does not depend on continued external resources. The U.S. Agency for International Development (USAID) recognized this in 2006, when it began requiring that all applications for Office of Food for Peace (FFP) development food assistance projects² include explicit sustainability plans, that is, explanations of how projects intend to ensure that their impacts will last beyond the life of their activities.

Sustainability is achieved when outcomes and impacts (and sometimes activities) are maintained or even expanded after a project withdraws its resources through the exit process. A **sustainability plan** should represent all the elements of project design that take sustainability into account and should increase the likelihood that project outcomes and impacts and (where relevant) activities continue. An **exit strategy**, by contrast, relates specifically to the portion of a sustainability plan that deals with the process of “phase-out” (withdrawal of external support) and/or “phase over” (transfer of responsibility) by an implementing organization from an activity, a project, or an entire area by the end of a project cycle (Rogers and Macias 2003; Levinger and McLeod 2002). “Exit” can also refer to the graduation of individuals from external support for certain activities (Gardner et al. 2005). For example, an organization may decide to phase out

USAID Food for Peace Development Projects

FFP is a USAID program, authorized under the U.S. Government’s Farm Bill, that supports projects intended to increase food security in vulnerable populations in the developing world. The program, in existence since 1954, provides food commodities (such as wheat, rice, lentils, and other foods), value-added foods (such as corn-soy blend and ready-to-use supplementary food), and complementary cash resources to support projects implemented by nongovernmental and intergovernmental organizations in some of the world’s most resource-poor and food-insecure settings. Projects supported by FFP typically include interventions in several sectors, including maternal and child health and nutrition, water and sanitation, agricultural development, income generation, natural resource management, and microfinance.

Development food assistance projects, such as those included in this study, make use of food and/or cash resources—supported by other project approaches (e.g., training, infrastructure improvements, and social and behavior change communication)—to feed vulnerable groups directly (as in the provision of supplementary foods for the treatment and prevention of child malnutrition or cash vouchers for the purchase of select food commodities) or to support development-related activities (as in the provision of food or cash for work to support participation in natural resource management or infrastructure construction interventions). Food can also function as an incentive for participation in project activities.

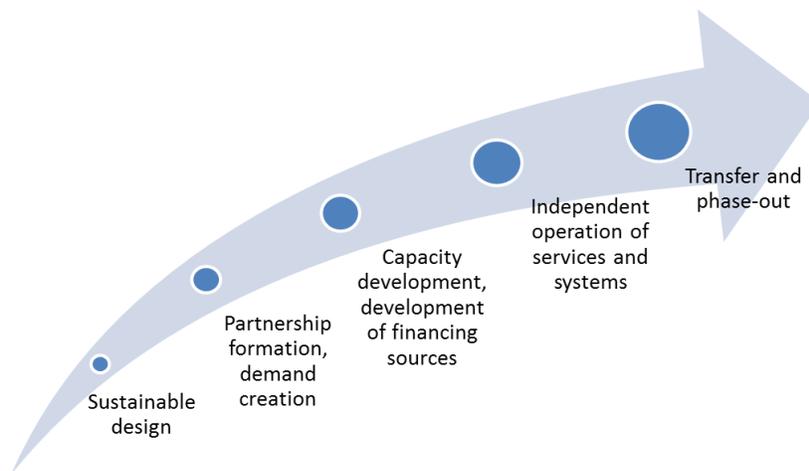
The present study addresses the sustainability of FFP development projects implementing activities in a range of technical sectors in Honduras. The findings are likely to be applicable not only to FFP and other food-assisted projects, but to a broad range of development interventions.

² Development food assistance projects have previously been referred to as Title II programs, development programs, development assistance programs, and multi-year assistance programs.

its technical support to farmer groups once the groups' members have been trained, are registered with the government, have a constitution and a renewable resource base, and have demonstrated that they can access and use market information and negotiate contracts with buyers independently.

It is a common misconception that a “sustainability plan” and an “exit strategy” connote actions that need to be taken only at the final phases of a project’s close-out. On the contrary, a well-designed sustainability plan should be developed from the beginning of a project’s conception, with actions tailored to each stage of project design, implementation, and close-out. As illustrated in **Figure 1.1**, stages of sustainability throughout a project can include (though are not limited to) partnership formation, creation of demand for services or practices, capacity development, consolidation of capacity through continued application of practices learned, and exit. The phase-out or phase-over stage of an activity should be triggered by the achievement of criteria that are likely to be predictive of sustainability. While FFP development food assistance projects have been required to incorporate mechanisms for achieving sustainability into their design since 2006, few organizations implementing such projects (referred to as awardees) have developed detailed, explicit sustainability plans or exit strategies.³ Elements such as capacity building and training, strengthening of vertical and horizontal linkages, and promoting self-governance and self-financing have been used throughout the design of various FFP projects to contribute to sustainability. However, the study team’s comprehensive review of the sustainability plans and exit strategies of all FFP development food assistance projects operating worldwide in 2009 found that only a handful of awardees in two countries, including Honduras, had developed detailed and explicit sustainability plans and exit strategy documents that were intended to be used as roadmaps for project implementation (Koo 2009).

Figure 1.1. Sustainability throughout an Illustrative Project Cycle



There are several reasons why few projects had developed detailed, explicit sustainability plans or exit strategies as of the time of the start of this study. One is that there is little empirical evidence to guide organizations in designing exit strategies and implementation processes to yield longer-term, sustainable

³ FFP guidance for FY 2016 projects now requests a fairly comprehensive description of all of the necessary and sufficient capacities, practices, behaviors, systems, and linkages a proposed project expects are needed to sustain the outcomes articulated in its theory of change, including a description of plans for all specific, tangible resource transfers provided to project beneficiaries. This guidance further requires descriptions of exit strategies (e.g., phase down, handover, and termination) for each activity and identification of concrete timelines and benchmarks for the transition of any project-financed activities to local private or public sector service delivery systems (USAID 2016). FFP’s FY 2016 guidance also provides links to multiple resources on how to consider various aspects of sustainability and incorporate sustainability into project plans in various sectors (USAID n.d. [updated April 20, 2016]).

results. These evidence gaps exist partly because funds for evaluation have typically been tied to project cycles, not reserved for assessment after projects end. They also relate to the real methodological challenges of attributing progress or lack thereof to projects that ended years ago. FFP is to be commended for supporting studies such as this one, and for requiring awardees to think about sustainability and exit strategies in their applications. Despite the fact that sustainability plans have been required in FFP project applications since 2006, FFP has, to date, typically held projects accountable for achieving impacts over the life of the project (and awardees have been evaluated on that basis) but not for ensuring that these benefits are maintained following project closure.⁴ Finally, there is an implicit assumption that large, short-term impacts will result in improved sustainability. However, as this study shows, the strategies used to achieve short-term impacts can actually undermine the likelihood of producing lasting results.

While FFP has been taking steps to increase its focus on sustainability, there are additional steps that must be taken to institutionalize these changes within FFP's processes and to ensure broader learning within the implementing community. FFP intended that results of studies such as this one, designed to understand predictors and indicators of the potential for sustainability, would influence its internal policy and learning agenda to incorporate sustainability programming effectively into its mainstream activities and that the study would also provide guidance to future awardees on implementing sustainable development projects.

To contribute to the evidence base, the USAID-funded Food and Nutrition Technical Assistance III Project (FANTA) worked with its partner, the Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy at Tufts University, to conduct a four-country assessment of the effectiveness of FFP development food assistance project sustainability plans and exit strategies in achieving sustainable project impacts. The assessment was conducted using a mixed-methods approach in Bolivia, Honduras, India, and Kenya, between 2009 and 2013, and was designed to contribute evidence toward the following objectives:

- Determine the extent to which activities, outcomes, and impacts of FFP projects are sustained after the withdrawal of external funding⁵
- Identify project and non-project factors that make it possible to sustain project benefits after the project ends
- Assess how the process of “exiting” affects sustainability
- Provide guidance to future projects regarding how to ensure sustainability

⁴ Recent shifts in broad USAID and FFP-specific priorities have moved toward promoting approaches that focus more explicitly on sustainable development, for example, by incorporating “systems thinking” into the design of FFP and other USAID projects. See for example USAID's *Local Systems: A Framework for Supporting Sustained Development* (2014). Nonetheless, endline evaluations still focus on measuring baseline-endline impacts rather than indicators of sustainability, although there were indications at the time of the release of this report that this, too, may be changing.

⁵ The following definitions, taken from USAID's *Glossary of Evaluation Terms* (2009), are applied in this study (note that these definitions have been updated in the current version of USAID's Automated Directives System):

Activity: A specific action or process undertaken over a specified period of time by an organization to convert resources to products or services to achieve results.

Outcome: A result or effect that is caused by or attributable to a project, program, or policy. Outcome is often used to refer to more immediate and intended effects.

Impact: A result or effect that is caused by or attributable to a project or program. Impact is often used to refer to higher-level effects of a program that occur in the medium or long term, and can be intended or unintended and positive or negative.

The results of this multi-country study, including those specific to the Honduras research documented here, are intended to help guide FFP development food assistance projects and other development practitioners in the best approaches for achieving lasting positive change.

This report presents the findings of the country study in Honduras, which examined the sustainability of three FFP development food assistance projects that ended in 2008/2009. These projects were implemented by the Adventist Development and Relief Agency (ADRA) in Santa Bárbara; Save the Children (SC) in San Francisco Morazán, Choluteca, and Valle; and World Vision (WV) in Copán, Ocotepeque, and Santa Bárbara. (Note that the areas of activity in Santa Bárbara did not overlap between the two awardees working there.) All of the awardees undertook interventions in three main technical sectors: maternal and child health and nutrition (MCHN); water and sanitation (W&S); and integrated agriculture, income-generating activities (IGAs), and natural resource management (NRM). This study was designed to assess the sustainability of project activities, impacts, and outcomes in 2011, 2 years after the FFP development projects had ended.

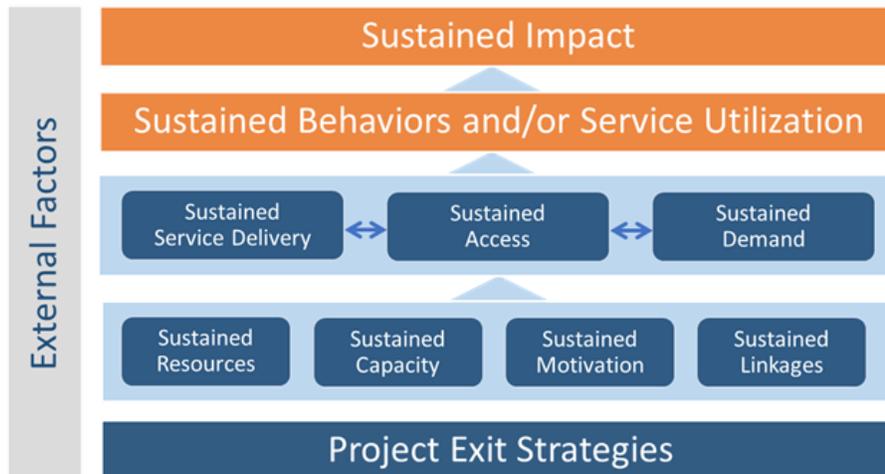
This report is organized as follows:

- **Section 2** details the conceptual framework and hypotheses guiding the study.
- **Section 3** describes the study design, data collection and analysis methods used, and study limitations.
- **Section 4** provides a brief overview of the design and operating context of each of the three FFP development projects studied.
- **Sections 5–7** present the study findings by sector, highlighting the sustainability plans and exit strategies for each sector and describing whether sustainability was achieved in the areas of:
 - Service delivery
 - Service use
 - Uptake and continuation of recommended practices
 - Impacts
- **Section 8** discusses overall findings in Honduras.
- **Section 9** presents a set of associated recommendations.

2. Conceptual Framework and Hypothesized Factors Predicting Sustainability

Based on observations during the early stages of the study, the study team formulated a conceptual framework of factors that were hypothesized to predict continued benefit after the end of a project (**Figure 2.1**). The framework is based on the idea that most project activities can be grouped into three categories of implementation outputs: 1) creation or strengthening of service *delivery* mechanisms, 2) assurance of beneficiary *access* to services, and 3) improvements in beneficiary *demand* for services. For example, the MCHN components of the projects in this study trained community health workers (CHWs) to provide community-based health services, such as growth monitoring, to strengthen service delivery. Activities to improve beneficiary access to services included reducing social, geographic, and time barriers to services through community-based growth monitoring and CHW home visits. Activities to improve beneficiary demand for services included health and nutrition education to sensitize women to the role that behavior changes, including increased health service uptake, can play in child health.

Figure 2.1. Sustainability Plans and Exit Strategies Conceptual Framework



As shown in the framework, the sustainability of project impacts was hypothesized to depend on the continued delivery of these types of services (of sufficient quality to be effective and valued) and/or the continued adoption and use of practices and behaviors promoted in the project. Based on the results of the first round of qualitative data collection in the four countries, the study team developed the hypothesis, tested in subsequent rounds of qualitative data collection and in the quantitative analysis, that sustained service delivery, service use, and practices require four key factors: 1) a sustained source of *resources*; 2) sustained technical and managerial *capacity*, so that service providers can operate independently of the awardee; 3) sustained *motivation and incentives* that do not rely on project inputs; and often 4) sustained *linkages* to other organizations or entities that can promote sustainability by augmenting resources, refreshing capacity, and motivating frontline service providers and beneficiaries to provide and make use of services and to continue practices promoted by the projects.

The study team expected that the same categories of factors needed to sustain service delivery would also be critical to sustain demand. Beneficiaries would require the resources, capacity, motivation, and linkages to demand, afford, and participate in services and to implement desired behaviors. Sustained access is the confluence of supply and demand. It pertains to the ability and motivation of beneficiaries to

continue to avail themselves of services that were previously subsidized or free (demand) and to the geographic and physical accessibility of the services (supply).

The study team also hypothesized that the exit process would be critical to sustainability. In particular, the team hypothesized that a more gradual exit that allows a period of independent operation with some supervision is likely to be more successful in promoting sustained impact than abrupt disengagement. A final hypothesis underlying the study was that external shocks, such as periodic droughts, political crises, or global market fluctuations, as well as key contextual factors, such as governmental structure, other projects operating in the area, and/or cultural beliefs, could threaten the sustainability of outcomes and impacts achieved during the project unless recognized and managed from project conception by incorporating resilience strategies and other contingencies into the sustainability plan.

3. Research Methods and Analysis Approach

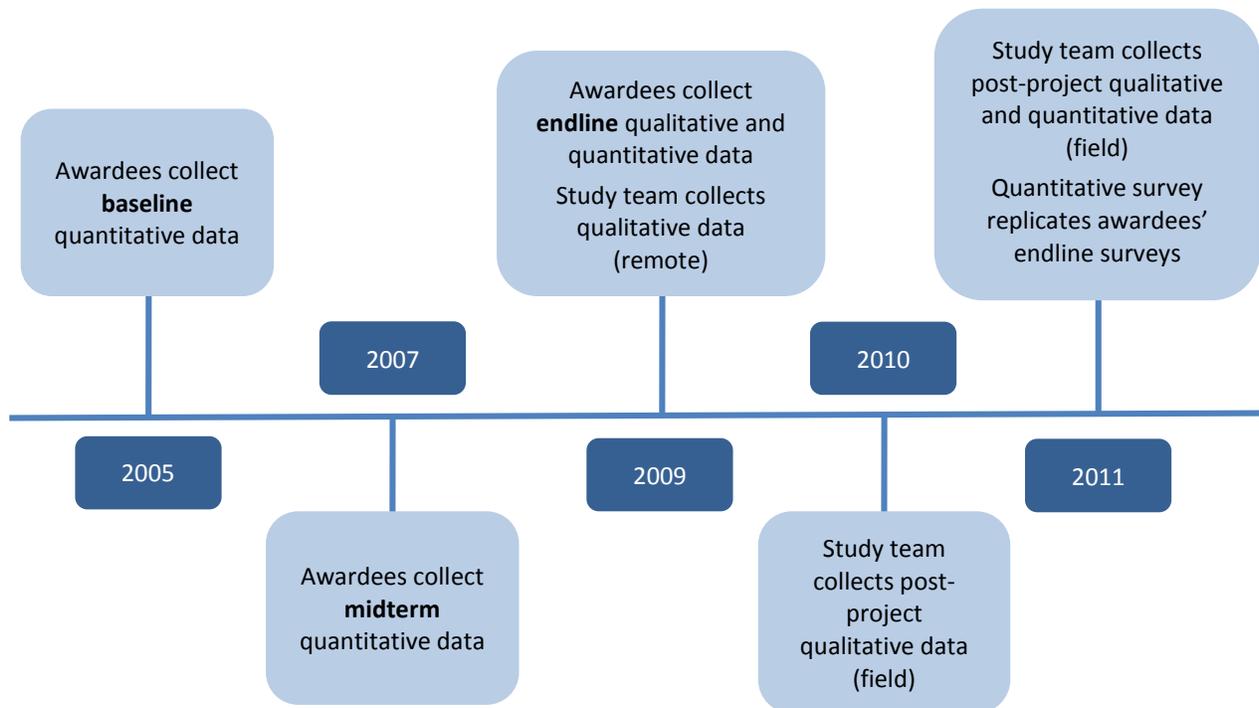
3.1 Overview of Data Sources and Timeline

The overall design of this study called for the Honduras study team to implement three rounds of annual qualitative data collection between 2009, at the time of project exit, and 2011, in order to understand the implementation of the projects’ sustainability plans and exit strategies and the post-project dynamics of sustainability in the three awardee areas. These data were complemented by a quantitative survey, conducted in 2011, 2 years after exit, which replicated the quantitative endline evaluation conducted by the awardees in 2009. Data from the endline evaluations served as the point of comparison for assessing the sustainability of the projects’ activities, outcomes, and impacts.

The change in indicators between endline and follow-up was used to assess whether an activity, outcome, or impact was sustained. A significant change in the desired direction was interpreted as evidence of improvement from endline to follow-up (that is, the benefit was not only sustained but increased), and a significant change in the undesired direction was interpreted as evidence that the achievement was not sustained. A non-significant change in this context corresponds to the possibility that impacts were sustained at the same level as at endline, although this cannot be concluded with statistical certainty.

The first round of qualitative field data collection (2009) was not implemented due to a political crisis in Honduras. Instead, interviews with staff from the three awardees were conducted by phone in November 2009. Two qualitative rounds of field data collection were conducted in 2010 and 2011, 1 and 2 years after the projects’ exits. **Figure 3.1** presents the timeline for the collection of data used in this study.

Figure 3.1. Honduras Data Collection Timeline



Additional information was obtained through a review of project documents: baseline, midterm, and endline evaluation reports⁶; documented sustainability plans and exit strategies; Indicator Performance Tracking Tables (IPTTs); and the original awardee project applications. As previously mentioned, Honduras was one of two of the four countries in the broader FFP sustainability and exit strategies study in which the awardees developed explicit exit strategies after being informed that development project funding for Honduras would not continue. They did this in the context of a workshop facilitated by FANTA, conducted in July 2008, allowing a little over a year for these exit strategies to be implemented.

3.2 Qualitative Methods

3.2.1 Data Collection

To understand implementation of the projects' sustainability plans and exit strategies and the dynamics of sustainability in the three awardee areas, four researchers collected qualitative field data in two rounds: in July–August 2010, 1 year after the FFP development projects exited, and in June–July 2011, 2 years after the projects exited Honduras.⁷ Focus group discussion (FGD) and key informant interview (KII) guides were developed to assess the hypothesized key factors for sustainability: resources, capacity, motivation, and linkages. Sites were chosen to ensure variation in geographic setting, the number of project components implemented, and the length of time the awardee worked in the community. The team visited 4–5 municipalities per awardee area and 3–4 communities per municipality during a period of approximately 10 weeks, with communities added as needed to follow up on information collected. FGDs and key informant interviews were then scheduled with respondents according to their availability. The municipalities and communities from which the sites were drawn were the same for both rounds of qualitative data collection.

In each community, the team organized separate FGDs and key informant interviews for mothers/ caretakers of children under 2 years of age, CHWs, producers and model farmers, water committee administrators and members, and beneficiaries who had participated in and other actors associated with various other components of the FFP projects. FGDs were organized at a community location (e.g., discussions with representatives from the Government of Honduras's [GOH] Atención Integral a la Niñez en la Comunidad [AIN-C] [Comprehensive Community Child Care project] typically took place at health centers, water committee interviews typically took place wherever community meetings were held). FGDs were complemented by key informant interviews with beneficiary and non-beneficiary community members. These interviews were often conducted in interviewees' homes or places of work (e.g., mothers were typically interviewed in their homes, farmers were typically interviewed in their fields). Also interviewed were project participants; representatives from associations and community-based organizations that were formed and/or supported by the FFP projects; local and municipal government officials; and stakeholders outside of communities, such as Ministry of Health doctors and nurses, government officials, agro-industry buyers of farmers' products, and individuals working with other nongovernmental organizations (NGOs). FGDs and key informant interviews were also conducted with members of producer associations, rural banks, small enterprises, and government institutions intended to be involved in management of the project activities, as well as with community members involved in the projects' infrastructure components. In addition, when possible, site visits were made to observe the state

⁶ Awardees reported in their endline reports that baseline and endline surveys were statistically representative of the population of the communities in which the FFP projects were implemented. For these surveys, sampling frames were the list of targeted communities; cluster sampling was used with communities serving as clusters, and sampling was done with probability proportional to size, following the guidelines in Magnani (1999).

⁷ As previously noted, a round of qualitative field data collection was planned for 2009. However, it was not implemented due to a political crisis. Instead, interviews with staff from the three awardees were conducted by phone in November 2009.

of farmers' fields, water system installations, and roads and other infrastructure affected by the projects. **Table 3.1** summarizes the discussions and interviews conducted during the qualitative investigation. Note that the exact number of completed interviews and discussions varies from 2010 to 2011, depending on availability of respondents and logistic constraints.

Table 3.1. Summary of Qualitative Data Sources Used in the Honduras Study^a

| Project Sector | Respondent | Number of Interviews | Number of Communities | Number of Interviews | Number of Communities |
|---------------------------|--|----------------------|-----------------------|----------------------|-----------------------|
| | | 2010 | | 2011 | |
| ADRA | | | | | |
| MCHN | FGD - Mothers | 3 | 8 | 4 | 6 |
| | KII - Mothers | 0 | | 0 | |
| | FGD - CHWs | 5 | | 3 | |
| | KII - CHWs | 1 | | 0 | |
| | KII - AIN-C/Community Health Center auxiliary nurses | 2 | | 0 | |
| | KII - Secretariat of Health representative | 1 | | 0 | |
| | KII - ChildFund (NGO) staff | 1 | | 0 | |
| Agriculture, IGA, and NRM | FGD - Producers | 3 | 7 | 4 | 6 |
| | KII - Producers | 1 | | 1 | |
| | KII - Model farmers | 1 | | 2 | |
| | FGD - Model farmers | 5 | | 0 | |
| | FGD - Producer association | 1 | | 0 | |
| | KII - Community-based micro finance manager | 0 | | 1 | |
| | Microenterprise owners | 0 | | 0 | |
| | KII - Community mayors | 0 | | 2 | |
| | NGO | 0 | | 0 | |
| W&S | FGD - Water committee | 4 | 4 | 3 | 3 |
| Infrastructure | FGD - Food for work infrastructure participants | 3 | 3 | 3 | 3 |
| SC | | | | | |
| MCHN | FGD - Mothers | 2 | 14 | 5 | 12 |
| | KII - Mothers | 1 | | 1 | |
| | FGD - CHWs | 7 | | 5 | |
| | KII - CHWs | 1 | | 2 | |
| | KII - AIN-C/Community Health Center auxiliary nurses/doctors | 7 | | 11 | |
| | KII - Secretariat of Health representative | 1 | | 0 | |
| | KII - NGO ^b | 5 | | 3 | |
| Agriculture, IGA, and NRM | FGD - Producers | 5 | 18 | 6 | 16 |
| | KII - Producers | 2 | | 2 | |
| | KII - Model farmers | 10 | | 7 | |
| | FGD - Model farmers | 0 | | 0 | |
| | FGD - Producer association | 0 | | 0 | |
| | KII - Community-based microfinance manager | 0 | | 0 | |
| | KII - Microenterprise owners ^c | 8 | | 5 | |
| | KII - Community mayors | 5 | | 6 | |

| Project Sector | Respondent | Number of Interviews | Number of Communities | Number of Interviews | Number of Communities |
|---------------------------|--|----------------------|-----------------------|----------------------|-----------------------|
| | | 2010 | | 2011 | |
| | KII - ADACAR field staff ^d | 0 | | 1 | |
| W&S | FGD - Water committee | 2 | 2 | 4 | 4 |
| Infrastructure | FGD - Food for work infrastructure participants | 1 | 1 | 10 | 9 |
| WV | | | | | |
| MCHN | FGD - Mothers | 7 | 12 | 7 | 9 |
| | KII - Mothers | 2 | | 0 | |
| | FGD - CHWs | 7 | | 5 | |
| | KII - CHWs | 0 | | 0 | |
| | KII - AIN-C/Community health center auxiliary nurses/doctors | 2 | | 3 | |
| | KII - Secretary of Health representative | 1 | | 1 | |
| | KII - NGO | 0 | | 0 | |
| Agriculture, IGA, and NRM | FGD - Producers | 5 | 18 | 1 | 15 |
| | KII - Producers | 0 | | 5 | |
| | KII - Model farmers | 5 | | 4 | |
| | FGD - Model farmers | 0 | | 0 | |
| | Producer association members | 0 | | 0 | |
| | FGD - CAFIN ^e | 4 | | 1 | |
| | KII - Community-based microfinance managers | 2 | | 1 | |
| | KII - Microenterprise owners ^f | 3 | | 3 | |
| | FGD - Microenterprise owners ^g | 1 | | 1 | |
| | KII - Community mayors | 6 | | 4 | |
| | KII - NGO ^h | 2 | | 1 | |
| W&S | FGD - Water committee | 3 | 3 | 3 | 3 |
| Infrastructure | FGD - Food for work infrastructure participants | 8 | 7 | 5 | 5 |

^a "Number of Interviews" refers to the total number of interviews conducted with a given respondent group in each round of qualitative data collection. "Number of Communities" refers to the total number of communities in which the interviews for a given project sector were conducted.

^b In 2010 and 2011, KIIs were conducted with NGOs including the following: ADACAR, FAO, PRONAC, and the Foundation for the Integral Development of Women and the Family.

^c In 2010, KIIs were conducted with microenterprise owners including the following: "Nueva Luz" jelly/fruit processor, "Buenos Amigos" wine maker, "Nueva Almanecer" salsa maker, "Apacilagua" meat processor, "Proalmat" jelly maker, "Muprosur" baker and jam maker, "Las Delicias" salsa and bread maker, and "Midepro" candy and honey maker. In 2011, KIIs were conducted with microenterprise owners including the following: "Las Azucenas" seed processor, "El Buen Pastor" pickler and soap-maker, "Apacilagua" meat processor, and "Buenos Amigos" wine maker.

^d ADACAR = Asociación de Desarrollo de Area de Curaren, Alubaren y Reitoca (a local economic development-focused NGO)

^e CAFIN = Caficultor Innovador (an innovative coffee-growing group)

^f In 2010, KIIs were conducted with microenterprise owners including the following: a cheese maker, a coffee processor, and a community credit provider (private lender). In 2011, KIIs were conducted with microenterprise owners including the following: a coffee processor, "Las Cansiras" corner store owner, and a baker.

^g In 2010 and 2011, FGDs were conducted with a dairy/cheese maker.

^h In 2010, KIIs were conducted with NGOs including the following: IHCAFE and COAGRISAL.

3.2.2 Data Analysis

Overall sustainability was assessed based on what project activities, outcomes, and impacts remained 1 and 2 years after the FFP projects shut down. In addition, the assessment tried to draw conclusions about what worked and what did not work to promote sustainability. Those conclusions were derived from the qualitative data collected through FGDs and key informant interviews that were organized by project sector: MCHN; W&S; and agriculture, IGA, and NRM. Infrastructure was treated as a cross-cutting component. Transcripts and interview summaries were analyzed using NVivo9. Analyzing qualitative data in NVivo requires creating thematic “nodes” (e.g., service delivery) that reflect different research themes and categorizing the transcript content into those nodes. Information from interviews was then sorted into nodes based on what it revealed about the sustainability plans and exit strategies that were hypothesized to affect the sustainability of project activities and benefits. After assigning qualitative data to their respective nodes, the data were compiled by awardee and then by project sector. Data were analyzed to determine to what extent the original hypotheses were supported by observations and interviews.

3.3 Quantitative Methods

3.3.1 Data Collection

In 2011, the study team implemented quantitative surveys in the three awardee areas to assess the degree to which programmatic activities, outcomes, and impacts achieved in the project period had been maintained. The surveys replicated the awardees’ endline evaluation surveys conducted in 2009, and were implemented as close as possible to the season in which the endline evaluations had been conducted. There was considerable variation in the design of the questionnaires and in the data collected in the endline evaluations of the three awardees. To preserve comparability between the endline evaluations and the survey conducted by this study (referred to as the follow-up survey), endline questionnaires were not altered, but some questions were added to create comparable measures across awardees, even if these comparisons were limited to the 2011 survey period. In addition, a quantitative community questionnaire was administered to a group of community leaders in every sampled community.

For implementation of the quantitative follow-up survey, multistage cluster sampling with probability proportional to size was employed in each awardee area. The sampling frame consisted of all communities that were included in the awardees’ projects. Once the communities were selected, the field teams visited the communities, determined their boundaries, and selected sample households using a random start within the community and a randomly chosen direction, with households along the line included in the survey if they contained an eligible respondent (e.g., mother, farmer). When the boundary of the community was reached, interviewers would randomly choose a new direction and follow that. The sampling interval was determined by the ratio of the needed cluster size to the estimated number of households in the community, information that was available from the awardees. When a household was visited, if there was more than one eligible respondent for a given project sector, enumerators randomly selected one (e.g., if there was more than one child under 2 years of age, enumerators randomly selected one child about whom to collect data). Households containing a farmer but no caretaker of a child under 2 years of age and those containing a caretaker but no farmer were included in the relevant components of

the survey. All children under 5 years of age in the households included in the MCHN component were weighed and measured.

The sample size for the surveys was calculated to detect a 10 percentage point difference from the endline value of the most demanding of the projects' key indicators⁸ (assuming a starting value of 50 percent, the most conservative assumption) in a two-tailed test with 80 percent power and $\alpha=.05$.

Baseline study and midterm evaluation results were used in combination with endline and follow-up survey datasets to examine indicator trends over time. Baseline and endline surveys were intended to draw a statistically representative sample of relevant populations in the awardees' target areas; the follow-up survey was statistically representative of the target populations in these areas. The midterm evaluation drew a sample of project participants only. Therefore, baseline data may be compared with endline, and both baseline and endline with follow-up data, but not midterm data, which were not based on a representative sample of the target population. Data sets for statistical comparison were available for endline and follow-up surveys only.

Table 3.2 summarizes information about each quantitative dataset. Note that although the baseline and midterm results were available from awardees' reports, the datasets were not available for analysis. All statistical comparisons are therefore between the endline and follow-up surveys.

Table 3.2. Summary of Quantitative Data Sources Used in the Honduras Study

| Data Source | Dates | Sample Size | Locations (Department) | Data Collected by: | Data Available to Study Team for Analysis? |
|------------------------------------|-----------------|-------------|-------------------------------------|------------------------------------|--|
| ADRA | | | | | |
| Baseline Survey | | | | | |
| MCHN Survey | 2005 | n/a | Santa Bárbara | ADRA/Honduras, ADRA/International | No |
| Agriculture, IGA, and NRM Survey | | | | | |
| Midterm Survey | | | | | |
| MCHN Survey | 2007 | n/a | Santa Bárbara | ADRA/Honduras, ADRA/International | No |
| Agriculture, IGA, and NRM Survey | | | | | |
| Endline Survey | | | | | |
| MCHN Survey | April-May | 1,054 | Santa Bárbara | ADRA/Honduras, ADRA/International | Yes |
| Agriculture, IGA, and NRM Survey | 2009 | 771 | | | |
| Study Team Follow-Up Survey | | | | | |
| MCHN Survey | April-July 2011 | 638 | Santa Bárbara | Tufts University/ MYPE Consultores | Yes |
| Agriculture, IGA, and NRM Survey | | 557 | | | |
| Community Survey | | 38 | | | |
| SC | | | | | |
| Baseline Survey | | | | | |
| MCHN Survey | 2005 | n/a | Francisco Morazán, Valle, Choluteca | SC | No |
| Agriculture, IGA, and NRM Survey | | | | | |

⁸ Key indicators included: the percentage of mothers engaging in specific health practices, including participation in growth monitoring; the percentage of children stunted; the percentage of households with piped water and latrines (with signs of use); the percentage of farmers engaging in project-promoted agricultural and NRM practices, agricultural sales, farmer organizations, and commercialization; and self-reported agricultural income. Key food security indicators included the household dietary diversity score and months of adequate household provisioning.

| Data Source | Dates | Sample Size | Locations (Department) | Data Collected by: | Data Available to Study Team for Analysis? |
|------------------------------------|--------------------|-------------|-------------------------------------|------------------------------------|--|
| Midterm Survey | | | | | |
| MCHN Survey | 2007 | n/a | Francisco Morazán, Valle, Choluteca | SC | No |
| Agriculture, IGA, and NRM Survey | | | | | |
| Endline Survey | | | | | |
| MCHN Survey | March-April 2009 | 797 | Francisco Morazán, Valle, Choluteca | SC/external consultants | Yes |
| Agriculture, IGA, and NRM Survey | | 1,072 | | | |
| Study Team Follow-Up Survey | | | | | |
| MCHN Survey | April-July 2011 | 800 | Francisco Morazán, Valle, Choluteca | Tufts University/ MYPE Consultores | Yes |
| Agriculture, IGA, and NRM Survey | | 640 | | | |
| Community survey | | 38 | | | |
| WV | | | | | |
| Baseline Survey | | | | | |
| MCHN Survey | 2005 | n/a | Copán, Ocotepeque | WV | No |
| Agriculture, IGA, and NRM Survey | | | | | |
| Midterm Survey | | | | | |
| MCHN Survey | 2007 | n/a | Copán, Ocotepeque | WV | No |
| Agriculture, IGA, and NRM Survey | | | | | |
| Endline Survey | | | | | |
| MCHN Survey | February-June 2009 | 1,180 | Copán, Ocotepeque | WV, MYPE Consultants | Yes |
| Agriculture, IGA, and NRM Survey | February-June 2010 | 1,115 | | | |
| Study Team Follow-Up Survey | | | | | |
| MCHN Survey | April-July 2011 | 634 | Copán, Ocotepeque | Tufts University/ MYPE Consultores | Yes |
| Agriculture, IGA, and NRM Survey | | 538 | | | |
| Community Survey | | 40 | | | |

Note: Community surveys were conducted with a group of key informants from each community. Sample size is number of communities.

3.3.2 Data Analysis

The quantitative analysis focused on determining if the projects' activities, outcomes, and impacts changed from endline (2009) to follow-up (2011), that is, whether these things improved or deteriorated over the initial period after project exit. The study team interpreted no negative changes to mean that, statistically, the evidence supports the conclusion of sustainability (including maintenance or improvement of outcomes and/or impacts). When possible, activities, outcomes, and impacts that were measured at endline and follow-up were compared with baseline values (as reported in baseline evaluation reports) to examine how the trajectory after project exit compared with the changes achieved during the life of the project. As previously noted, statistical comparisons were made only between endline and follow-up data. For these two time points, proportions were compared using z-tests for comparison of two proportions (equivalent to chi-square for two proportions); categorical data were compared using Pearson's chi-square tests; means were compared using independent sample t-tests; and in a few cases where medians were compared due to skew in the distributions, Wilcoxon rank-sum tests were used.

The significance level used for all hypothesis tests was $\alpha < 0.05$. Where possible, all analyses were done with statistical adjustment for the complex survey design.⁹ All significance tests were two-sided, using the null hypothesis of no difference between endline and follow-up results. The study team interpreted a significant change in the desired direction as evidence of improvement from endline to follow-up and a significant change in the undesired direction as evidence that the achievement was not sustained. A non-significant change in this context implies that it cannot be stated with statistical certainty that there was any change in either direction. Whether an observed change is important (separate from statistical significance) is a matter of judgment, and the results are reported with this perspective.

Each awardee provided raw data from their 2009 final evaluations in the form of Excel, dBase, and SPSS files. All files were converted to .csv format and imported into STATA/IC 11.2 as .dta files. Prior to analysis, visual plots and frequency tables were created to assess influential points and to evaluate variable distributions. Conducting t-tests on means for highly skewed distributions required adjustments. For example, typically, one can adjust for skewed income distributions by comparing medians rather than means, but when more than half of the sample had no agricultural sales, median income was zero and therefore comparisons were not informative. For income, medians are presented where appropriate; otherwise, α -truncated means are presented (means of the distribution with the top and bottom 2.5 percent eliminated; the bottom 2.5 percent were all zeroes). Crop yields were adjusted by eliminating outliers that fell outside the value of three times the interquartile range above the upper boundary of the third quartile of the distribution.

All MCHN indicators were constructed using the methods described by each awardee in its IPTT or quantitative endline report, so as to maintain comparability between baseline, endline, and follow-up calculations. Anthropometric indicators were constructed with the same age range and malnutrition cut-off points as those used in the baseline for that awardee, using World Health Organization (WHO) Anthro software.¹⁰ Algorithms were applied to convert anthropometric estimates based on 1977 National Center of Health Statistics criteria to updated estimates based on 2006 WHO references (Yang and de Onis 2008). Where reference periods varied from one awardee to another, the reference period used by the awardee was maintained (for example, diarrhea in the past 2 or 4 weeks; participation in growth monitoring in the past 1 or 2 months), but in the 2011 follow-up survey, consistent reference periods were added to facilitate comparison across awardees.

All income and price data were adjusted for inflation and reported in 2011 US dollars.¹¹ Producer prices of coffee for the years covered by the study and quantity conversions to account for the different forms in which coffee was sold were obtained from the Instituto Hondureño de Café (IHCAFE) (Honduran Institute for Coffee). The majority of agriculture and IGA indicators were constructed by applying methods the awardees used in their endline surveys; baseline values for these indicators are reported (when available) for comparison. ADRA used agricultural expenditure as a proxy for agricultural income in its baseline and endline surveys. As this is not a reasonable measure of income, there is no income data to be used for comparison at follow-up for this project. For the other awardees, the 2009 and 2011 estimates of agricultural income were calculated as the reported price of each crop multiplied by the reported quantity of each crop sold. Income from coffee sales for WV was similarly calculated as quantity sold, adjusted for the form in which it was sold, multiplied by the producer price for that crop year. Yields

⁹ Adjustment for clustering was done for ADRA and SC. WV provided no information about clustering, so no adjustment could be made.

¹⁰ WHO Anthro Version 3.2.2. January 2011. <http://www.who.int/childgrowth/software/en/>.

¹¹ FAO Stat. <http://faostat.fao.org/site/683/DesktopDefault.aspx?PageID=683#ancor>.

were calculated by converting all production to *quintales* (100 lbs.) and area to *manzanas* (.7 ha), the local area measure, so that yields are reported as *quintales* per *manzana*. (See Section 5.10 for results.)

3.4 Study Limitations

Inconsistency across awardee evaluations posed challenges in the analysis, and in some cases unavailable data precluded endline/follow-up comparisons. The seasons in which the endline and follow-up surveys were conducted were meant to be comparable, but did not overlap perfectly. In addition, a major limitation of the study lies in the absence of a control group. The study was intended to assess the sustainability of changes achieved by the FFP projects, but in the absence of any control group, endline/follow-up comparisons are used to make these judgments. The study team used impact pathways and plausibility analysis to assess the sustainability of project activities, outcomes, and impacts, with qualitative data supporting the conclusions by suggesting reasons for observed changes and the processes underlying them. Nonetheless, a group of non-intervention communities followed over the same time period would have strengthened the study's design.

4. Project Descriptions and Operating Context

ADRA, SC, and WV all implemented projects in three main technical sectors: MCHN; W&S; and integrated agriculture, IGA, and NRM. SC and WV have a long history of working in Honduras, and all three NGOs continued to work in the country with other funding after the withdrawal of the FFP development projects.

ADRA implemented its Support for Subsistence Farming Households FFP development food assistance project in Honduras from 2005 to 2009. The project targeted subsistence farming households and focused on improving community and household food security by increasing agricultural productivity and access to markets, improving health and nutrition, and building the capacity of project participants to mitigate and respond to risks and shocks that affect their food security. ADRA worked in the department of Santa Bárbara, which is located in Honduras's western region and comprises 28 municipalities. Santa Bárbara has one of the highest poverty rates in the country.¹² Its population relies primarily on subsistence farming, and, because of the aridity of the region, crop production is affected by drought, often followed by a season of heavy rains. Prior to this FFP development project, ADRA had been involved in emergency relief work in Honduras, both in Santa Bárbara and other departments. ADRA expected to continue working in, or to return to, the areas that were closed down at the end of the FFP development project through other funding.

From 2005 to 2009, SC worked in the departments of Francisco Morazán, Valle, and Choluteca, in the southern region of Honduras, to address the underlying causes of, and long-term solutions to, food insecurity in rural communities and households. The Proyecto de Gestión Rural en Seguridad Alimentaria (PROGRESA, Rural Management and Food Security Project) was an integrated project of four NGOs (SC/United States, CARE, SC/Honduras, and Catholic Relief Services) led by SC/Honduras. All of these partners had significant operating experience in Honduras, and SC/United States and SC/Honduras continued to have a presence both nationally and within some of the PROGRESA-targeted communities after the FFP development projects studied here ended. SC had been working in south-central Honduras for 10 years prior to implementing PROGRESA. SC's FFP development project areas can be characterized by their hot and arid conditions. In the years leading up to and during the FFP development project, SC's project areas had experienced several years of drought interrupted by floods.

From 2005 to 2009, WV implemented its Food Security Enhancement and Risk Reduction for Far Western Honduras FFP development project in the westernmost part of Honduras—in Copán and Ocotepeque departments and in two municipalities of Santa Bárbara. WV was the lead within the Union Program Consortium, which combined WV, ACDI/VOCA, and Counterpart International as partner organizations and sub-grantees. The WV project engaged rural households and coffee farmers to address obstacles to food security. The project focused on improving the quality of coffee production; establishing links to coffee markets; and improving access to, availability of, and use of food resources in targeted households, while enhancing community and household resilience to shocks by creating a more durable and diverse livelihood base. The areas in which WV worked are historically coffee-producing areas, and coffee commercialization is active in the region. These areas are mountainous and are characterized by cooler temperatures than the areas that were served by the SC and ADRA FFP development projects. Prior to the FFP project studied here, WV had implemented programming in a limited area of Honduras since 1966, but the 2005–2009 FFP development project was undertaken in more areas and was the first

¹² Plan Estratégico Participativo Municipio de Santa Bárbara. 2003. Cited in ADRA's FFP development project application.

to involve a consortium of WV with Counterpart International and ACDI/VOCA (though ACDI/VOCA left the consortium in 2006).

Honduras was one of only two FFP countries encountered in the broader FFP sustainability and exit strategies study in which the awardees incorporated explicit sustainability plans into their project applications and developed detailed exit strategies, incorporating phase-over or phase-out approaches, benchmarks indicating readiness for exit, and allocation of associated responsibility. The exit strategies were developed during a workshop facilitated by FANTA in July 2008, allowing for a little more than a year for their implementation. One strategy employed by WV to facilitate exit was to rank beneficiary communities in terms of their likelihood of achieving sustainability and to time their project exit according to these rankings.¹³ Those communities deemed unlikely to succeed in sustaining the interventions were exited first to allow the consortium awardees to concentrate their efforts in those communities judged to have a higher probability of success. The process of exit was then implemented in stages, with the most promising communities exited last.

¹³ The sample for the present study was drawn from all beneficiary communities irrespective of their rankings.

5. Results: Maternal and Child Health and Nutrition Sector

SUMMARY

The Honduras awardees' MCHN sector components were based on training CHWs to provide growth monitoring for children up to 2 years of age, health talks, and home visits to encourage good health practices, as well as to follow up on children who were not growing adequately or who had not attended the growth monitoring sessions. Supplementary food rations were distributed to mothers who participated in growth monitoring and health talks. The CHWs were trained according to AIN-C protocols, in an effort to link them to the GOH's health care decentralization efforts. The sustainability plan for all awardees was to phase over support of the CHWs (e.g., providing regular training, refresher training, materials and supplies; supervising and participating in community activities) to the GOH. The expectation was that the GOH-supported, AIN-C-focused service providers would benefit from the project-trained CHWs' outreach into the community and the information on the nutrition situation in the community that the CHWs collected, and that this would motivate the GOH to provide continued support to the CHWs. The AIN-C efforts were supported by the GOH Secretariat of Health's resources, making this a reasonable expectation. However, between 2009 (the time of the FFP development projects' exit) and 2011 (the time of the follow-up survey), a political crisis in Honduras resulted in a decline in government resources to support AIN-C efforts, so that linkages that looked promising in 2010 had declined by 2011. Nonetheless, by 2011, more than two-thirds of former FFP communities still had at least one working CHW, supported either by an AIN-C service provider or by another NGO.

At the time of the follow-up survey, the majority of mothers continued to make use of growth monitoring services, but many shifted from growth monitoring provided in the community by the CHW to growth monitoring provided by public health centers (typically outside the community) or NGO facilities. This decline in demand for CHW services meant that some CHWs stopped working, and almost all stopped making home visits to monitor and encourage good health and hygiene practices. Although mothers cited health benefits as the motivation for participating in growth monitoring, both mothers and CHWs cited the withdrawal of FFP project-provided food rations as one reason for the shift away from CHW-provided growth monitoring, since various material incentives were provided to mothers who attended growth monitoring sessions at health centers and by some of the NGOs.

In addition, the follow-up survey found that the practice of exclusive breastfeeding to 6 months of age was well maintained after exit, but that most other health practices (e.g., continued feeding during episodes of diarrhea, timely introduction of complementary feeding, handwashing) declined from endline to follow-up, in some cases dramatically. Declines in the prevalence of stunting between baseline and endline, though, were maintained or improved at the time of follow-up.

5.1 Maternal and Child Health and Nutrition Sector Project Descriptions, Sustainability Plans, and Exit Strategies

5.1.1 Project Descriptions

AIN-C is a community-based program for growth monitoring and health that was adopted by the GOH as part of its policy of decentralization of health care to promote the improved health and nutrition of children under 2 years of age. Under this decentralization policy, the Secretariat of Health executed annual contracts with local organizations (such as NGOs or local government entities) to provide primary health services. Renewal of these contracts was contingent on meeting targets for service delivery and results. The AIN-C approach involved training CHWs whose role was to conduct monthly growth monitoring sessions; offer health education talks; and conduct home visits to monitor children's health, encourage the adoption of good health, hygiene, and child care practices, and monitor compliance. CHWs also collected anthropometric data to report to health centers so that the Secretariat of Health could adjust its health initiatives based on local trends in malnutrition and child growth and conducted home visits to follow up on children whose growth was faltering and on those who did not attend a growth monitoring session. The FFP development project awardees used these existing Secretariat of Health AIN-C protocols to train CHWs (ADRA, WV) or facilitated access to government health system training on them (SC). In communities without existing CHWs, awardees recruited and trained (or facilitated training of) CHWs in order to extend AIN-C-based MCHN services to communities that government health workers could not reach. Awardees then linked the trained CHWs to public health centers (rural health centers [CESARs] and local medical and dental health centers [CESAMOs]) for further training, coordination, supplies, and support. In communities where CHWs were already working, the awardees strengthened CHWs' relationships with AIN-C centers (health centers run by the public health system, supporting the AIN-C model) and reinforced these CHWs' capacities by providing training or by supporting transportation to health centers for periodic training.

Each awardee provided resources, such as stationery, ledgers for recording data, scales, and measuring equipment, to CHWs during the project. Awardees also provided CHWs with in-kind incentives, such as backpacks, tables, chairs, T-shirts, home repair supplies, preferential treatment at health centers, and free transport to and from AIN-C centers for meetings at which they received training and reported on the growth monitoring statistics in their communities. CHWs in each awardee area were certified according to AIN-C standards, although not always by the AIN-C health center itself; some CHWs were certified by the awardees. In addition to facilitating the training of CHWs, SC planned to organize community health committees (CHCs), consisting of members of the community who would support the CHWs in collecting local health information (though it is not clear that these committees were ever operational).

Participating mothers (those who attended growth monitoring sessions and health talks) received a monthly food ration of corn-soy blend, rice, and oil from the awardee working in their area during the project life to motivate them and to offset the opportunity costs of project participation. ADRA and WV also provided a preventive ration that was intended to fill the nutritional gaps of households, while SC provided an incentive ration (slightly lower in quantity than the preventive ration) that was intended to motivate mothers to participate in growth monitoring sessions and health talks. These rations were provided irrespective of the child's nutritional status.

5.1.2 Sustainability Plans

ADRA, SC, and WV each employed similar MCHN models and developed similar plans for sustaining MCHN activities and benefits following the close of their FFP development projects. The fundamental

strategy for sustainability was to turn over responsibility for support and supervision of CHWs to the government-funded decentralized health care system and to rely on funding primarily through the Secretariat of Health. This was based on the expectation that, by the end of the FFP development projects, the AIN-C centers would have recognized the value that the CHWs provided, based in part on the training (to AIN-C standards) that they had received, and would be willing and able to provide the resources needed to continue to support them. Without formally establishing agreements with the health centers or preparing official terms of reference, the awardees assumed that the decentralized health services were already committed to the AIN-C approach and would take on responsibility for the CHWs who had been trained on it.

The implicit assumptions underlying these sustainability plans were that CHWs would provide needed anthropometric data to the government's health centers and, in return, would receive support, such as administrative supplies, materials (e.g., growth cards; replacement scales; and vitamin/mineral supplements, such as iron/folate for pregnant women and *chispitas* or multi-micronutrient powders for children), and training and supervision. Provision of a replacement supplementary food similar to the ration provided under the FFP development projects was not anticipated. Instead, the expectation was that nutritious, locally available foods would be available and that mothers would have learned to substitute these for the rations previously provided. SC and WV promoted family gardens to contribute to the availability of nutritious, locally available foods. While material benefits provided to CHWs by the FFP awardees would no longer be available, the awardees assumed that CHWs would continue to work out of a sense of obligation to the community and because of the community's (and the AIN-C center's) recognition of the valuable service that they provided. Awardees also assumed that CHWs would be able to continue providing high-quality services because of the support that they would receive from the GOH's AIN-C-focused program. It was anticipated that beneficiaries of all three awardee projects would continue to implement changes in household nutrition and hygiene practices and would continue to participate in growth monitoring sessions, motivated by observed health benefits to their children.

Within this general approach to sustainability after exit, there were some differences among the awardees in how they worked to ensure sustainability. ADRA planned to establish networks of CHWs who would exchange knowledge and experience and support each other's efforts. They also planned to train CHWs in how to design projects and write proposals with the expectation that, as a network, the CHWs would be able to seek funds from municipal governments for activities not covered by Secretariat of Health resources. ADRA planned to encourage these networks of volunteers to establish linkages with other organizations working in their zones to partner with the GOH's AIN-C-focused program in providing community-based services.

In addition, ADRA employed a method that they called "ontological coaching": project participants (beneficiary mothers) were encouraged to practice self-reflection to overcome the mentality of poverty and develop a self-reliant attitude. This approach was based on encouraging an attitude change and did not concretely address the need for capacity, motivation, or resources to change behaviors. Nonetheless, this was an integral part of the stated plan for sustainability and was implemented as part of the exit strategy as it was described.

SC's documented sustainability plan differed in that it included expectations that the CHCs that they intended to create would continue, in addition to the individual CHWs. Similar to ADRA's approach to forming networks of CHWs, SC planned to train CHCs in management and leadership skills, and aimed to help them develop internal rules and annual plans. As with ADRA, the assumption was that supervision of the CHCs, as well as the CHWs that they supported, would be turned over to the GOH's Secretariat of Health. However, as noted above, the CHCs did not appear to take hold during the project,

and none of the communities visited in the two qualitative rounds of data collection after project exit had functioning CHCs.

WV explicitly linked its MCHN activities to its agricultural interventions. Specifically, WV incorporated CHWs as beneficiaries in its agricultural interventions to increase and diversify their household food production, so that the time that they spent as CHWs would not jeopardize their families' funds. Beneficiaries receiving supplementary food through the MCHN sector component were also targeted for inclusion in WV's agriculture interventions, so that, with improved income and household food supply, they could sustainably follow the dietary recommendations made as part of the MCHN health talks and could provide food to their children once the project-provided ration for participation in growth monitoring was withdrawn. In addition, WV proposed a unique strategy of encouraging agricultural enterprises developed under its FFP project to devote a small percentage of their profits to supporting community-based health services. WV planned to sensitize these individually-owned agricultural businesses to the importance of supporting community health units and health activities in the hope that they would be motivated to divert some of their profits to the health program, though this did not happen, due in part to the limited level of financial security that these enterprises had attained by the end of the project.

Finally, like the other awardees, WV expected that the Secretariat of Health would take on support of its AIN-C-trained CHWs, since the AIN-C approach was integral to the government's health policy. In an effort to formalize this, at the time of exit, WV was working with the nascent National Social Protection Network to develop a formal agreement for government support of community health activities, but this office faltered after the political crisis in 2009, and the agreement was not functional after the FFP project's exit. In addition, WV planned to continue working in a subset of its FFP development project-targeted areas after the closure of the project under its Area Development Program, through which it planned to seek funds not only from the national government (through the Poverty Reduction Strategy Program) but also from other NGOs and private sector donors.

5.1.3 Exit Strategies

While the awardees' models for sustained service delivery through linking CHWs to AIN-C centers were similar, there were marked differences in their exit strategies. For example, while each awardee worked toward turning over training, supervision, and supply provisioning of CHWs to the government, SC and WV gradually phased out of their respective communities and ensured that relationships between CHWs and health center staff were established and ongoing well before exit. In addition, in 2005, when the WV and SC projects started, CHWs and mothers in SC- and WV-targeted areas were made aware that the projects would be ending in 2008 (subsequently extended to 2009). The phase-out periods of SC and WV were 14 and 12 months, respectively, and CHWs were operating independently with AIN-C center support, and with regular reporting to health posts, prior to project closure. (Recall that WV phased out of the less promising communities earlier than they did those that they determined to have a higher likelihood of success. This is discussed in more detail below.)

Conversely, in ADRA project areas, both project-targeted mothers and CHWs reported during post-project qualitative data collection that they were unaware that the FFP development project would be ending in 2008. ADRA's phase-out process was shorter (4 months) and the relationship between CHWs and the AIN-C centers had not been tested without ADRA's presence at the time of the project's closure. Up to the end of the project, CHWs were reporting to ADRA staff, who then communicated with health post staff. At the end of the FFP project, ADRA sponsored a ceremony of transfer of responsibility at which the health staff and CHWs were informed that from now on, the chain of communication, supervision, and reporting would be between the CHWs and the health staff. ADRA's abrupt exit may be

attributed to its assumption that, despite the close of the FFP project, it would continue to provide support to the targeted populations through resources from other donors. Thus, the sustainability plans of the awardees were similar, but the exit strategies by which they were implemented were different, although, as previously stated, none of the awardees had formal terms of reference with the health system to provide continued support to the CHWs.

A unique element of WV's exit strategy, applied to all communities in which it worked, was to conduct an assessment of the communities' potential to maintain activities and impacts after exit. In June 2008, a year before exit, WV categorized the communities that they had targeted for the FFP project into three categories: low potential, high potential, and model. Phase-out was staged according to category. Those communities deemed low potential were phased out in April 2009, high potential communities in June, and model communities in August. (A few communities were phased out immediately based on this assessment.) Thus, the highest potential (model) communities had the longest relative period of phase-out before exit. Among the criteria applied in this assessment were the degree to which the targeted communities demonstrated a sense of ownership of the interventions for which they had been targeted; noted a willingness to continue delivering and using the services, practices, and behaviors that the project had supported and had the resource base to permit such continuation; coordinated or developed working partnerships with other NGOs (including other WV projects) operating in the implementation area; and demonstrated community organization, including leadership, volunteer participation, and having effective community development plans. The local government's investment in project-related activities, especially in health (AIN-C-focused program presence, functioning community health units) was also considered. According to WV staff in qualitative discussions, remote location and lack of resources were factors contributing to assessments of low potential for sustainability; the community's demonstrated level of organization and commitment also played a role.

All of the WV-targeted communities (including those that were phased out early) continued receiving MCHN supplementary food through August 2009. This staged approach was intended to give the most promising communities the best chance to reach sustainability. Key MCHN sustainability strategies are summarized in **Box 5.1**.

Box 5.1. Summary of MCHN Sector Sustainability Strategies and Key Assumptions

| SUSTAINABILITY STRATEGIES | KEY ASSUMPTIONS |
|---|--|
| <ul style="list-style-type: none"> Have CHWs continue to provide MCHN services (growth monitoring, home visits, health talks) and deliver health and nutrition information to AIN-C centers. | <ul style="list-style-type: none"> CHWs will continue to carry out their roles without project-provided material incentives out of personal commitment. |
| <ul style="list-style-type: none"> Form networks of CHWs (ADRA) or CHCs (SC) and train them to seek funds from municipal governments and other donors to support health activities in the community. | <ul style="list-style-type: none"> CHWs will see value in CHW networks and will be motivated to participate in them. Municipal governments and other donors will have the resources and motivation to support CHW networks' community health activities. |
| <ul style="list-style-type: none"> Have agricultural enterprises that had been supported by FFP project activities set aside funds to support community health activities (WV). | <ul style="list-style-type: none"> Agricultural enterprises will have sufficient resources and motivation to use some of their resources to support community health activities. |
| <ul style="list-style-type: none"> Motivate mothers to continue implementing the practices taught through the projects' MCHN sector interventions. | <ul style="list-style-type: none"> Mothers will implement the practices that they were taught at a level sufficient to achieve visible health benefits, motivating them to continue. |
| <ul style="list-style-type: none"> Encourage mothers to continue to participate in growth monitoring and health talks. | <ul style="list-style-type: none"> Mothers will have the time, resources, and capacity to implement these practices. Motivation to participate in growth monitoring provided by free food rations will be replaced by visible health benefits. |
| <ul style="list-style-type: none"> Replace project-provided supplemental food rations for growth monitoring participation with nutritious, locally available food. | <ul style="list-style-type: none"> Nutritious, locally available foods will be available and accessible to households. Home gardens (SC, WV) will provide access to a diverse diet for the household. |

5.2 Sustainability of Maternal and Child Health and Nutrition Service Delivery

The central component of the MCHN sector interventions in the FFP development projects in Honduras was the presence of a trained CHW in the community who was linked to the government's AIN-C centers for supervision, refresher training, and replacement materials and supplies. However, by 2011, the central government's financial support of decentralized, AIN-C-focused services had declined,¹⁴ jeopardizing the strategy of turning over support for the CHWs to these government entities. Nonetheless, at follow-up there were working CHWs even in communities where the AIN-C-focused services did not appear to have a presence. While a few communities reported that the FFP awardees were continuing to work in

¹⁴ According to figures from the Secretariat of Health, the budget for "health and social protection" declined from Honduran lempiras (HNL) 77,551,422 in 2010 to HNL 53,438,400 in 2011 (Secretaría de Salud, Detalle de Gastos por Objetos a Nivel de Actividades, <http://www.salud.gob.hn/transparencia/archivos/finanzas/presupuesto%20general/2010/presupuestogeneral2010.pdf> and http://www.salud.gob.hn/transparencia/archivos/finanzas/presupuesto%20general/2011/presupuesto_ aprobado_2011.pdf).

their areas with other funding in 2011 (2.6 percent of communities reported this in former ADRA-targeted areas, 10.5 percent of communities in former SC-targeted areas, and 15.0 percent of communities in former WV-targeted areas), others reported that other NGOs either entered the area or continued to maintain their presence, contributing to the continuation of delivery of some of these services.

At the time of exit, all of the communities participating in the FFP projects had at least one working CHW, though not all were supported by the GOH's AIN-C-focused program and formally linked to the health care system. **Table 5.1** shows that the number of communities with a working CHW declined at follow-up to just over 70 percent in ADRA and WV areas and to 87 percent in SC areas. The table also shows the percentage of communities with an AIN-C program-supported group at follow-up, a notably lower percentage. Virtually all communities with an AIN-C-focused group had working CHWs, while in those without a recognized AIN-C-focused group, between 38 percent and 52 percent of communities reported no CHW.

The higher number of CHWs working in SC areas may be linked to the fact that SC had a much higher number of communities reporting that a community health (AIN-C-focused) project had been undertaken in the 2 years after the FFP development project closed. Most of these communities received funding from NGOs, while the central government, despite reportedly scarce funds, also contributed to a significant proportion of them.

Table 5.1. Percentage of Communities with a Working CHW and with an AIN-C-Focused Group at Follow-Up, by Awardee

| | ADRA | SC | WV |
|--|--------|--------|-------|
| n | 38 | 38 | 40 |
| Working CHW present | 71.0% | 86.8% | 72.0% |
| AIN-C-focused group present | 44.7% | 65.8% | 42.5% |
| % of communities with an AIN-C-focused group and a working CHW | 100.0% | 100.0% | 94.1% |
| % of communities without an AIN-C-focused group but with a working CHW | 47.6% | 61.5% | 56.5% |
| % of communities with a new health project implemented by the government or another NGO in the 2 years following the FFP projects' closure and a working CHW | 93.8% | 96.7% | 89.5% |
| % of communities without a new health project in the 2 years following the FFP projects' closure but with a working CHW | 54.5% | 50.0% | 57.1% |

Source: 2011 Community Surveys.

Note: An AIN-C-focused group is a group of CHWs supported by a health center and providing AIN-C-focused services.

Table 5.2 shows the percentage of communities that had implemented a health project in the awardees' target areas in the 2 years after the projects closed. Most of these health projects received funding from other NGOs. For example, in qualitative interviews, the study team learned that NGOs, such as ChildFund in Reitoca (a former SC implementation area), were implementing AIN-C-focused interventions using their own funds to complement insufficient funds provided by the government. However, as previously mentioned, the central government also contributed to a significant proportion of these new health projects.

Table 5.2. Percentage of Communities with New AIN-C-Focused Projects in the 2 Years Following the FFP Projects' 2011 Closure and Their Funding Sources

| | ADRA | SC | WV |
|--|-------|-------|-------|
| n | 38 | 38 | 40 |
| Communities implementing AIN-C-focused projects in the 2 years following the FFP projects' closure | 42.1% | 78.9% | 47.5% |
| Of those projects: | | | |
| % funded by other NGOs | 81.0% | 86.0% | 57.9% |
| % funded by the municipality | 12.5% | 26.7% | 36.8% |
| % funded by the central government | 68.8% | 53.3% | 89.5% |

Source: 2011 Community Surveys.

In qualitative interviews conducted with CHWs in all FFP awardee areas 1 and 2 years after project exit, almost all (12 of 15) said that they continued to provide growth monitoring services and health talks in their communities and to be “on call” if community members had questions. However, they all stated that they no longer provided routine home visits, which is supported by the quantitative data. In SC areas (for which comparison data are available), the percentage of mothers receiving home visits declined from about 31 percent to 13 percent from endline to follow-up, while the percent receiving home visits at follow-up in ADRA and WV areas was only 3 percent and 4 percent, respectively. Of the 15 qualitative discussions undertaken with CHWs in 2011, only 3 reported any household visits, and these were in response to problems identified during growth monitoring; they were not part of the routine home visits to promote good health and hygiene practices that CHWs had performed during the FFP projects. The CHWs who had also stopped offering health talks or growth monitoring generally said that it was because demand for their services had declined, typically because mothers were taking their children to other places for growth monitoring, where, in many cases, they would receive incentives, such as food.

The following sections discuss the MCHN service delivery results in terms of the critical factors for sustainability: resources, capacity, and motivation.

5.2.1 Resources

As was the case with training, in 2010 (1 year after the FFP projects' exit), CHWs reported in qualitative discussions that they received resources for their activities from AIN-C-focused programs, though by 2011, more of them reported support from other NGOs. Specifically, in 2010, of the CHWs who received support in the form of resources, all resources came from AIN-C-focused programs (3 of 11 interviews where respondents specified that they received continued support). In 2011, CHWs in 8 of 15 interviews reported receiving resources; however, in 5 of those interviews, resources came from NGOs. (Note that the awardees' strategy was to turn over activity implementation to the AIN-C-focused program, though other NGOs working in the area were able to take over some of the activities that the AIN-C programs were unable to fund due to limited budgets, including growth monitoring sessions, health talks, referrals to health centers when needed, and home visits. In some cases, the other NGOs were working under contract with the AIN-C-focused program, but adding their own funds when needed.) Although the goal of the phase-over strategy was that AIN-C-focused programming, with government funds, would provide resources, such as growth cards, ledgers, and scales, to CHWs, by 2011, few CHWs reported that they were receiving such inputs, and those who were received them from NGOs, some of which received partial funding from the Secretariat of Health for the AIN-C-focused program. There were a few instances where the CHWs themselves took responsibility for buying resources, such as the rope or hammocks for

broken weighing scales to conduct weighing sessions, evidence of their commitment to continue working in their communities.

5.2.2 Capacity

During the FFP projects, CHWs visited health centers monthly to report their growth monitoring data and to receive training. By 2011, about three-quarters of the CHWs interviewed said that they were receiving some kind of training, though the source was not always an AIN-C center. Instead, some CHWs reported receiving training from other NGOs working in their communities. During 2010 and 2011, there was a shift from more CHWs reporting that they received training from the government's AIN-C centers (7 of 21 interviews in which CHWs reported receiving training in 2010), as opposed to from an NGO (1 of 21 interviews in 2010), to the majority reporting that they received training from an NGO (9 of 15 interviews in which CHWs reported receiving training in 2011), as opposed to from an AIN-C center (4 of 15 interviews in 2011).

At the time of the 2010 and 2011 fieldwork, about a quarter of the CHW respondents said that they were no longer receiving any training. These CHWs consistently expressed concern that they had no new information to provide to mothers. In qualitative visits with these CHWs, the study team noted some decline in the quality of growth monitoring provided (e.g., incorrect calibration of scales, measuring children with their shoes on). In addition, in one community in which the three CHWs trained during the FFP project stopped working, a local NGO implementing a new project selected and trained three replacements. Nonetheless, several of the CHWs reported continued contact either with an AIN-C center or with other NGOs, including the Red Cross, ChildFund, and Plan International.

5.2.3 Motivation

As stated earlier, during the FFP projects, CHWs were not paid but rather received material incentives, transportation to the AIN-C center for meetings, and preferential access and sometimes free health services at their local clinics. Two years after the projects' closure, the only CHWs reporting receiving material benefits were those who were working for other NGOs that provided similar incentives to those provided during the FFP projects. In qualitative interviews conducted in 2011, the majority of CHWs (12 of 15) who continued to work stated that their motivation for continuing to provide growth monitoring and health talks was their perception that they were contributing a valuable service to the community. Others lauded improvements in child health, noting that the children had grown more, developed better, and were well prepared for kindergarten. They also noted that illnesses, such as respiratory infections and diarrhea, had diminished. While many CHWs continued to fulfill their responsibilities following the FFP projects' closure, those who were no longer providing growth monitoring or health talks said that it was because they felt that their services were not needed or appreciated, since mothers were going elsewhere (typically, to government-supported public health centers) for these services. Two SC CHWs in one former project-targeted community reported that mothers' participation in their growth monitoring sessions dropped when project rations were discontinued.

5.2.4 Linkages

At the time of project exit, both SC and WV had established functioning linkages with AIN-C center staff. The CHWs attended monthly meetings with these staff at health centers; provided health information, including community growth monitoring results to the health center; received training; and were often supported during their monthly community-based growth monitoring sessions by health center staff who attended to provide related health services. In 2010, based on qualitative data, these linkages

were persisting in the SC and WV areas: CHWs were receiving support in the form of materials and training, as well as supervisory visits to the communities by health center-supported nurses. However, 2 years after exit, in 2011, there were fewer linkages with the AIN-C-focused centers and staff and more with other NGOs that had started working in the community. The study evidence suggests that this transition was due, at least in part, to the decreasing availability of governmental funding to support AIN-C-focused programming.

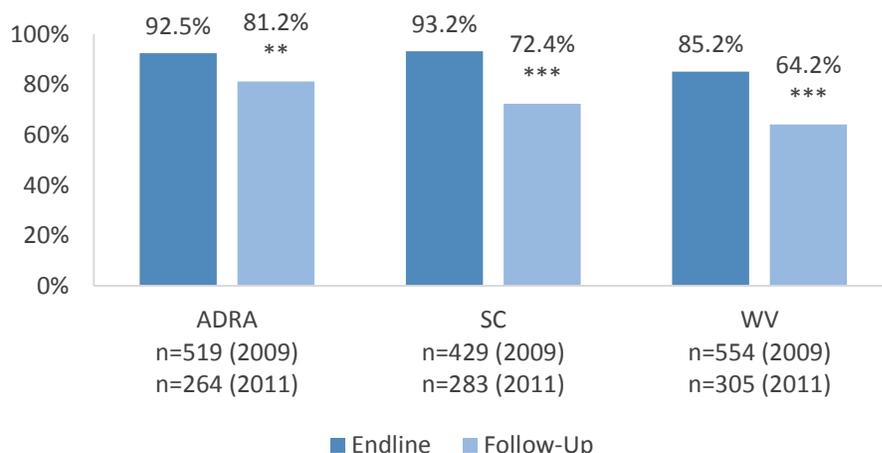
The situation was slightly different for ADRA, which provided direct supervision to the CHWs and served as the intermediary between them and the AIN-C centers during the life of the project and transferred these responsibilities only at the end of the project. In this instance, linkages were less well established between the health system and the CHWs at the time of exit. Despite this difference observed after 1 year, 2 years later, in qualitative interviews, the ADRA CHWs who continued to work were being supported with training and sometimes with supplies by another NGO, as were SC- and WV-trained CHWs. The gradual exit strategies of WV and SC appeared after 1 year to be more effective than the abrupt exit of ADRA. But after 2 years, when AIN-C centers lacked funds to continue providing support to CHWs, CHWs in all three awardee areas ended up getting most of their support from other NGOs.

5.3 Sustainability of Maternal and Child Health and Nutrition Service Use

Sustained use of health services depends, in part, on their availability. While mothers in all FGDs reported attending growth monitoring sessions in 2011, the quantitative data show that there was some attrition in attendance between the projects' end and follow-up. Some mothers in FGDs volunteered that the withdrawal of project food rations, which had served as an incentive for participation, was a reason for not attending. **Figure 5.1** shows how the percentage of mothers taking their children to growth monitoring sessions fell from the end of the FFP projects to the 2-year follow-up. All awardees showed a significant decline in growth monitoring session attendance between endline and follow-up, but still, 2 years after project closure, between 64 percent and 81 percent of beneficiary mothers of children under 2 years of age reported attending growth monitoring according to the awardees' own criteria. (Comparison among the three awardees is not meaningful because they used different parameters to measure growth monitoring attendance.) Participation in health talks, separate from growth monitoring, also declined between endline (51.0 percent) and follow-up (13.8 percent) in WV areas (the only awardee that measured this at endline, data not shown). The proportion of mothers of children under 2 years of age attending health talks was lower than that of mothers taking their children for growth monitoring, ranging from 13 percent to 30 percent in both 2010 and 2011.

When mothers were asked in 2011 about participation in growth monitoring sessions in the past 1 and 2 months (using a common reference period for all three awardees), the responses show a quite different pattern (**Figure 5.2**). In the past month, about 65 percent of mothers in SC and WV areas participated in growth monitoring sessions, while only 43 percent did in ADRA areas, although ADRA and WV areas had about the same percentage of communities with an AIN-C-focused group presence and about the same percentage of communities served by a CHW.

Figure 5.1. Percentage of Mothers with Children under 2 Years of Age Attending Growth Monitoring (by Awardee Criteria) at Endline and Follow-Up



Source: 2009 and 2011 MCHN Surveys.

Significance based on sample z-test of proportions; ** p<.01, *** p<.001.

ADRA: “Have you ever participated in growth monitoring and promotion sessions (GMPs)?”

SC: “Has your child attended GMP in the last 2 months?”

WV: “Has your child attended GMP in last month?”

ADRA follow-up: 7.6% responded “Do not know.”

Figure 5.2. Percentage of Mothers at Follow-Up with Children under 2 Years of Age Attending Growth Monitoring in the Past 1 and 2 Months



Source: 2011 MCHN Surveys.

Significance based on two-sample z-tests of proportions; *** p<.001.

ADRA follow-up survey question: “When was the last time your child attended a GMP?”

SC follow-up survey question: “In the last 30 days, including today, did you bring your child to GMP?”

SC follow-up survey question: “In the last 2 months, did you bring your child to GMP?”

WV follow-up survey question: “Has your child attended GMP in the last month?”

WV follow-up survey question: “Has your child attended GMP in the last 2 months?”

During qualitative interviews in 2011, 12 of the 15 CHWs reported that they continued to provide growth monitoring services within their communities, although quantitative surveys revealed that CHWs were not the only providers of these services. **Table 5.3** shows that, between 2009 and 2011, mothers receiving growth monitoring services from CHWs fell from 78.5 percent to 39.5 percent in SC areas and from 59.5 percent to 39.8 percent in WV areas (no data were available for ADRA). In both areas, there was a large increase in mothers using CESARs and CESAMOs for growth monitoring. At follow-up, 53.7 percent of women in SC areas and 53.0 percent of those in WV areas took their children to one of these government clinics for growth monitoring, compared to 17.5 percent and 37.1 percent, respectively, at endline. Note that many of the government-run health clinics provided food rations from the World Food Programme to malnourished children. Many of the qualitative discussions with beneficiary mothers confirmed that they chose to go to places for growth monitoring where food was provided.

Table 5.3. Source of Growth Monitoring Services at Endline and Follow-Up

| | SC (past 2 months) | | | WV (past month) | | |
|---|--------------------|-----------|--------------|-----------------|-----------|--------------|
| | Endline | Follow-Up | Significance | Endline | Follow-Up | Significance |
| n | 400 | 205 | | 472 | 196 | |
| CHW/AIN-C-focused health volunteer (in community) | 78.5% | 39.5% | .001 | 59.5% | 39.8% | .0000 |
| Health center (CESAR or CESAMO) | 17.5% | 53.7% | .001 | 37.1% | 53.0% | .0001 |
| Other (e.g., public hospital, private clinic) | 4.0% | 7.6% | .428 | 3.4% | 7.2% | .0313 |

Source: 2009 and 2011 MCHN Surveys.

Significance based on two-sample z-test of proportions.

FGDs with mothers in 2010 and 2011 also shed light on the value of growth monitoring, suggesting that mothers valued this monitoring because of the improvements that they saw in their children's health and because knowing that their children were growing adequately validated changes in household feeding and hygiene practices. In Reitoca (a former SC implementation area), a mother noted that "one enjoys going to the [growth monitoring] meetings and seeing how all of the children are in the 'blue,'" referring to the blue mark that signifies adequate weight gain on the growth monitoring card. Some mothers in the FGDs noted that growth monitoring validated changes in feeding practices, while several others said that their children seemed healthier and more aware and were more prepared for kindergarten than those who did not attend growth monitoring.

Multivariate analysis was conducted on the 2011 data to determine factors that predicted participation in growth monitoring sessions. For ADRA and WV, growth monitoring participation was generally more likely if the community had a CHW present, and, in all of the project areas, participation in growth monitoring was more likely if the community had a health center (data not shown).¹⁵

¹⁵ These results adjusted for the following covariates: child's age, number of children under 5 years of age in the household, number of adult women (over 15 years of age) in the household, mother's education, and presence of a health project in the community in the past 2 years.

5.4 Sustainability of Recommended Maternal and Child Health and Nutrition Practices

5.4.1 Health Practices

A health practices questionnaire was administered to the caretaker of a child under 2 years of age in the household during the follow-up survey. If there was more than one child under 2 years of age, one was randomly chosen as the target child and that child's caretaker was interviewed. The percentage of caretakers reporting having complied with FFP project-recommended health practices between endline and follow-up (and baseline where these data were available) is shown in **Table 5.4**. Improvements in the practice of exclusive breastfeeding achieved during the FFP projects were sustained and showed significant improvement 2 years later in one of the three awardee areas (WV). Other practices were not all as well maintained. While the timely introduction of complementary foods at 6 months of age continued to be widely practiced after the FFP projects' exit (more than 85 percent of mothers), the percentage of children from 6 to under 10 months of age who were fed complementary food (based on a 24-hour dietary recall) declined slightly (and significantly) in two of the three awardee areas. A composite variable for adequate feeding practices was developed based on the definitions used by the awardees.¹⁶ In two of the awardee areas, there were striking and significant declines in the percentage of children fed using adequate feeding practices; by 2011, in all the areas, about a third or fewer of the children were fed according to these criteria.

Another important health and nutrition practice is ensuring that children receive adequate liquids during episodes of diarrhea. Compliance with this practice declined significantly from endline to follow-up in the areas from which endline comparison data were available. The recommended practice of not reducing food during diarrhea also showed significant declines in all three project areas at follow-up. Finally, self-reported handwashing practices, which had dramatically improved during the project, showed equally dramatic declines after project exit.

At follow-up, mothers were asked a set of nutrition knowledge questions based on the messages that CHWs delivered when they were working for the FFP projects. Only SC measured nutrition knowledge at endline, and at follow-up the average knowledge score had increased. The knowledge questions all related to child feeding: the appropriate age range for exclusive breastfeeding and complementary feeding, the appropriate frequency of feeding a child at various ages, the appropriate age to initiate complementary feeding, and the health benefits of breastfeeding. In 2011, the average score (out of 5) was between 2.7 and 2.9, and did not differ significantly by awardee. Interestingly, though, the percentage of mothers meeting the standard for adequate feeding practices differed significantly according to the mothers' knowledge score only for mothers in the SC areas. In ADRA and WV areas, high (3–5) and low (0–2) scoring women were about equally likely to demonstrate adequate feeding practices.

¹⁶ "Adequate feeding practices" was defined as follows by the awardees as reported in their IPTTs and final evaluation reports (based on report of practices applied in the previous 24 hours; see Table 5.4 notes for additional information):

- < 6 months of age – breast milk only
- 6–8 months of age – drink question: breast milk; food question: at least 1 food group, consumed 3 or more times per day
- 9–11 months of age – drink question: breast milk; food question: at least 1 food group, consumed 4 or more times per day
- 12–23 months of age – drink question: breast milk; food question: at least 1 food group, consumed 5 or more times per day

Note that these definitions differ from that provided in WHO's infant and young child feeding guidelines (http://www.who.int/maternal_child_adolescent/documents/9789241596664/en/) in that it does not measure minimum diet diversity (children 6 months of age and older consume foods from four or more food groups).

Table 5.4. Sustainability of Health Practices Promoted during the FFP Projects, by Awardee

| | ADRA | | | | SC | | | | WV | | | |
|---|----------|-----------------|-----------|-------|----------|------------------|------------------|-------|----------|---------|-----------|-------|
| | Baseline | Endline | Follow-Up | Sig. | Baseline | Endline | Follow-Up | Sig. | Baseline | Endline | Follow-Up | Sig. |
| n | n/a | 519 | 264 | | n/a | 429 | 283 | | n/a | 554 | 305 | |
| Exclusive breastfeeding (asked for all children under 2 years of age) ^a | 37% | 53% | 57% | .6650 | 26.8% | 51.2% | 47.9% | .4930 | 23.0% | 37.0% | 51.7% | .0000 |
| n | n/a | 55 ^b | 51 | | n/a | 125 | 82 | | n/a | 133 | 66 | |
| Exclusive breastfeeding (24-hour recall, asked for children under 6 months of age) ^c | n/a | 59.2% | 70.5% | .2640 | n/a | 52% | 47.5% | .9427 | n/a | 51.1% | 68.2% | .0221 |
| n | n/a | 99 | 56 | | n/a | 59 | 39 | | n/a | 82 | 58 | |
| Complementary feeding (asked for children from 6 to under 10 months of age) ^d | n/a | 96.0% | 87.5% | .0580 | n/a | 96.6% | 100% | .4042 | n/a | 97.6% | 89.6% | .0460 |
| n | n/a | 519 | 264 | | n/a | 429 | 283 | | n/a | 554 | 305 | |
| Adequate feeding practices ^e | n/a | 42.3% | 26.3% | .0020 | n/a | 41.7% | 27.8% | .0000 | n/a | 30.5% | 35.4% | .1415 |
| n | n/a | 773 | 173 | | n/a | 99 | 153 | | n/a | 170 | 175 | |
| Provision of same amount of or more liquids during diarrhea episodes ^f | n/a | 93.7% | 74.6% | .0000 | n/a | 80.8% | 35.6% | .0000 | n/a | n/a | 84.0% | – |
| Provision of same amount of or more food during diarrhea episodes ^f | n/a | 43.5% | 21.5% | .0000 | n/a | 53.5% | 19.7% | .0010 | n/a | 33.5% | 21.2% | .0103 |
| Provision of more liquids during diarrhea episodes ^f | n/a | 74.9% | 17.3% | .0000 | n/a | 44.4% | 13.1% | .0000 | n/a | n/a | 22.9% | – |
| n | n/a | 1,054 | 638 | | n/a | 797 ^g | 800 ^h | | n/a | n/a | 634 | |
| Appropriate handwashing ⁱ | 1% | 89.9% | 17.1% | .0000 | 58.1% | 86.5% | 78.7% | .000 | n/a | n/a | n/a | – |

Sources: 2009 awardee endline reports, 2009 and 2011 MCHN Surveys.

Significance based on two-sample z-test of proportions.

^a Asked of all respondents with children under 2 years of age.

^b 10.9% of values missing.

^c Calculated from 24-hour dietary diversity recall for children under 6 months of age.

^d Calculated from 24-hour dietary diversity recall for children from 6 to under 10 months of age.

^e “Adequate feeding practices” was defined by the awardees as follows: **< 6 months of age:** child exclusively breastfed; **6–8 months of age:** 1) child fed breast milk in the past day; 2) child consumed at least one of the following foods in the past day: cereal, rice, pasta, fruit, vegetables, meat (red meat, lamb, chicken, fish), dairy, eggs, fats, puree, corn-soy blend, thick soups, beans; 3) child consumed food at least 3 times during the past day; **9–11 months of age:** 1) child fed breast milk in the past day; 2) child consumed at least one of the preceding food groups in the past day; 3) child consumed food at least 4 times during the past day; **12–23 months of age:** 1) child fed breast milk in the past day; 2) child consumed at least one of the preceding food groups in the past day; 3) child consumed food at least 5 times during the past day.

^f Mothers were asked whether the target child had diarrhea in the past 2 weeks and in the past month and when was the most recent time. Diarrhea questions were asked with respect to the target child’s most recent episode of diarrhea. Questions were asked for all children (from 0 to under 24 months).

^g 4% of values missing.

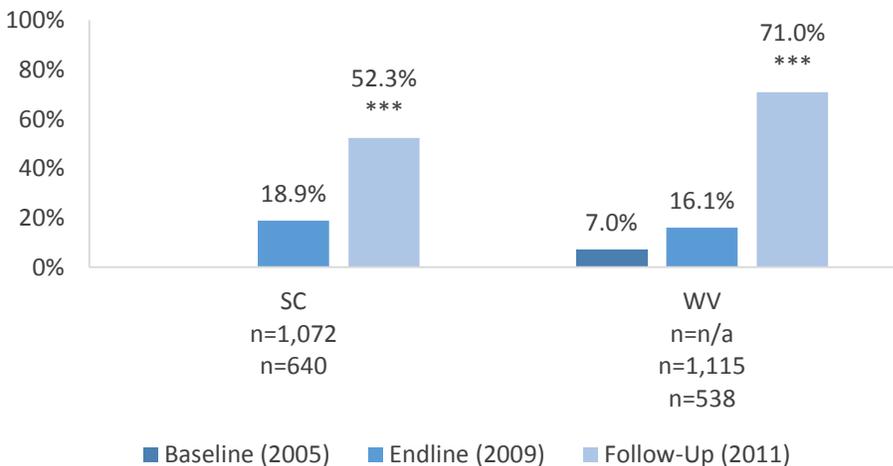
^h 2% of values missing.

ⁱ “Handwashing” defined as washing hands with soap and water at all of the following times: after using the restroom, after preparing and serving food, before eating, before giving children food, and after cleaning a child who has urinated or defecated. Results are based on self-reporting in response to the question, “On what occasions do you wash your hands with water and soap?” Question was asked of the selected respondent: caretaker of the target child 0 to under 24 months of age.

5.4.2 Home Gardens

One of the success stories for sustainability in the MCHN sector in Honduras was the promotion of home gardens in SC and WV areas. The percentage of households with home gardens in these areas rose significantly and substantially from endline to follow-up (**Figure 5.3**). This intervention focused on women and was designed as a strategy for improving the quality of the diet, rather than on the potential for commercialization, though surplus garden production was sometimes sold. Home gardens were relatively low cost and low maintenance compared to agricultural interventions. The FFP development project awardees did provide seeds initially, but these could be saved and replanted year after year. Women’s motivation to participate in this activity was to improve their families’ diets. The resource demands were minimal beyond the women’s time—a scarce resource in itself, but one that does not require payment—and women’s technical capacity was maintained through regular application of the practices learned. All of the awardees included in their MCHN messages information about how to prepare nutritious foods for children using local ingredients and promoted a varied diet. From the growth in the number of households with home gardens, it appears that neighbors were emulating the successful home gardens that they observed among the trained project participants. It is also possible that another NGO might have started working in the area with home gardens as a focus.

Figure 5.3. Percentage of Households with a Home Garden at Baseline (Where Available), Endline, and Follow-Up



Sources: 2009 and 2011 Agriculture, IGA, and NRM Surveys. 2009 SC number taken from awardee’s endline report (203/1072=18.9%).

Significance based on two-sample z-test of proportions; *** $p < 0.001$.

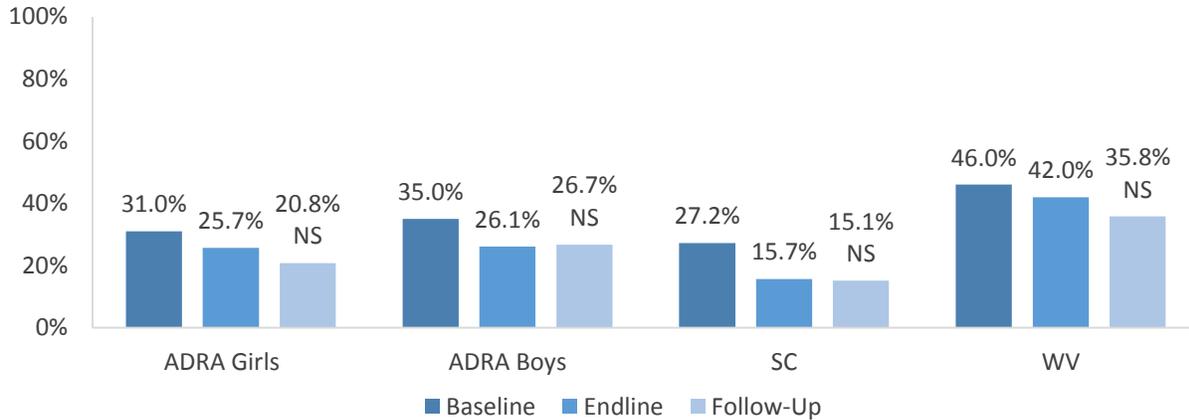
5.5 Sustainability of Maternal and Child Health and Nutrition Impacts

The key MCHN sector impact indicator for the FFP development projects in Honduras was childhood stunting: the percentage of children from 6 months to under 24 months of age with a height-for-age z-score less than -2 . **Figure 5.4** shows that the prevalence of stunting fell between baseline and endline in all project areas and that stunting prevalence was sustained or continued to decline (though not significantly) 2 years after exit. (Statistical significance of the change from baseline to endline could not be estimated, as the baseline dataset was not available for analysis.)

Diarrhea prevalence was another impact indicator for the MCHN sector interventions. Diarrheal disease is affected not only by health and hygiene practices discussed in this section, but also by the availability of

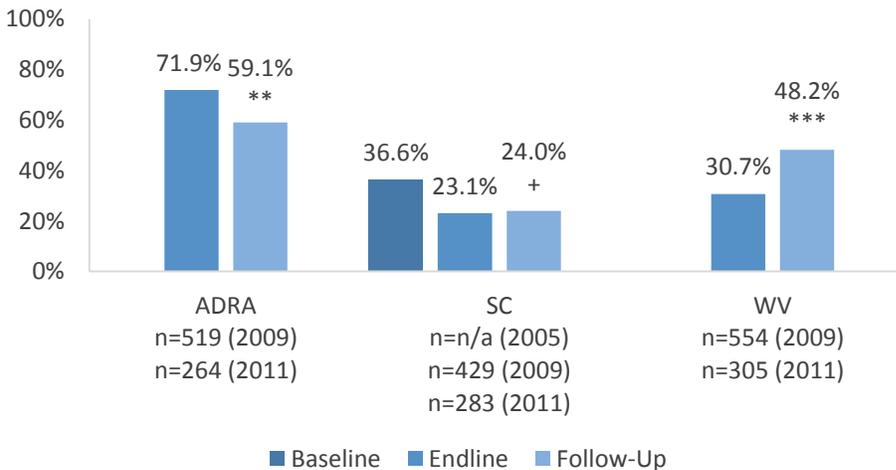
clean water (discussed in the next section) and by other aspects of environmental sanitation. Diarrheal disease may be associated with stunting and is one of many contributors to children’s growth outcomes. **Figure 5.5** shows the presence of diarrhea as measured by the awardees in their endline evaluations. Prevalence of diarrhea fell from endline to follow-up in ADRA areas; the decline from baseline to endline was maintained at follow-up in the SC areas. Data on diarrhea were not collected at baseline in ADRA and WV areas.

Figure 5.4. Change in Stunting Prevalence among Children from 6 to under 24 Months of Age at Baseline, Endline, and Follow-Up, by Awardee



Sources: 2009 awardee endline reports, 2009 and 2011 MCHN Surveys.
Significance based on two-sample z-test of proportions; NS=not significant.

Figure 5.5. Diarrhea Prevalence at Baseline (Where Available), Endline, and Follow-Up, by Awardee Reference Period



Sources: 2009 awardee endline reports, 2009 and 2011 MCHN Surveys.
Significance 2009–2011 (endline to follow-up) based on two-sample z-test of proportions; + p<.1, ** p<.01, *** p<0.001.
ADRA survey question: “Has your child ever had diarrhea?”
SC survey question: “Did your child have diarrhea in the past 2 weeks?”
WV survey question: “Did your child have diarrhea in the past 30 days?”
ADRA endline: 0.4% of values missing. ADRA and WV missing baseline data.

5.6 Maternal and Child Health and Nutrition Sector Sustainability: Lessons Learned

5.6.1 Service Delivery Resources

A combination of phase-over to the national government funded AIN-C-focused programs and/or to other NGOs in the community was a successful approach to sustaining service delivery in a substantial number of the awardees' targeted communities: More than two-thirds of communities had a working CHW who provided growth monitoring and health talks, though infrequently provided home visits 2 years after project exit. In Honduras, charging for health services was not considered a possibility; therefore, turning over responsibility to an entity that could provide a substitute source of resources was essential for the continued support of the CHWs in the form of materials and supplies (to sustain resources), refresher training (to sustain capacity), and supervision and continued contact (to sustain motivation).

The FFP development projects' plans to phase-over CHW oversight to the national government-funded program was a reasonable strategy for sustainability, but when government resources for these programs decreased (after the 2009 closure of the FFP projects), and the government apparently gave priority in resource allocation to its health centers and paid staff, its ability to provide support to the CHWs was reduced. By 2011, 2 years after the FFP projects ended, government resources were running short, and the continued provision of support for CHWs seemed at risk, with weaker linkages between the AIN-C-focused program and CHWs and less funding for CHW supplies and transportation to meetings and trainings at health centers. Relying on phase-over to another NGO was also a plausible exit strategy, but sustainability is dependent on the new organization's continued presence, commitment to the provision of similar community-based growth monitoring and health and nutrition services, and its own source of resources. Nonetheless, the continued support for CHWs, whether from AIN-C-focused programs or an NGO, was a positive development.

The effort to train the CHWs according to AIN-C standards was not a consistently successful strategy for ensuring that the CHWs would be employed by the AIN-C-focused program after the FFP projects closed, though, again, there were success stories. A few CHWs were hired by other NGOs, and there were isolated cases of CHWs finding paid employment in the health sector, but generally the awardee CHWs who continued to work did so without compensation, motivated by their own commitment and the appreciation and participation of the community.

WV's plan to have agricultural enterprises divert some of their profits to supporting health activities did not bear fruit. By 2011, the agricultural enterprises had not achieved a level of financial security where they felt that they could afford to use any of their returns for purposes other than strengthening the agricultural business, and it was not clear that they had the motivation to support these additional purposes. These findings are discussed in more detail in Section 7.

5.6.2 Capacity

CHWs also expressed concern that, as the provision of training from AIN-C-focused programs declined, the quality of their services and their ability to provide new, useful information at growth monitoring sessions also decreased. This perception was also reflected in some of the mothers' comments on CHW services in qualitative interviews.

5.6.3 Motivation

Relying on the personal commitment of the CHWs to continue providing growth monitoring services was not entirely unsuccessful. CHWs who continued to work in their communities did so out of an expressed commitment to the community. But in the qualitative interviews conducted in 2011, a number of CHWs said that their provision of services declined (fewer or no health talks, no growth monitoring, no home visits) specifically because demand for their services had fallen. They attributed this to the withdrawal of the project-provided food rations, but more particularly to the fact that similar growth monitoring services were offered by the public health system (at health centers) and by several other NGOs that had either been working in their communities already or come after the FFP projects ended.

5.6.4 Linkages

Linkages to the government's health system were a critical part of the sustainability plan of the FFP development project awardees in Honduras. Based on qualitative interviews with CHWs, it seemed that in 2010, 1 year after exit, the linkages established over a period of gradual exit (SC, WV) were functioning more effectively than those where the phase-over was accomplished at a one-time event (ADRA). However, by 2011, the differences between ADRA and the other awardees were not as marked, as government support from the AIN-C-focused program declined in all areas.

The formation of formal networks of CHWs capable of seeking external funds for their activities did not appear to have occurred; none of the CHWs encountered during FGDs or key informant interviews mentioned being part of any network, nor did they report having tried to obtain external support for their work.

5.6.5 Service Use, Adoption of Practices, and Impacts

The awardees' strategy for sustaining the use of growth monitoring services was that mothers who experienced these sessions, and the educational health talks that accompanied them, would come to recognize their benefit and would continue to participate even when the food rations were no longer given. Mothers interviewed in the qualitative investigation in 2011 said that their participation in growth monitoring was indeed largely motivated by an interest in seeing their children thrive: They appreciated growth monitoring because it gave them feedback on how their children were doing. In qualitative discussions, the great majority of mothers cited children's growth as an indicator of their health and remarked that children who grow well are more alert, learn better, and resist disease. Thus, the feedback on their children's growth was a motivation to participate in growth monitoring sessions.

Nonetheless, by 2011, mothers largely chose to use growth monitoring services where material benefits, including meals and food rations, were also provided. As a result, a majority of mothers attended growth monitoring sessions in 2011, but not necessarily those provided by the CHWs who had been part of the FFP development projects. A consequence of that shift was that mothers were no longer receiving routine home visits to encourage their compliance with recommended health and nutrition practices, since home visits were not among the services provided by health centers and were not necessarily provided by other NGOs' health interventions.

Participation in growth monitoring in general was significantly lower in 2011 than at the time of the FFP projects' exit. Growth monitoring participation was greater when the service was provided in the community (when a CHW or health center was present), suggesting that time was a barrier to participation. This appeared to be a self-reinforcing cycle: As more mothers chose to use growth monitoring services from other sources, CHWs lost motivation and reduced their offer of services.

There is no way to substitute for the provision of free rations as an incentive for growth monitoring participation other than encouraging mothers to recognize the benefits of these services and educating them to offer their children nutritious complementary foods from their own sources. In Honduras, many providers of growth monitoring services (NGOs, government health centers) offered food rations from their own resources or from the World Food Programme or other donors, making it difficult to assess the impact of FFP ration withdrawal on service use, though qualitative data support the quantitative observation that use of growth monitoring services shifted from the CHWs to other providers after FFP project-provided rations were withdrawn.

Feelings expressed by mothers in qualitative interviews echoed those of CHWs that CHWs' technical knowledge and capacity were eroding in the absence of continued, regular training. There were cases in which new CHWs were trained under the auspices of AIN-C-focused programs to replace FFP project CHWs who stopped working, but, more commonly, CHWs expressed concern that the lack of continued training jeopardized the value of their health talks to mothers, and some mothers similarly mentioned that the CHWs had nothing new to impart.

Exclusive breastfeeding to 6 months of age was well maintained at follow-up, but a number of other key practices declined between endline and follow-up, and this may be due at least in part to the reduction in home visits by the local CHW. Nonetheless, the reductions in stunting prevalence achieved during the life of the FFP development projects were maintained at follow-up in all three project areas.

Box 5.2 suggests the elements of the awardees' sustainability strategy that were working and that appeared not to be working 2 years after FFP withdrew its development project resources in Honduras. This box reflects a mixed picture of success in sustaining service delivery and use, depending on the presence and financial support of an AIN-C-focused program or the presence of another NGO providing similar services.

Box 5.2. MCHN Sector Sustainability: Key Findings

WHAT WORKED

- Phase-over to the government-supported AIN-C-focused program was sometimes effective: CHW services and participation in growth monitoring were higher where AIN-C-focused programs were operating.
- Government (AIN-C-focused) or other NGO services were relatively widely available in the areas where FFP projects had been operating.
- Phase-over to other NGO support was effective in many communities: Where other NGOs replaced FFP awardees in supporting CHWs with incentives, many CHWs continued to provide services.
- Many CHWs maintained their presence in the community, motivated by personal commitment and community participation and appreciation.
- Household dietary diversity was higher in project areas where home gardens were implemented as a strategy to improve home dietary quality and contribute to child growth (SC, WV).
- Where home gardens were promoted, the proportion of households with home gardens rose dramatically after exit.
- Exclusive breastfeeding was maintained in all awardee areas.

WHAT DID NOT WORK

- Phase-over of CHW support to government-supported AIN-C-focused programs: As government funds became constrained, AIN-C-focused program support for CHWs declined.
- CHWs provided fewer services or stopped working when mothers sought services elsewhere and their participation in CHW growth monitoring and health talks declined.
- CHWs were not consistently employed by AIN-C-focused programs or by NGOs working in their communities.
- Training for CHWs was not consistently updated due to declining resources to support AIN-C-focused programs.
- Withdrawal of FFP rations resulted in mothers seeking services at health centers or from other NGOs, where rations or material benefits were provided, rather than from CHWs.
- Neither networks of CHWs (ADRA) nor CHCs (SC) were functioning at the time of follow-up and did not appear to have been functioning at the time of project exit.
- Agricultural enterprises did not have sufficient resources or motivation to provide support for community health services (WV).
- Many health and hygiene practices declined from endline to follow-up, possibly as CHW home visits decreased or stopped altogether.

6. Results: Water and Sanitation Sector

SUMMARY

The FFP development project awardees in Honduras worked with existing community-based water committees or created new ones in order to provide, maintain, and manage piped water to households and to promote the construction of latrines or toilets. Awardees provided high-quality materials for construction and repair and trained water committee members in the technical and administrative aspects of managing the piped water systems, including how to set fees at a level that would sustain the systems. Project sustainability plans for this intervention were based on households paying water fees that would provide the resources to maintain and repair the systems when needed. This plan worked, as households were motivated by the tangible benefit of having access to piped water. Awardees also planned to establish linkages between water committees and the municipalities to provide ongoing training and resources, but these linkages were not generally implemented. Water committees preferred to manage their budgets independently. Households' access to piped water was well maintained, and the majority of piped water systems was maintained at the community level by the water committees 2 years after the projects' exit.

Water quality testing and water purification were less well maintained: Few water committees were arranging for water quality testing 2 years after exit or were applying chlorine at the water tank, as they had been taught. One reason is that motivation was lacking, since households objected to the taste of chlorine; further, because all the awardees took responsibility for arranging for water quality testing up to the time of exit, water committees had not taken on this responsibility and had no independent experience managing water quality testing prior to exit.

The provision of piped water demonstrates that the convergence of three critical factors—resources, capacity, and motivation—and a process of exit that allows for a period of independent operation, contributed to the successful sustainability of the project-provided piped water systems 2 years after exit.

6.1 Water and Sanitation Sector Project Descriptions, Sustainability Plans, and Exit Strategies

6.1.1 Project Descriptions

Many of the FFP project-targeted communities in Honduras had local, community-based water committees operating in the community and managing water systems prior to the beginning of these projects' activities. The role of these committees was to ensure that existing piped water systems were functioning and to arrange for repairs when needed. Some of the water committees charged a service fee prior to the FFP projects. During the FFP projects, each awardee strengthened existing water committees with technical (maintenance and repair) and managerial (administration and budgeting) training. The awardees instituted or strengthened the system of charging user fees for piped water to ensure that fees

were sufficient to fund the maintenance of the system into the future. In areas where committees did not exist, the awardees organized and trained water committees to manage W&S systems.

Water committees worked within their communities to maintain and improve W&S systems that delivered piped water from remote sources directly to households. In communities that lacked water systems, or where improvements were necessary, the awardees also provided high-quality materials and training for construction and repairs. Because the committees operated independently within their communities, they could suspend services to households that did not pay the fee. This enforcement mechanism ensured that the majority of beneficiaries paid their bills, thus providing resources to maintain the system. Using materials and engineering expertise provided by the FFP projects, the water committees also managed the installation of pit toilets or flush toilets in households to improve sanitation.

In addition to promoting household piped water and latrines or toilets, SC and ADRA focused on improving water quality by teaching water committee members and technicians to administer chlorine to community water tanks. The cost of chlorine was incorporated into water user fees, and W&S training was paired with MCHN training to emphasize the importance of potable water to public health. WV's intervention did not train water committees in administering chlorine but instead worked with the Servicio Autónomo Nacional de Acueductos y Alcantarillados (SANAA) (National Autonomous Service of Piped Water and Sewers) and municipalities, who pledged to take responsibility for both administering chlorine and monitoring water quality.

6.1.2 Sustainability Plans

All three awardees implemented a similar model for ensuring the sustainability of piped water systems to households. The model incorporated the essential elements for sustainability: resources, technical and managerial capacity, and motivation. Water systems were managed by community water committees whose job it was to keep the systems operating using funds collected through monthly user fees from households that were highly motivated to pay because of the visible and appreciated benefit of having water piped to the home. Water committees were trained by the awardees in system repair and maintenance, as well as in financial management and administration: setting water fees; establishing good accounting systems and enforcing payment; doing long-term financial planning; and contracting for materials and plumbing services when needed.

All three awardees also intended to ensure sustainability by establishing linkages between the community-based water committees and the municipality or higher levels of government. WV planned to turn over responsibility for technical and management training and supervision of these local water committees to existing municipal associations; ADRA planned to turn over responsibility for providing technical assistance to the water committees to the municipal governments and to SANAA; and SC also planned to transfer responsibility for assisting the water committees to the municipality (both the municipal environmental units [UMAs] and the municipal government), aiming to raise awareness at the municipal level of their responsibility to ensure W&S services to the communities. Only SC explicitly mentioned water quality assurance in its sustainability plan: it proposed to seek a commitment for funding from the municipal government and from SANAA to support water quality testing and assurance after the end of the project, distinct from maintenance of the piped water system (which would continue to be supported through user fees).

The awardees also provided technical assistance and subsidized materials for the construction of latrines. The latrines, once constructed, were the property of the households that received them, and it was their individual responsibility to maintain them. Education on the use of latrines and handwashing behavior was part of the MCHN component of the projects.

6.1.3 Exit Strategies

Many of the water committees had already been operating and managing local water systems, some for many years, prior to the implementation of the FFP development projects in Honduras. In these instances, the exit strategy of ensuring independent operation prior to exit had already been accounted for and the awardees focused on providing training and technical assistance to improve the committees' level of performance. Furthermore, since the W&S sector interventions were among the first activities implemented as part of the awardees' FFP projects, all of the water committees had significant experience setting fees, collecting and enforcing them, and maintaining their systems (including mobilizing community members for repairs when needed and hiring plumbers when a higher level of skill was required) by the time the projects ended. During the projects, the awardees took responsibility for arranging water quality testing with SANAA or the Secretariat of Health. The exit strategy for ensuring water quality testing was to transfer responsibility to SANAA or the municipality, but this was subsumed under the general goal of transferring responsibility for the management of the piped water system to the municipality, which was not done in most cases. ADRA promoted legal recognition of the water committees as a way of ensuring their sustainability and formalizing their links to the municipality; SC promoted regular meetings of the water committees with the municipal government; and WV also planned a phase-over to the municipalities, with "regular meetings" as one of the benchmarks for phase-over. Key W&S sector sustainability strategies are summarized in **Box 6.1**.

Box 6.1. Summary of W&S Sector Sustainability Strategies and Key Assumptions

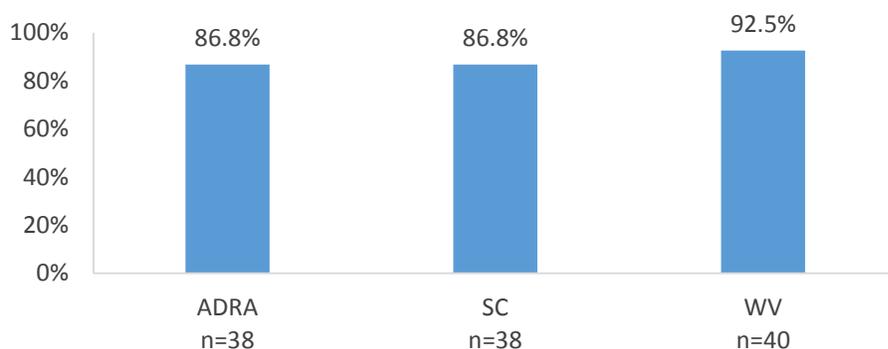
| SUSTAINABILITY STRATEGIES | KEY ASSUMPTIONS |
|--|---|
| <ul style="list-style-type: none"> Form or strengthen community water committees and provide training on management, maintenance, and repair of piped water systems. This includes financial management and planning, system maintenance and repair, and water quality testing and treatment. | <ul style="list-style-type: none"> Committee members manage the water system capably and honestly. Community members have confidence in the water committees' capacity and honesty. |
| <ul style="list-style-type: none"> Have water committee members who leave the committee train their successors. | <ul style="list-style-type: none"> Committee members are competent, remember their training, and are willing to train new members. |
| <ul style="list-style-type: none"> Fund water system maintenance and repair from monthly user fees. | <ul style="list-style-type: none"> Users reliably pay for the service of piped water, and water committees enforce compliance with monthly payments. Fees are set at a level that covers the costs of routine maintenance, occasional repairs, and equipment replacement. |
| <ul style="list-style-type: none"> Link local, community-based water committees to other water committees through existing municipal associations. | <ul style="list-style-type: none"> Water committees seek association with municipal entities in order to maintain their capacity and access resources. Water committees recognize the benefit of linkages to other water committees within associations. Municipal associations serve as conduits for resources from the municipality. |
| <ul style="list-style-type: none"> Transfer to the municipal government the responsibility for supervision, technical assistance, and funding of water committee activities. | <ul style="list-style-type: none"> Municipal governments have the resources and capacity to provide support to water committees and are committed to doing so. |
| <ul style="list-style-type: none"> Incorporate water committees into municipal action plans. | <ul style="list-style-type: none"> Water committees seek support from municipal governments and are willing to accept it |
| <ul style="list-style-type: none"> Enable water committees to seek funding from the municipal government and SANAA for water quality testing and assurance. | <ul style="list-style-type: none"> SANAA or municipal governments have the resources, capacity, and commitment to provide water quality testing and assurance. |
| <ul style="list-style-type: none"> Establish legal recognition for the water committees. | <ul style="list-style-type: none"> Legally recognized water committees prepare proposals and plans for obtaining funding through municipalities or other sources. |

6.2 Sustainability of Water and Sanitation Service Delivery

About 90 percent of communities in which FFP development projects were implemented still had functioning water committees in 2011, 2 years after project exit (**Figure 6.1**). A functioning water committee was defined as one that continued to manage the water system, collect fees, enforce payment, and arrange for maintenance and repairs when needed. The awardees did not report the percentage of communities with functioning water committees at the time of the final evaluation, so the study team could not determine whether these figures represented a change since exit, but the numbers paint a positive picture of the potential for these committees to continue functioning.

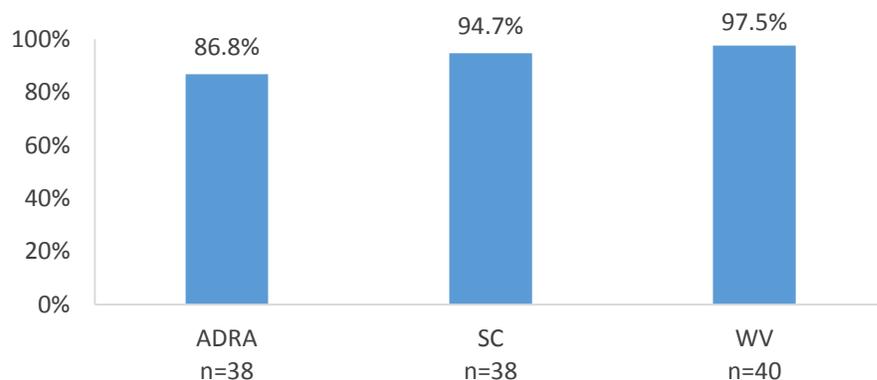
This positive result is further supported by the percentage of community-based water committees that managed their own water systems, as shown in **Figure 6.2**. Only WV reported at endline the percentage of communities that were maintaining their own water facilities—94 percent—compared with more than 97 percent at follow-up (data not shown). Even in the absence of endline comparison data from SC and ADRA, the numbers shown in Figure 6.2 support the conclusion that community management of piped water systems appeared to have been sustained since the FFP projects' exit.

Figure 6.1. Percentage of Targeted Communities with Functioning Water Committees at Follow-Up, by Awardee



Source: 2011 Community Surveys.

Figure 6.2. Percentage of Communities That Had Maintained Their Own W&S Facilities at Follow-Up, by Awardee



Source: 2011 Community Surveys.

The only component of the water system that appears not to have been well maintained after the projects ended was community-level water treatment. Whether the water committees were trained in the application of chlorine themselves (ADRA, SC) or the responsibility was given to SANAA or the municipality (WV), field visits 1 and 2 years after exit confirmed that, in the majority of cases, the chlorine boxes at the tanks showed little sign of use. Five of ten water committees interviewed during the 2011 qualitative investigation (2 years after exit) reported that chlorination was not taking place at the community level. They stated that many beneficiary households objected to the taste and complained when chlorine was added to the water. Four of 10 of the water committee technicians interviewed in 2011 mentioned that they had been trained during the FFP project to apply chlorine, but no longer used it. These observations did not appear to vary by awardee: there was no difference in chlorine application (based on these qualitative results) between those water committees that were going to be linked to the municipality for water quality testing and those that were going to be linked to SANAA. One exception to the general lack of water quality assurance was the community of Belen Gualcho in WV's implementation area, where an outbreak of hepatitis had taken place, and the municipality stepped in and required chlorination; community members did not object because they were aware of the disease risk as a result of contaminated water. This example illustrates that when motivation was sufficient, resources and capacity to implement water treatment were available.

The following subsections discuss the service delivery results in the FFP development projects' W&S sector in relation to the hypothesized key factors for sustainability.

6.2.1 Resources

In virtually all cases, the flow of resources—funds from user fees—was reliable because users valued the service (piped water to their homes) and because payment was enforced by cutting off service and, in some cases, charging a fee for reconnection. Most water committees interviewed in 2010 and 2011 were managing their resources so that they would have sufficient savings to cover unexpected major repairs or replacement of equipment. Several water committees planned to use their savings to buy the land around their water source so that they would have control over it and protect it (evidence of strong capacity for planning); one had already done so.

The phase-over of water committee management to the municipality was part of the sustainability plans and exit strategies of all three awardees, but was not implemented in most cases because the water committees had no interest in affiliating with the municipal government. Instead, water committees noted that they wanted to maintain their independence and control over their resources. One exception to this was, again, in the community of Belen Gualcho, where the functions of the water committee were taken over by the municipal government at the time of awardee exit. Consistent with the water committee's concerns, the municipality failed to return the funds collected as user fees to the water committee to manage the water system. Instead, the municipality diverted some of this flow of resources to other municipal priorities. A comparable situation arose in the village of Azacualpa, where the water committee president arranged for a government institution to manage the water filtration system and put control over the user fees into the hands of the municipal government. The municipality diverted some of these resources to other projects and uses, which compelled the water committee to raise rates, resulting in high levels of default (60 percent). Unlike the water committees, the municipality did not enforce payment by cutting off services to defaulters, and maintenance of the system appeared to be at risk at the time of follow-up, with users reporting intermittent and unpredictable water services, further reducing their willingness to pay. In both of these cases, households resisted paying user fees once the piped water service was taken over by the municipality. According to qualitative interviews in these communities, in addition to the higher cost and less-reliable service, users believed that services provided by the

government should be free, although they were willing to pay when the service was managed by a local elected committee.

Most of the water committees interviewed in 2010 and 2011 resisted being incorporated into municipal government plans out of concern that they would lose control over their own resources, a concern that appears well justified by the two aforementioned cases. When the water committees functioned independently, their flow of resources was stable and reliable and was used directly for purposes associated with maintenance of the water system, including (in some cases) such activities as paying technically trained plumbers, expanding construction of latrines, and protecting the water sources. Water committees were elected by the community and subject to reelection every 2 years. The committees held monthly meetings that were open to the community at large, at which they reported on the functioning of the water system. Thus, there was a high level of transparency and public accountability in the management of funds by the water committees at the community level, giving community members confidence that their user fees would be used appropriately.

Based on qualitative interviews with water committees, municipal chlorine banks set up for the purchase of chlorine were no longer functioning 2 years after exit, with the exception of Belen Gualcho, which, as previously noted, had been affected by a hepatitis outbreak. These interviews further indicated that SANAA and the municipalities were also not implementing chlorination or routine water quality monitoring, crucial services to ensure the safety of water.

6.2.2 Capacity

Awardees provided training to water committee members based on an assessment of their current capacities, whether in administration; financial management and planning; construction, maintenance, and repair of the water systems; or construction of latrines. The water committees demonstrated their capacity to perform the functions needed to administer and maintain the piped water systems at the time of follow-up. In qualitative interviews, 7 of 10 water committees reported adjusting their fees based on system costs, and 4 of those 7 incorporated the cost of future system goals, such as securing ownership of a water source, improving coverage of latrines, and water quality testing, into their service fees. While each of those water committees had been operating prior to the FFP projects, they reported that the administrative training and support that they received from the awardees pushed them to take a more future-oriented approach to establishing service fees.

Water committee members were expected to train their successors. In several cases, the committee members, elected for 2-year terms, had been reelected at the time of the follow-up study, but there were other cases in which new committee members had been elected and trained by their predecessors, and the committees continued to function effectively (managing budgets, enforcing payments, making or contracting for repairs). In the community of Langué, one water committee member noted that before taking office, prospective committee members had to take a literacy test to ensure that they would be capable of managing the administrative components of their post. Most of the committees included in this study employed plumbers, and these technicians remained in place when the committee membership changed, so technical capacity was sustained. There is no evidence that committee members lacked the capacity to administer chlorine at the water tank as they had been trained to do. In all 10 qualitative interviews with water committees, members reported that they had been trained in chlorine application by either SANAA or one of the awardees. However, when interviewed, committee members cited objections by the community and lack of easy access to chlorine, not a lack of training, as barriers to its continued use.

“Cascade” training, whereby trained individuals train others, who in turn train still others, is inherently risky, as knowledge can erode and misinformation can be perpetuated. The study team did not identify

any arrangements for refresher training for water committee members from an external source, such as a university, the Secretariat of Health, the municipality, or SANAA, to ensure up-to-date technical or management capacity among the water committees. However, at the time of follow-up, capacity to manage the system both technically and administratively appeared to be well maintained: The piped water systems were functioning, repairs were being made when needed, and water committees held regular meetings; only the water quality testing intervention was not being implemented.

6.2.3 Motivation

Water committee members were not paid for their service, nor did they receive material benefits or any special access to piped water. Their motivation for seeking office, according to interviews, was the recognition of the value of piped water for themselves and their communities. In Barrial Centro and San José in SC's program implementation areas, water committee members explicitly acknowledged real and perceived benefits of piped water to women and children. They noted that having piped water in households reduced time spent walking to community wells to fetch water and they cited (perceived) reductions in cases of diarrhea in children as a benefit of W&S services. Other water committee members interviewed in 2010 and 2011 acknowledged their roles as leaders within their communities, echoing one member's sentiment that they had to work because "without water there is nothing." Plumbers employed by the committees were paid—some when they had a job to do, others on a regular, salaried basis. However, water committees were not motivated to seek out community-level water quality testing or chlorination. While one water committee member mentioned possibly having the community water tank's water quality tested in the future, there was little incentive to seek out water quality testing through SANAA because chlorination, the predominant means of water treatment, was not valued and, in fact, was resisted by most communities. (The question was not asked by awardees at endline, but the dislike of the taste of chlorine was mentioned in qualitative interviews in both 2010 and 2011.)

6.2.4 Linkages

The awardees' sustainability plans were based on the expectation of turning over management and support (technical and financial assistance) of community-based water systems to some entity of municipal- or higher-level government. However, water committees actively resisted being incorporated into the municipal government for fear that their budgets might be diverted to other municipal priorities. Water committee members also did not perceive any benefit to being linked to other water committees through the municipal associations of water committees the awardees had envisioned. For example, prior to the initiation of the FFP project interventions, the communities of Peñas and Naranjales in WV's implementation area shared a common water source. With WV's help, the committees installed a distribution box at the water source so that each community had control over its own water supply. Each of the committees expressed pride for the ownership that they felt over their respective W&S systems. They also reported that when they operated independently, they were better able to adapt to the needs of their communities. The majority of water committees interviewed in 2010 and 2011 were operating as committees of the community governance structure and were not officially linked to any higher level of government than the community.

6.3 Sustainability of Water and Sanitation Service Use

Two years after project exit, around 90 percent of households in ADRA and WV areas and more than 75 percent of households in SC areas had year-round access to piped water in their homes. As shown in **Table 6.1**, the improvement in piped water access among ADRA areas achieved during the life of the project was sustained 2 years later. In WV and SC areas, the percentage of homes with piped water significantly increased during the same time frame. Information on access to latrines, which showed

significant improvement between endline and follow-up in two awardee areas, suggests that the water committees continued to work to promote access to both water and sanitation services after project exit, as was part of their original goal. The success of the community-based piped water systems was dependent on the high level of motivation of household members to receive the service, which in turn made them willing to pay; this flow of resources ensured the continued provision of piped water.

Table 6.1. Maintenance of Household Water Infrastructure from Baseline (Where Available) to Endline and Follow-Up, by Awardee

| | ADRA | | | | SC | | | | WV | | | |
|--|-----------|----------|-------------------|------|-----------|----------------------|-----------|------|-----------|----------|-----------|------|
| | Base-line | End-line | Follow-Up | Sig. | Base-line | End-line | Follow-Up | Sig. | Base-line | End-line | Follow-Up | Sig. |
| n | n/a | 1,054 | 638 | – | n/a | 797 (.8% missing) | 800 | – | n/a | 1,180 | 634 | – |
| % of households with access to year-round piped water | 71.0% | 90.5% | 89.7% | 0.76 | n/a | 61.2% | 76.0% | 0.01 | 77% | 88.9% | 92.2% | 0.03 |
| n | n/a | 1,054 | 638 (.3% missing) | – | n/a | 797 (.7% missing) | 800 | – | n/a | 1,180 | 634 | – |
| % of households with access to latrines or flush toilets | 48.0% | 80.3% | 83.8% | 0.31 | n/a | 70.5% | 79.0% | 0.02 | 11% | 69.2% | 67.2% | 0.39 |

Sources: 2009 awardee endline reports, 2009 and 2011 MCHN Surveys.

Significance of difference between endline and follow-up based on two-sample z-test of proportions; all comparisons are from endline to follow-up (2009–2011).

6.4 Sustainability of Water and Sanitation Practices

The percentage of households with access to water treated at the distribution tank fell post-project (comparative endline data were available only for SC) and was quite low for all awardees in 2011, confirming the observations and qualitative interview reports that few water committees were applying chlorine at the community level 2 years after project exit, once the awardees were no longer assisting or taking responsibility for ensuring water quality. However, the percentage of households using some type of home water treatment did increase between endline and follow-up, as shown for SC and WV in **Table 6.2**. The most common water treatment practices, home chlorination and boiling, both cost money, but were still reported to be used more widely than solar disinfection or other home-based methods.

Table 6.2. Percentage of Households Using Treated Water, by Type of Treatment at Baseline (Where Available), Endline, and Follow-Up, by Awardee

| | ADRA | | | SC | | | WV | | |
|---|---------|-----------|------|---------|-----------|------|---------|-----------|-------|
| | Endline | Follow-Up | Sig. | Endline | Follow-Up | Sig. | Endline | Follow-Up | Sig. |
| n | n/a | 638 | | 797 | 800 | – | 1,180 | 634 | – |
| Application of chlorine at distributor tank | n/a | 2.5% | n/a | 15.3% | 8.9% | .019 | n/a | 4.7% | n/a |
| Application of chlorine at home | n/a | 14.1% | n/a | 28.6% | 55.4% | .000 | 10.3% | 13.4% | .0437 |
| Boiling | n/a | 37.9% | n/a | 9.1% | 12.8% | .099 | 32.9% | 37.6% | .0494 |
| Use of boiling and chlorine | n/a | 0.9% | n/a | 0.3% | 1.3% | .044 | 0.9% | 2.5% | .0047 |
| Solar purification | n/a | 0.3% | n/a | 4.2% | 3.3% | .629 | n/a | 0.2% | n/a |
| Filtration | n/a | 7.7% | n/a | 1.0% | 1.3% | .753 | n/a | 2.7% | n/a |
| Other | n/a | 2% | n/a | n/a | 2.8% | n/a | 6.4% | 10.2% | .0004 |
| No treatment | n/a | 35% | n/a | 41.6% | 17.8% | .000 | 49.6% | 36.0% | .0000 |

Source: 2009 and 2011 MCHN Surveys.

Significance based on two-sample z-test of proportions.

6.5 Sustainability of Water and Sanitation Impacts

The W&S component of the FFP projects was implemented to support the health objective of reduced diarrhea in children, based on the assumption that access to abundant and clean water and household latrines would reduce exposure to disease-causing pathogens. The change in rates of diarrhea (discussed in Section 5) demonstrated no clear evidence of a sustained change in diarrhea prevalence between endline and follow-up, though it should be noted that there are multiple sources of exposure to environmental pathogens. Latrine availability and use were maintained or improved in project areas, but handwashing practices were largely not maintained. Inconsistent results related to diarrhea are therefore not surprising.

6.6 Water and Sanitation Sector Sustainability: Lessons Learned

The model for the provision of piped water to households demonstrates the importance of the key elements hypothesized to maximize the likelihood of sustainability. The combination of ensured resources, technical and management capacity, and motivation due to the provision of a tangible benefit, along with a gradual period of exit and transition to independent operation for those committees established by the FFP projects, supported the sustainability of piped water systems. Linkages to municipal government were largely not implemented and were unsuccessful when they were, showing that when designed systems have the elements of sustainability built in, linkages may not be necessary. In the discussion of sustainability of MCHN interventions, the fee-for-service model was not feasible in the (human) health sector in the Honduran context, and there was no apparent alternative to relying on external funds, whether from the government or from other donors, to sustain the provision of decentralized health services. Piped water provides a contrast: The fee-for-service model in this instance was feasible and worked well, while relying on the municipal government for support did not.

The issues of water quality testing (or lack thereof) seen here further confirm that all three key factors must be in place for sustainability to be achieved. Lacking motivation to ensure water quality through chlorination, despite having the resources and technical and managerial capacity to provide it, led this intervention not to be sustained post-project. Further, the principle of gradual exit with a period of independent operation was observed in the case of overall water committee management, but the lack of these committees' independent operation in water quality testing before project exit is one factor explaining why these committees were not arranging for this testing once the awardees stopped providing the service.

Key W&S project strategies that worked and did not work are summarized in **Box 6.2**.

Box 6.2. MCHN Sector Sustainability: Key Findings

WHAT WORKED

- Piped water to households was a tangible and valued benefit, motivating users to pay user fees.
- A fee-for-service model provided ensured resources for maintenance and repair of piped water systems.
- Training in both management and maintenance of water systems gave water committees the capacity to operate the systems successfully and sustainably.
- Water committees' training of their successors successfully transferred needed knowledge and capacity.
- Water committees were elected by the community and held open community meetings, instilling trust in the management of funds and contributing to users' willingness to pay.
- Water committees administered piped water systems independently for extended periods of time before FFP exit; many existed before the FFP interventions.
- Inputs for the construction and repair of piped water systems were durable and of a high quality, reducing the need for frequent repairs.

WHAT DID NOT WORK

- Phase-over of responsibility for piped water systems to the municipal government resulted in diversion of funds from the management and maintenance of the systems to other municipal needs, jeopardizing the continued reliable provision of this service.
- Phase-over to municipal government was generally not accepted by local water committees.
- Horizontal linkages among water committees through the municipal association of water committees were generally not valued or pursued.
- Training in the application of chlorine for water quality assurance did not result in regular application of chlorine at the community level, due to lack of motivation on the part of users and, therefore, of water committees.
- Water committees and/or municipal and national government entities did not take over responsibility for regular water quality testing, which had been the responsibility of the awardees and not the committees, up until the time of project exit.

7. Results: Agriculture, Income-Generating Activity, and Natural Resource Management Sector

SUMMARY

The goal of the agriculture, IGA, and NRM components of the FFP development projects in Honduras was to improve household income and food security by teaching farmers to apply productivity-enhancing agricultural practices, encouraging them to produce non-traditional crops, and promoting sales of crops and processed products. The basis for the sustainability of these interventions was that profits would provide resources for inputs to continue applying the practices farmers had learned, farmers' capacities would be maintained through continued application of the learned practices, and farmers would be motivated by increased production and associated income.

The awardees taught model farmers to train other farmers in these techniques; the model farmers were given free inputs to use on their own land as an incentive throughout project implementation, but were expected to continue providing training without these incentives once the projects closed. Integral to all of the awardees' implementation strategies was the formation of producer associations that were intended to be a mechanism for sharing information and for collective marketing to obtain better prices for products. Awardees also organized small enterprises to process agricultural commodities for sale. In addition, WV worked in a coffee-producing region and linked coffee farmers with exporters for long-term contracts that included access to technical assistance and credit. All the awardees worked to improve farmer access to credit: ADRA established and funded a community development fund, while SC and WV worked to strengthen existing rural banks. NRM activities were intended to improve resilience to climate shocks and productivity. Awardees provided food for work and free inputs (e.g., seedlings) to support these efforts. Exit strategies varied: ADRA provided marketing services, including transportation, as well as credit, free of charge until just before their exit, while SC and WV implemented a more gradual exit.

Two years after exit, farmer participation in producer associations was low. Farmers cited cost of membership and an inability to produce a sufficient quality and quantity of products to participate in collective marketing efforts as inhibitors to engagement in this activity. Farmers also expressed reluctance to engage in collective marketing and a preference for selling independently. At follow-up, most farmers were marketing their crops as individuals, and this fraction had increased since endline. The percent of farmers applying the improved practices taught in the FFP projects also fell in all awardee areas, though this decrease was less pronounced in project areas where exit was more gradual. Landlessness is common in Honduras. As such, farmers who owned their own land were more likely to continue using project-supported improved practices than were non-owners. In addition, farmers trained by the projects were more likely to use improved practices at follow-up than those who were not trained. Of the farmers who sought credit, most did so through private (family and friends) sources, rather than institutions. The percentage of farmers selling non-traditional crops fell dramatically post-project

in ADRA areas, while in WV areas, the percentage rose slightly between endline and follow-up. The change in yields for project-targeted staple crops from endline to follow-up was inconsistent, in part due to climate shocks in the intervening period. Nonetheless, household food security as measured by months of adequate household food provisioning was sustained or improved 2 years after exit in all three project areas and dietary diversity was sustained or improved over the same period in two of the three project areas.

Among the key lessons learned were that withdrawal of material incentives threatened the sustainability of service delivery and other activities and sustainability was greater when withdrawal of support was gradual so that individuals and organizations could develop independence in applying practices and implementing activities (e.g., commercialization) prior to project exit. The critical factors of resources, capacity, and motivation were essential. For the agriculture, IGA, and NRM sector, vertical linkages were also key.

7.1 Agriculture, Income-Generating Activity, and Natural Resource Management Sector Project Descriptions, Sustainability Plans, and Exit Strategies

7.1.1 Project Descriptions

Each awardee sought to improve household food security through projects that would enable farmers to increase crop production for home consumption and to generate additional household income via sales of traditional and non-traditional crops (typically horticultural and tree crops and, in the case of SC and WV, small animals). Each awardee focused on capacity strengthening through technical training in improved production techniques and through support in marketing and management. The awardees also intended to provide increased access to microcredit, markets, and other development projects (e.g., funds from the government or other NGOs) and expected participating farmers to achieve increased production, household consumption, and agricultural sales.

All of the awardees implemented farmer training through farmer field schools, which the projects created. They selected and trained model farmers, who were then responsible for training additional farmers within their communities. Model farmers were selected based on their willingness to participate and whether they owned land that could be used as a demonstration plot to model new agricultural techniques. Model farmers in each awardee area received some free and/or subsidized inputs, such as fertilizer and drip irrigation systems, and benefited from the farm improvements (e.g., improved infrastructure) that would take place on their land. Other participating farmers also received access to inputs, such as improved seeds and fertilizer, though they were required to pay at least part of the cost.¹⁷ The network of participating farmers would have access to information on improved agricultural techniques, such as proper use of fertilizers and pesticides, seed varieties, intercropping, and NRM, as well as market and price information.

¹⁷ ADRA's project documents articulated a plan to provide credit and inputs to farmers on a graduated cost recovery basis, with the percent of cost recovered rising annually, until profits from increased productivity allowed farmers to repay loans and pay for inputs at full cost. However, no data are available on when or if this occurred. SC asked farmers to pay 20 percent of the cost of drip irrigation; otherwise, inputs were provided free or subsidized. WV's project documents made no mention of providing free agricultural inputs.

All of the awardees also created producer associations (PAs), which were intended to improve marketing and commercialization of farm products through information sharing and collective purchase of inputs and sale of outputs. Some PAs also engaged in the transformation (processing) of their products for sale. While promoting increased cultivation of non-traditional crops in home gardens was meant to help families diversify their diets and provide additional micronutrients (see Section 5), commercial production of non-traditional crops was intended for sale to maintain financial access to inputs. Each awardee conducted a market analysis prior to its project's start to identify crops that would grow well in the climates of its respective implementation areas and that had potential to be sold as cash crops in their raw or processed form. In addition, awardee technicians provided organizational and technical training to the PAs to increase participating farmers' access to markets and improve market information as a means of generating agricultural income. All of the FFP awardees implemented projects to provide farmers with access to credit. WV and SC provided training to pre-existing rural banks that offered credit to smallholder farmers, whereas ADRA created *fondos de desarrollo comunitario* (FODECOs) (community development funds) as sources of credit for farmers. ADRA also provided both seed money to these groups and training to their managers.

To improve access to markets, ADRA linked farmers to pre-existing municipal agriculture fairs and provided free transportation to them. ADRA also streamlined the commercialization processes by establishing three agricultural service centers (ASCs) that provided storage facilities for crops before agriculture fairs and that informed PAs of market prices. ASCs were given the responsibility of conducting market surveys and providing current price information to their members and partners. ASCs also provided farmers with guidelines on how to maintain crop quality, so as to improve crop marketability.

SC's project included plans to train farmers on how to conduct market surveys, develop their own marketing plans, and identify strategies to sell agricultural products. The awardee also included plans to coordinate with other PAs, municipalities, and NGOs within the area. During implementation, SC focused on organizing local markets to coincide with the agro-industrial fairs organized by the National Institute of Professional Development, thus expanding farmers' access to more potential buyers.

WV's approach to this sector was unique in that, in addition to promoting improved traditional and non-traditional crop production, it concentrated on increasing household income and food security through improvements in coffee production and marketing. WV focused on improving coffee commercialization and marketing by helping farmers growing coffee to implement quality control techniques throughout the production and processing chain and to obtain certification for their product. Producers were linked with organized coffee groups, such as IHCAFE, Comercial Internacional de Granos de Honduras (CIGRAH, Honduran International Grain Marketing Agency), Cooperativa Agrícola San Antonio Limitada, and Rain Forest Alliance, that provided farmers with technical support and access to international markets. Included in WV's development project was an agreement that IHCAFE would maintain support for small farmers after project exit in return for WV's support of commercialization efforts. These groups provided technical assistance to coffee farmers in methods to improve coffee quality and to certify their farms according to international coffee quality standards. The relationship between coffee growers and coffee buyers was meant to be mutually beneficial, as farmers would sell crops to CIGRAH, who would, in turn, sell to a larger market. WV, in addition to linking coffee farmers to buyers, sought to link farmers producing other crops to regional supermarkets, such as Hortifruti, Dispensa Familiar, and Supermercado Paiz, via long-term contracts with PAs. There were a few examples of successful linkages of WV PAs with these other outlets, but in the sector overall, the consistent successful linkages were in the coffee sector.

NRM was integral to the agriculture and IGA components of the FFP awardees' projects. These interventions were implemented to improve agricultural productivity through such activities as reforestation and the planting of live and dead barriers for flood control; gully control through construction of cement channels for runoff; terracing and contour plowing; and soil protection through composting, appropriate use of agrochemicals, and management of post-harvest residues. These activities were undertaken by community members who were provided with necessary tools and inputs (seedlings, construction materials) and compensated for their labor with food for work. Food for work was also used to compensate community members for work in the construction, repair, and maintenance of local roads.

Finally, the awardees worked to establish small enterprises that would engage in the transformation of agricultural products for sale. Among the activities implemented by the awardees were training in production processes, marketing, and assistance in obtaining legal recognition, which is necessary to acquire sanitary certificates to sell food products outside of local community fairs. A number of these small enterprises, including bakeries, fruit and vegetable canning operations, and enterprises to market unprocessed products to middlemen or supermarkets, were started under the tutelage of the awardees.

7.1.2 Sustainability Plans

The goals of the FFP awardees' agriculture, IGA, and NRM sector interventions were to improve household income, food security, and resilience to shocks and stressors through improvements in agricultural production and marketing. IGA interventions focused on improved agricultural production techniques, crop diversification, linking farmers to markets for their products (including processed products), and facilitating access to credit. NRM activities focused on improvements in land management to improve productivity and resilience to climate and other shocks.

The overall approach to sustainability in each of these sector interventions assumed that the resources needed to purchase inputs and pay for the costs of processing and transporting farmer production, along with any additional marketing costs, would come from the profits farmers derived from their sales. Credit institutions would facilitate the use of improved agricultural practices by funding any needed inputs in anticipation of future sales, and farmers would be willing to access credit in anticipation of sales and profits. In addition, the technical (production) and management (marketing) capacities of the farmers would be enhanced during the project's life, and the farmers who had received training would continue to apply what they had learned. Finally, the motivation to continue these activities would come from the participants' recognition of improvements in income and food security as a result of increased production and sales.

All of the awardees explicitly stated their expectation that the model farmers would continue to serve as a technical resource and to provide training to farmers in their communities post-project, in recognition of the benefits that they had received during the projects themselves. They expected that the technical capacity of these model farmers would not erode because they would continue using the techniques themselves, as well as teaching them to others. However, no provision was made for the model farmers to be paid or receive material benefits after the projects ended, as they had while the projects were being implemented. ADRA asked targeted farmers to sign a pledge that they would continue to provide training to new farmers, and attempted to organize that training through the ASCs and FODECOs,¹⁸ but they did not mention remuneration to the model farmers. WV arranged to have training for coffee farmers provided through Caficultores Innovadores (organized groups of innovative coffee growers). Similarly,

¹⁸ FODECOs were initially conceptualized as credit institutions, but in the last months of ADRA's process of exit, the FODECOs were assigned additional responsibilities, including technical assistance.

there was no explicit provision to give the model farmers additional resources (e.g., seeds, seedlings, and fertilizer) for their demonstration plots once the FFP project withdrew.

The projects also intended that the PAs organized during the projects would continue operating after project exit, serving the needs of member farmers for market information, collective purchase of inputs, and sale of products. Access to credit through the rural banks or FODECOs was presumed to become self-sustaining through repayment of loans with interest. The same concept of sustainability was built into the small enterprise activities fostered by the FFP projects: Enterprises would become self-sustaining through their profits, which would be reinvested to continue the functioning of the enterprise.

The sustainability plan of SC relied on building the capacity of the model farmers and providing accreditation that would be publicly recognized in the communities so that these farmers would continue to serve as a source of technical assistance after the project's exit. These model farmers would support other farmers with technical advice, and the model farmers themselves would, by the end of the project, have the capacity to use inputs received during the project (such as micro-irrigation) to improve the profitability of their production.

The sustainability plan for continued work on NRM was twofold. Many of the activities undertaken with food for work (terraces, micro-tunnels, stone walls, live and dead barriers) were directly associated with improved productivity, lower costs, or flood protection, and the assumption was that farmers, after experiencing the tangible benefits of these practices, would continue to maintain them, and possibly expand them, without further support or inputs from external sources. Resources for inputs for their maintenance/expansion would come from improved farm revenue, capacity would have been developed during the life of the project and would be maintained through practice, and motivation to invest labor would come from the tangible benefits of improved productivity and resilience to climate and other production shocks. Other NRM activities, such as reforestation and watershed management projects, were to be phased over to the UMAs, whose mandate was to promote environmental protection, with the units organizing activities and providing support in the form of inputs, tools, technical assistance, and, in some cases, compensation for workers.

The awardees sought explicit commitments from the municipalities and, in some cases, from universities, to provide ongoing training and other support for the agriculture, IGA, and NRM activities that they were implementing. For example, ADRA asked for written commitments from municipal entities.

The sustainability plan for road maintenance (a specific food for work activity) was to organize the trained workers into small enterprises that would be able to sell their services to the municipality. The municipality would then make contracts with these road maintenance groups and the revenue would provide employment opportunities for the workers.

7.1.3 Exit Strategies

The exit strategies of all three awardees involved turning over responsibility for conducting agriculture, IGA, and NRM activities, whether to individual farmers, groups such as PAs and small enterprises, or outside entities such as municipal governments. While the overall concepts for sustainability were similar across the projects, the awardees differed in their approaches to exit and the time allotted to accomplish it.

ADRA implemented a rapid exit and phase-over during a period of about 4 months prior to its project's closure. Its overall approach to exit was to turn over most of the agricultural support activities to the FODECOs that had originally been created as providers of credit for farming activities. ADRA planned to institutionalize the FODECOs through official legal recognition and train them in management and

accounting, as well as in technical areas, such as methods for the reduction of post-harvest losses. Among the activities to be transferred to FODECOs were the management of the ASCs previously operated directly by ADRA, the purchase and sale of agricultural inputs for farmers, and the provision of training to farmers, in addition to the role of community-based credit providers. These tasks represented a significant expansion of the responsibilities of FODECOs over a short period of time. ADRA planned that the responsibility for NRM activities would be taken over by the UMAs of the municipal government to provide training to communities, since this was the official role of these units. For the continuation of road maintenance activities, ADRA planned to organize small enterprises within the communities that would contract with various government entities to provide these maintenance services.¹⁹ In addition, ADRA planned to coach community leaders in how to seek funds from external sources, including the GOH and other NGOs.

By contrast, starting in July 2008 (about 1 year before the end of its FFP project), SC began shifting the model farmers that they had targeted to independent operation and set targets for the adoption of practices by the majority of farmers: 80 percent of farmers applying at least four practices and growing at least two non-traditional crops. The second key element of the SC exit strategy was to transition the PAs to the National Agricultural Institute at Zamorano for the provision of training and help with obtaining legal recognition, though it was not clear to the study team what the incentive would be for this institute to provide this training and technical assistance.

The overall sustainability plan for WV had similarities to those of the other two awardees, but a key difference in its exit strategy was that, as previously mentioned, WV implemented an assessment of each community's and municipality's potential for achieving sustainability in its various sector activities and exited those communities with the highest potential last to give them the greatest chance to achieve sustainability. As part of its exit strategy, WV also coordinated with other development projects so that their beneficiary communities would experience a smooth transition from one donor to another. As with ADRA, WV signed agreements with the municipalities, the Secretariat of Health, and the Ministry of Agriculture for the continued support of its agriculture, IGA, and NRM-related activities following WV's departure. Key agriculture, IGA, and NRM sustainability strategies and assumptions of the three awardees are summarized in **Box 7.1**.

¹⁹ ADRA obtained signed agreements for continued support from a number of government entities to take on activities that they had previously performed, but it appears these agreements were between ADRA and the government agency, and did not directly involve the communities.

Box 7.1. Summary of Agriculture, IGA, and NRM Sector Sustainability Strategies and Key Assumptions

| SUSTAINABILITY STRATEGIES | KEY ASSUMPTIONS |
|--|---|
| <ul style="list-style-type: none"> • Implement improved production techniques to produce traditional and non-traditional crops for sale at a scale sufficient to improve household food supply and agricultural income. | <ul style="list-style-type: none"> • Farmers will be able to produce and sell enough goods to support the purchase of inputs to continue using improved production techniques. • Income from sales and improved food consumption (quantity and quality) will provide farmers with motivation to continue using improved production methods and producing non-traditional crops. |
| <ul style="list-style-type: none"> • Maintain farmer connections to markets without awardee involvement. | <ul style="list-style-type: none"> • Farmers will have the experience, knowledge, contacts, and necessary levels of production to continue marketing their produce after the project’s end. • Farmers will understand how to negotiate more favorable prices and terms for marketing. |
| <ul style="list-style-type: none"> • Train and equip model farmers to provide continued agricultural training to farmers after the project’s end. | <ul style="list-style-type: none"> • Model farmers will be motivated to provide continued training in appreciation for previous project support. • Model farmers will maintain their technical capacity through practice and will have time and other resources needed to devote to training others. |
| <ul style="list-style-type: none"> • Establish or strengthen PAs to provide a mechanism for farmers to engage in the collective purchase of inputs and sale of products and to exchange information. | <ul style="list-style-type: none"> • PAs will provide sufficient benefits so that farmers will be motivated to join and pay membership fees when required. |
| <ul style="list-style-type: none"> • Provide management and marketing training to PA leaders and assist them in establishing long-term purchasing contracts. | <ul style="list-style-type: none"> • PAs will have a sufficient quantity and quality of production to enable them to fulfill commitments to buyers and maintain commercial relationships. |
| <ul style="list-style-type: none"> • Establish or strengthen rural banks and FODECOs as a source of credit to farmers. | <ul style="list-style-type: none"> • Farmers will take and repay (with interest) loans from these entities. |
| <ul style="list-style-type: none"> • Transfer marketing support and farmer training functions to FODECOs (ADRA). | <ul style="list-style-type: none"> • FODECO staff will have the resources, capacity, and motivation to provide marketing support and training to farmers/PAs. |
| <ul style="list-style-type: none"> • Train farmers in NRM techniques for soil improvement and conservation that will improve land productivity and protect against natural disasters, such as flood and drought. | <ul style="list-style-type: none"> • Farmers will be motivated to continue applying improved NRM practices because of reduced exposure to the consequences of floods and droughts (and likely higher resultant productivity). |

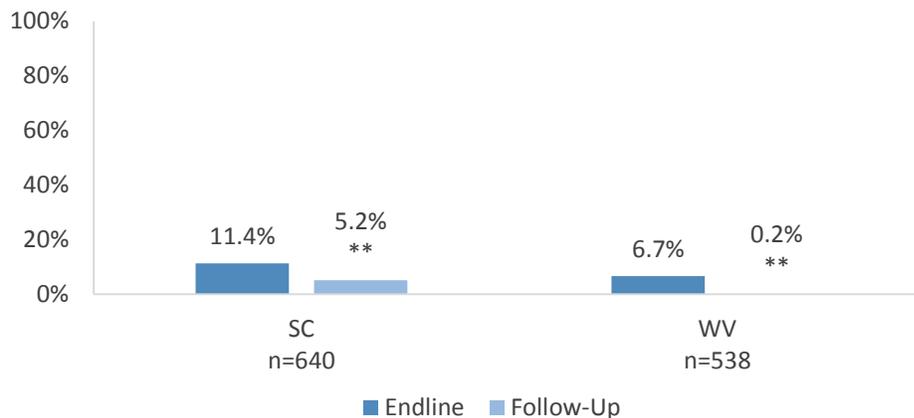
| | |
|--|---|
| <ul style="list-style-type: none"> Promote the production of non-traditional crops in home garden plots for home consumption to improve dietary quality. | <ul style="list-style-type: none"> Household members will continue to produce in home garden plots motivated by improvements in household diets and availability of surpluses for sale. Households will have the resources to maintain home garden plots due to increased agricultural sales. |
| <ul style="list-style-type: none"> Provide technical and management training to small enterprises to sell transformed/processed agricultural products; assist these enterprises in obtaining legal recognition. | <ul style="list-style-type: none"> Small enterprises will be successful in accessing markets and gaining profits to support their continued operation. Legal recognition will facilitate small enterprise engagement in markets. |
| <ul style="list-style-type: none"> Train community members in road maintenance and repair; organize them as small businesses to market road repair and maintenance services to municipalities. | <ul style="list-style-type: none"> Municipalities will choose to contract with a road repair small business rather than hiring individual workers. |
| <ul style="list-style-type: none"> Establish formal agreements with municipal and national government entities and with universities to provide training and material support to farmers after awardee exit. | <ul style="list-style-type: none"> Entities engaged during the project will comply with their commitment and will have the resources, technical and managerial capacity, and motivation to fulfill their agreements with the awardees, even though the awardees may no longer be present in the communities. |

7.2 Sustainability of Agriculture, Income-Generating Activity, and Natural Resource Management Service Delivery

7.2.1 Model Farmers

A key element in the sustainability of service delivery for these sector interventions was the expectation that model farmers would continue to provide services after exit. However, 2 years after SC and WV exited (data were not available for ADRA areas), responses from a representative sample of model farmers to the question of whether they were continuing to provide training showed a significant decrease in the number of farmers continuing to carry out their model role.²⁰ These results are shown in **Figure 7.1**. According to data from the follow-up survey, in SC areas, 22 of 73 farmers who had formerly served as model farmers were still serving; in WV areas, only 1 former model farmer of the 36 who had formerly served continued to serve in that role.

²⁰ Farmers were asked at follow-up if they participated in any of a list of selected activities during the life of the FFP projects and whether they were doing so at the time of questioning. “Serve as a model farmer” was one of the response options.

Figure 7.1. Percentage of Farmers Serving as Model Farmers at Endline and Follow-Up

Sources: 2009 awardee endline surveys, 2011 Agriculture, IGA, and NRM Surveys.

Adjusted significance based on two-sample z-test of proportions; ** p<0.01.

NOTE: Model farmers encountered at the time of follow-up were not necessarily the same individuals as those who had been surveyed during the projects' endlines.

Qualitative interviews with focus groups of former model farmers (none of whom continued to serve 2 years after exit) provided insight into why so many model farmers did not continue working. Model farmers in 9 of 13 FGDs conducted in 2011 mentioned a lack of resources, such as seeds and fertilizer, for them to use in training new farmers. None of the model farmers reported receiving any tangible benefits after the FFP projects' withdrawal, and few noted continued demand for their services, stating that the farmers they taught did not appear to appreciate or benefit from their lessons. Several model farmers noted that because many farmers cultivated borrowed or rented land, those farmers lacked incentives to make long-term improvements to the land they worked. One former model farmer from an area served by ADRA stated that the "people do not have a place where they can farm. After they learn, they do not have anywhere to put their knowledge into practice." While some practices did provide immediate (same season) benefits to those cultivating the land, whether they owned the land or not, many of the promoted practices (proper seed spacing, micro-fertilizing) were intended to promote longer-term productivity gains (building up soil quality, constructing live and dead barriers, terracing), and these improvements would remain with the land, not the renter. This was a principal reason that model farmers gave for the lack of adoption of the practices that they had promoted, despite the fact that 35 percent of farmers encountered in the follow-up survey cultivated land that they owned.

All of the model farmers said that they themselves continued to implement the practices that they had learned and taught during the life of the FFP projects and continued to benefit from improvements made on their land. In 9 of 13 FGDs conducted in 2011, model farmers reported that they continued to produce non-traditional crops for sale within their own communities, although they did not report selling their products outside their communities. Model farmers in 4 of 13 FGDs in 2011 mentioned getting further agricultural training from other NGOs in their communities, although they did not mention passing this training on to others. Study team visits to their farms confirmed that these model farmers were implementing the practices that they learned and were maintaining the improvements that had been made. In Reitoca, a community served by SC, one former model farmer had maintained retaining walls and live and dead barriers and had continued to implement improved farming practices, such as contour farming and proper seed spacing, through the follow-up period. Like other model farmers interviewed, he continued to grow non-traditional crops, mostly for household consumption. However, he no longer provided services to other farmers through farmer field schools because he lacked the motivation to do so.

Model farmers in 10 of 13 focus groups in 2011 explicitly acknowledged that they had experienced improvements in crop production and yield, as well as household food security and dietary diversity. Because model farmers were selected on the basis of owning the land that they cultivated, among other criteria, and because they received free or subsidized inputs to engage in this work during the life of the projects, they saw improvements that allowed them to produce surplus for sale within their communities, all of which likely contributed to their motivation to maintain these improvements.

7.2.2 Credit

Access to credit was necessary to facilitate farmers' access to inputs needed to continue using the improved agricultural practices learned during the project and to produce some of the non-traditional crops promoted by the awardees. Two years after the FFP projects' exit, between a third and a half of communities reported having a rural bank, as shown in **Table 7.1**. None of the awardees collected such information at endline for comparison, but ADRA's endline report stated that FODECOs were providing credit to farmers (no indication of the percentage) and were recovering their costs. WV and SC, which had provided seed capital and training to existing rural banks, reported very low levels of default in their respective endlines, but again, with no indication of the extent to which farmers were availing themselves of credit. Most of these banks, almost all in the case of WV, had been established more than 2 years prior to the 2011 survey, and therefore existed prior to project exit. However, 2 years after the end of the FFP projects, there were no functioning FODECOs in ADRA communities, and only 5 percent (2) of WV communities surveyed had a FODECO, one established prior to and one established after project exit. Given the central role of FODECOs in the exit strategy of many of ADRA's credit- and non-credit-related responsibilities, the absence of FODECOs in any of its communities raises concerns about the viability of that strategy. Sustainability of the credit institutions is further addressed in Section 7.3.

Table 7.1. Percentage of Communities with Credit Institutions at Follow-Up, by Awardee

| | ADRA | SC | WV |
|---|-------|-------|-------|
| n | 38 | 38 | 40 |
| % of communities with rural banks | 42.4% | 36.8% | 55.0% |
| % of rural banks formed \geq 2 years ago | 75.0% | 64.0% | 91.0% |
| % of communities with a FODECO ^a | 0.0% | 0.0% | 5.0% |

Source: 2011 Community Surveys.

^a Two communities in former WV implementation areas reported the presence of a FODECO in 2011.

7.2.3 Other Services: The Role of NGOs and Municipality Entities

The community survey conducted in 2011 investigated the types of projects that were undertaken in the FFP project-targeted communities after their exit. The most frequently implemented projects were road improvements (undertaken in more than three-quarters of the communities studied) and agriculture (undertaken in around half of the communities). Less common were reforestation and irrigation projects, and very few of the communities surveyed reported implementing new projects for the processing of agricultural products (e.g., coffee syrup or pickled vegetables).

More than half of the communities in the follow-up study sample had an NGO working in the area 2 years after awardee exit: 73.0 percent of ADRA communities, 60.5 percent of SC communities, and 52.5 percent of WV communities. The presence of these NGOs undoubtedly contributed to the availability or continuation of some services previously provided or supported by the awardees. NGOs contributed to half or more of the agricultural projects implemented in the study areas 2 years after exit,

and to more than two-thirds of irrigation projects and agricultural product transformation projects (of which there were considerably fewer). (Note that these projects may have had multiple sources of support.) In qualitative and quantitative interviews with farmers, NGOs were cited as providers of such services as farmer technical assistance, training, and agricultural credit, and they contributed resources to a high percentage of projects implemented in communities in the 2 years after awardee exit. The active role of NGOs in continuing activities similar to those the study awardees had undertaken may be seen as an element of sustainability, and the FFP awardees did enlist other NGOs as part of their sustainability plans. Nonetheless, the continued involvement of NGOs in these areas raises the issue of continued dependence on external sources of donor support for agricultural activities intended to eventually be self-sustaining.

All of the awardee exit strategies included plans for turning over responsibility for some agriculture, IGA, and NRM activities to the municipal government. The role of municipalities was most important in implementing road improvement projects between the end of the projects and the follow-up survey. Road improvement projects were implemented in 76–80 percent of communities in the former awardee areas following the FFP projects' closure, and the great majority of such projects were supported by the municipality. When reforestation was undertaken post-project, in 29–43 percent of communities, the municipality was responsible for these projects in at least 40 percent of instances, with NGOs also contributing significantly (except in ADRA areas). Other types of projects were less commonly undertaken by municipalities following the projects' closure, and the role of the municipality in providing support to the other projects was less consistent across the three awardees. The central government played a minimal role in supporting new projects in the 2 years after the FFP projects' exit, except for contributing some resources to about a third of the new agriculture projects.²¹

7.3 Sustainability of Agriculture, Income-Generating Activity, and Natural Resource Management Service Use

Table 7.2 shows the percentage of households reporting that they participated in awardee-promoted agriculture, IGA, and NRM sector activities during the life of the FFP projects, and the percentage reporting that they participated in these activities at follow-up in 2011. Participation fell substantially in all categories of these sector activities from the time the awardees were active in the communities, with almost no WV participants reporting participation in farmer training or NRM activities at follow-up.

²¹ Key informants were asked in the community interviews about new projects in the following domains: agriculture, reforestation, road improvement, irrigation, paving, minor species development, and agricultural product transformation. Only agriculture and road improvement were implemented by half or more of the communities, and road improvements were largely funded by the municipality and by community contributions.

Table 7.2. Percentage of Farmers Participating in Awardee-Supported Agriculture, IGA, and NRM Activities, During and Post-Project^a

| | SC | | | WV | | |
|--|--|---|------|--|--|------|
| | Participated in agriculture, IGA, and/or NRM activities during the FFP project | Participated in similar activities at project follow-up | Sig. | Participated in agriculture, IGA, and/or NRM activities during the FFP project | Participating in similar activities at project follow-up | Sig. |
| n | 640 | 640 | | 538 | 538 | |
| Farmers participating in any awardee agriculture, IGA, or NRM (or, in 2011, similar) activity ^a | 40.8% | 13.9% | .004 | 46.7% | 9.3% | .004 |
| Farmers participating in field schools | 10.5% | 2.7% | .011 | 7.6% | 0.4% | .000 |
| Farmers participating in road maintenance | 25.8% | 3.0% | .117 | 24.3% | 4.8% | .001 |
| Farmers participating in community NRM activities | 9.8% | 2.7% | .002 | 4.1% | 0.9% | .005 |

Source: 2011 Agriculture, IGA, and NRM Surveys.

Significance based on two-sample z-test of proportions.

^a Awardee activities in the agriculture, IGA, and NRM sector included participating in farmer field training, small enterprise development, soil improvement and other NRM activities, and road maintenance with food for work.

7.3.1 Community Organizations

About half the communities in all of the awardees' former implementation areas reported having a PA at follow-up (no data collected at endline), as shown in **Table 7.3**. Most of these PAs were formed before awardee exit. By contrast, a small percentage of communities in the sample (between 5% and 15.8%) had any groups dedicated to the processing of agricultural products for sale 2 years after awardee exit. Because similar data were not collected by the awardees at endline, it is not possible to judge whether these numbers represent a reduction in the number of such groups or whether few communities had such groups even at the time of the FFP projects' exit.

Table 7.3. Percentage of Communities with Agricultural and Other Community Organizations at Follow-Up, by Awardee

| | ADRA | SC | WV |
|---|-------|-------|-------|
| n | 38 | 38 | 40 |
| PA | 55.3% | 50.0% | 52.5% |
| Small enterprise for transformation of raw materials for sale | 7.9% | 15.8% | 5.0% |
| Rural bank | 42.1% | 36.8% | 55.0% |
| FODECO | 0.0% | 0.0% | 5.0% |
| Farmer group | 39.5% | 36.8% | 27.5% |
| NGO ^a | 73.0% | 65.8% | 52.5% |

Source: 2011 Community Surveys.

^a NGO was one of the options on the community questionnaire. This may refer to international, national, or local NGOs.

7.3.2 Producer Associations, Other Agriculture Associations, and Rural Banks

The formation of PAs was a cornerstone of the sustainability strategy of all of the awardees' agriculture, IGA, and NRM sector activities. Therefore, it is of note that even with half of the communities reporting the presence of a PA at the time of follow-up, fewer than 10 percent of farmers were in PAs at the time of exit. Similarly, fewer than 15 percent of farmers belonged to any association of agricultural producers, and fewer 20 percent of farmers belonged to any credit or bank associations at the time of exit (Table 7.4), though some farmers accessed credit without being members of an association. Only WV collected information about membership in agricultural organizations at endline, and in these areas, membership in agricultural and credit organizations was sustained (credit associations) or modestly increased (PAs and other agricultural groups) at follow-up, but did not exceed 10 percent for project-supported PAs or 20 percent for credit or banking associations. Membership fees were cited by some farmers in qualitative interviews as a barrier to PA membership, though not all PAs charged fees. Some farmers also expressed reluctance to engage in collective marketing (discussed further below). In WV areas, PA membership was associated with a larger cultivated area, a lower likelihood of cultivating on borrowed or rented land, and a greater likelihood of engaging in agricultural sales (of coffee or other crops) with consequent higher agricultural income. By contrast, in ADRA and SC areas, PA members did not differ significantly from non-members in any of these dimensions.

Table 7.4. Farmer Membership in Agricultural and Credit Associations at Endline (Where Available) and Follow-Up, by Awardee

| | ADRA Follow-Up (2011) | SC Follow-Up (2011) | WV | | |
|--|-----------------------------|---------------------------|----------------------|-------------------------|------------------------|
| | | | WV Endline (2009) | WV Follow- up (2011) | Sig. (WV 2009–2011) |
| n | n=557 | n=640 | n=1,115 | n=538 | |
| % of farmers belonging to FFP project-supported PAs | 5.8% | 4.7% | 5.3% | 8.6% | 0.011 |
| % of farmers belonging to any (project or non-project-supported) PAs | 12.7% | 9.1% | 9.8% | 12.1% | 0.153 |
| % of farmers belonging to any credit or bank association | 8.7% | 8.9% | 18.3% | 17.7% | 0.750 |

Source: 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on two-sample z-test of proportions.

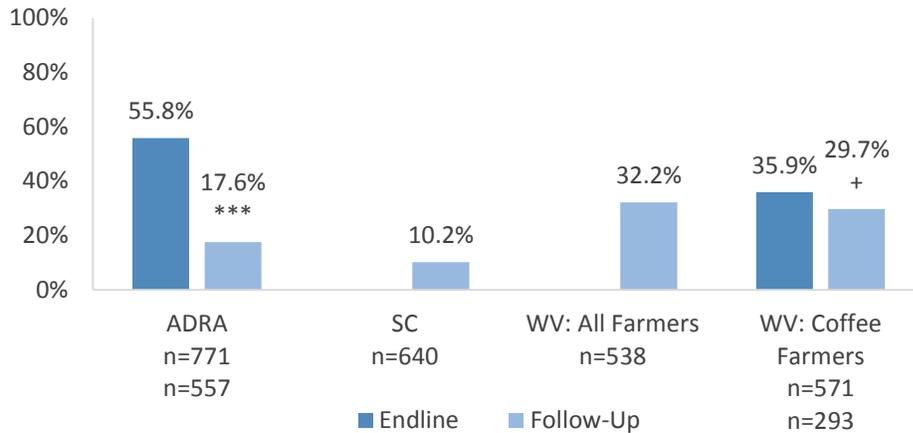
ADRA: 0.9% of values missing at follow-up; SC: 3.3% of values missing at follow-up.

7.3.3 Credit

In many instances, access to credit for agricultural inputs was necessary for farmers to continue using the practices learned during the project and to produce the non-traditional crops promoted by the awardees, because inputs initially provided free or at low cost by the project needed to be purchased at full price after project exit. As such, improving access to credit was a key component of all the awardees' projects, as described above.

Figure 7.2 shows the percentage of farmers who made use of credit at endline and follow-up. Use of credit declined in ADRA areas with the withdrawal of the project itself as a source of credit, which occurred only at exit. Farmers in WV areas were the most likely to make use of credit at follow-up. More than half of farmers in WV areas were coffee producers linked to commercial export markets for their product and could access credit through commercial buyers with whom they had contracts. Indeed, among farmers producing coffee, use of credit declined only slightly (with marginal significance) from endline to follow-up.

Figure 7.2. Percentage of Farmers Using Agricultural Loans at Endline (Where Available) and Follow-Up, by Awardee



Source: 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on two-sample z-test of proportions; + $p < 0.1$, *** $p < 0.001$.

Table 7.5 shows the sources of credit for those who accessed it at endline and follow-up (comparative data are available for farmers in ADRA areas only). In ADRA areas, the use of family and friends for credit rose significantly from endline to follow-up, as did borrowing through agricultural cooperatives and banks. However, these higher percentages are of a much smaller number of farmers using credit. The percentage of all farmers taking such loans was similar in both periods, suggesting that it was the use of formal sources of credit that declined. At project endline, ADRA directly provided credit to the vast majority of borrowers (87.4 percent) with an interest charge that was “graduated” based on farmers’ increased productivity and ability to repay, which may help explain the steep decline in credit use once ADRA no longer offered these services and repayment options. SC and WV, in contrast, linked farmers to pre-existing rural banks and microcredit institutions. In all areas, friends and relatives, as well as cooperatives, were important sources of credit at follow-up. A fairly small proportion of farmers obtained credit from rural banks at follow-up (which were the planned vehicle for credit in the exit strategies of SC and WV), and FODECOs (the planned vehicle for ADRA) were not mentioned as a credit source by any of the respondents. Based on qualitative interviews 1 and 2 years after project exit, farmers generally expressed reluctance to take credit because of a lack of confidence in their ability to repay the loans. WV farmers, many of whom had contracts with commercial coffee buyers, were more likely to take credit than were farmers in other awardee areas because they had greater access to credit providers and greater confidence in their ability to repay loans. Credit was more accessible to PA members, but, as noted above, the proportion of farmers in PAs was relatively low at both exit and follow-up.

Table 7.5. Sources of Credit Used by Farmers at Project Endline (Where Available) and Follow-Up, by Awardee

| | ADRA | | | SC | WV |
|---|---------|------------------------|------|-----------|-----------|
| | Endline | Follow-Up ^a | Sig. | Follow-Up | Follow-Up |
| n | 771 | 557 | | 640 | 538 |
| % of farmers using ANY credit | 55.8% | 17.6% | .000 | 10.2% | 32.2% |
| % of those using credit by credit source | | | | | |
| Friends/relatives | 3.5% | 19.6% | .000 | 38.5% | 25.4% |
| Money lenders | 0.9% | 0.0% | .923 | 4.6% | 10.4% |
| Cooperatives | 2.1% | 25.7% | .000 | 21.5% | 28.9% |
| Government projects/microcredit | 6.3% | 1.0% | .086 | 3.1% | 0.0% |
| Banks | 0.2% | 7.2% | .001 | 10.8% | 3.5% |
| ADRA | 87.4% | n/a | n/a | n/a | n/a |
| Other ^b | – | 47.4% | n/a | 21.5% | 39.3% |
| Percent of credit users citing rural banks when listing “other” | 0.0% | 9.3% | n/a | 4.6% | 14.5% |

Source: 2009 and 2011 Agriculture, IGA, and NRM Surveys.

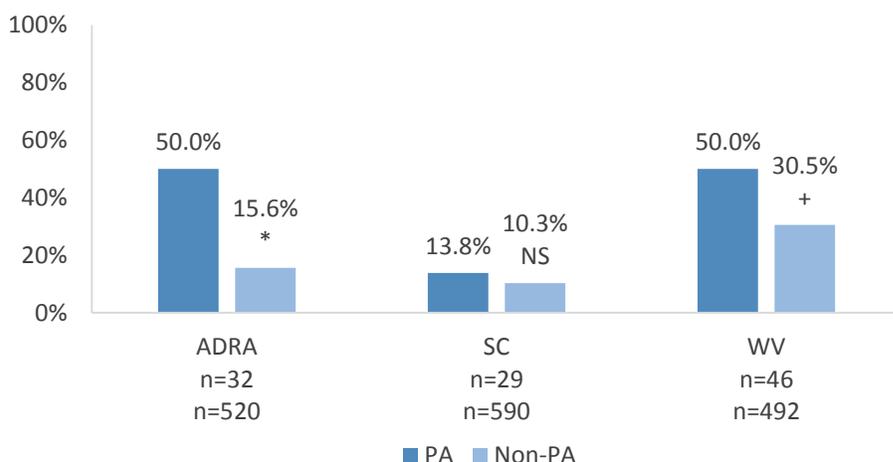
Significance based on two-sample z-test of proportions.

^a ADRA follow-up: 0.9% of values missing.

^b Other credit purveyors noted in responses to the ADRA follow-up survey included: ADASBA o Fondo Cristiano, Honduran Association of Coffee Producers (AHPROCAFE), United Hand Association of Honduras (AMUH), Alcaldia, Bahncafe, Honduran Investment Company (CODINSA), Women’s Lending Cooperation (COMIXMUL), rural banks, Food and Agriculture Organization of the United Nations (FAO), Grupo Campesino, Grupo de mujeres, Hermandad de Honduras, Intermediarios, Ethnic Community Development Organization (ODEC), Special Program for Food Security (PESA), and National Program for Local Development (Pronadel); for SC included Alcaldia, Auxilio Mundial, Bandesa, Cuenta del Mileno, Funet, IHCAFE, NGOs, and organización de mujeres; for WV included: Agropecuaria, rural banks, El Patrón, NGOs, Onil, proyectos. Neither “other” nor “rural bank” was an option in 2009.

At follow-up, PA members were far more likely to make use of credit than non-members. Model farmers in a qualitative interview in Reitoca (a former SC implementation area) elaborated on the benefits of PA membership, saying that it was a condition for obtaining loans from rural banks (although non-PA members also accessed credit). **Figure 7.3** compares the proportion of farmers using credit according to their PA membership in 2011 (data on PA membership were not collected at endline). The same is true using the expanded definition of membership in any organization involving producers: Except for SC, association members were significantly more likely to make use of credit than non-members.

Figure 7.3. Use of Credit by PA Membership at Follow-Up, by Awardee



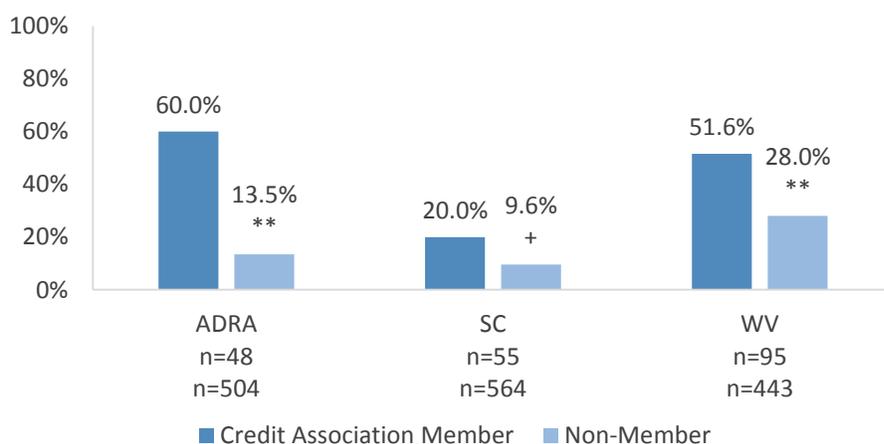
Source: 2011 Agriculture, IGA, and NRM Surveys.

Significance based on Pearson chi-square test; NS=not significant, + p<0.1, * p<0.05.

ADRA: 0.9% of values missing; SC: 3.3% of values missing.

Farmers also reported whether they were members of any organization that provided credit to members at follow-up (no comparison data were collected at endline), including credit and savings associations and rural or community banks. (FODECOs were included, but no one reported being a member of a FODECO.) Those who belonged to such credit associations were significantly more likely to be members of a PA (or of any association of producers), but only about 20 percent of credit association members belonged to PAs, since PA membership was not a prerequisite. Not surprisingly, farmers who belonged to any kind of rural credit institution were more likely to make use of credit than those who were not members, but still, not all such members made use of credit from any source in the previous year: 60 percent in ADRA areas, 52 percent in WV areas, and only 20 percent in SC areas. Only a small number of farmers accessed credit without being a member of an association (**Figure 7.4**).

Figure 7.4. Credit Use by Credit Association Membership at Follow-Up, by Awardee



Source: 2011 Agriculture, IGA, and NRM Surveys.

Significance based on Pearson chi-square test; + p<0.1, ** p<0.01.

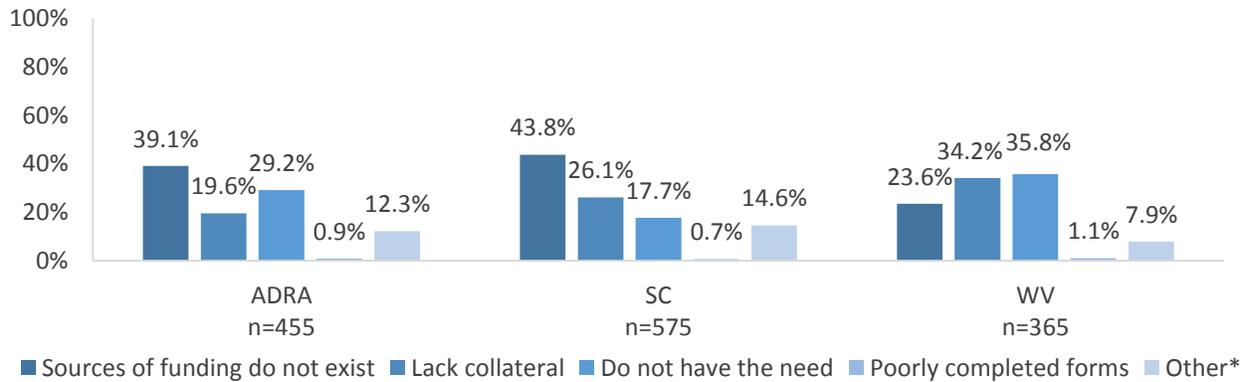
ADRA: 0.9% of values missing; SC: 3.3% of values missing.

Farmers were also asked what they used the credit that they accessed for. More than 90 percent said that they used it to support their production activities. A small proportion said that they used credit for commercialization and marketing activities, and almost none reported diverting the credit to personal or family uses.

Farmers who did not borrow to support their production were asked why they did not access credit.

Figure 7.5 shows the most common responses at follow-up.

Figure 7.5. Reasons for Not Making Use of Credit at Follow-Up, by Awardee



Source: 2011 Agriculture, IGA, and NRM Surveys.

* Other noted reasons for not accessing credit included: high interest rates, an inability to repay loans, recent unemployment, recent relocation (moved), cumbersome application processes, inhibitive prerequisites, lack of farm production, lack of knowledge of how to access credit, no access to land.

The major reasons for not accessing credit, besides not feeling the need, were that farmers felt that there were no sources of credit available to them and that they lacked collateral. Given the high proportion of farmers in the awardees' implementation areas who did not own their own land, the lack of collateral was understandably a barrier to seeking credit. In addition, PA membership was a condition for obtaining loans from some rural banks making that source unavailable for some farmers.

In qualitative interviews, farmers added to this list of possible reasons for not using credit. About half of the farmers interviewed said that they were reluctant to take loans because they did not have confidence in their ability to repay them. Three farmers in FGDs in former ADRA implementation areas expressed the belief that due to their poverty they should receive donations rather than loans to fund their production, because, with their poor resources, they could not be expected to repay (or perhaps even qualify for) loans. Several farmers said that defaults on loans have been a problem in their communities. A few also cited prohibitively high interest rates charged by money lenders as a barrier to accessing credit, although this did not emerge in the quantitative survey.

7.3.4 Training and Technical Assistance

Access to training and technical assistance declined over the 2 years after the FFP projects' exit. As previously discussed, the proportion of farmers serving as model farmers declined dramatically from endline to follow-up. Farmers reporting that their participation in farmer field schools also declined to very low levels at follow-up. **Table 7.6** shows that the percentage of farmers who made use of farmer field schools (for SC and WV) and technical assistance (for ADRA) fell. However, although participation in farmer field schools fell significantly for WV after its FFP project ended, coffee quality training, though not high at project exit, was relatively well maintained. Coffee farmers in WV areas were linked to international marketing organizations that could provide access to training and were motivated to do so

because of the premium that they would get for marketing higher-quality coffee or for coffee certified as organic, fair trade, or other specialized labels, whose production required technical assistance.

Only ADRA asked farmers about the source of the technical assistance that they received. At endline, almost all ADRA-targeted farmers had received technical assistance from the project. When ADRA withdrew, however, the use of technical assistance fell. Training through agricultural extension from the Secretariat of Agriculture did not reach a substantial number of farmers in either the project or the post-project period.²² Although FODECOs were intended to be a source of training after ADRA's exit, they were not mentioned by any farmer as a source of training at either endline or follow-up. Arrangements with the university also do not appear to have been well established, as no farmer reported receiving technical assistance through any of the agricultural universities in the country.

Table 7.6. Percentage of Farmers Making Use of Technical Training at Endline and Follow-Up, by Awardee

| | Endline | n | Follow-Up | n | Significance |
|--------------------------|---------|-----|-----------|-----|--------------|
| ADRA | 90.4% | 771 | 10.4% | 557 | 0.000 |
| SC | 10.5% | 640 | 2.6% | 640 | 0.011 |
| WV | 7.8% | 538 | 0.4% | 538 | 0.001 |
| WV Coffee Quality | 7.0% | 571 | 4.8% | 293 | 0.200 |

Source: 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on Pearson chi-square test.

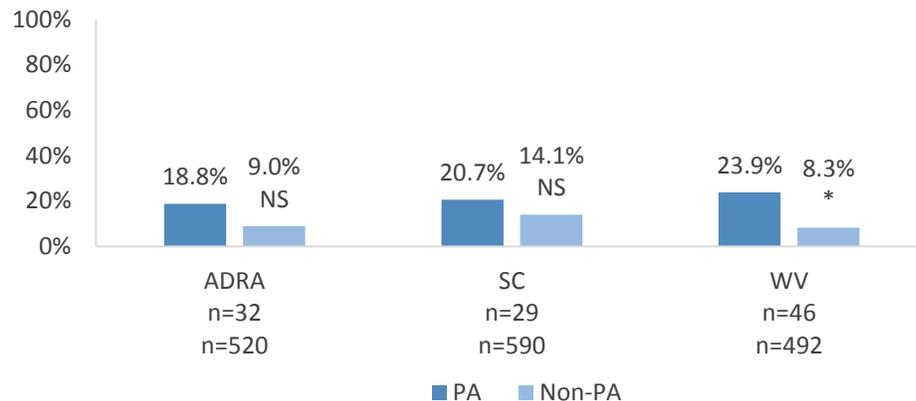
ADRA: "In the last year, did you have access to technical assistance?" (endline, follow-up).

SC and WV: Percentage of participating farmers who at follow-up reported that they previously participated in farmer field schools sponsored by the awardee compared with farmers interviewed in 2011 reporting that they currently participate in farmer field schools.

None of the farmers in the 19 qualitative interviews undertaken in 2011 reported currently participating in farmer field schools, but all of them maintained that they had learned the techniques and practices taught during the project, and all said that they felt capable of implementing the practices when resources were available.

In 2011, PA members had more access to technical assistance than non-members (see **Figure 7.6**), though the disparity between members and non-members was not as great as that for access to credit.

²² At the time of this study, the Secretariat of Agriculture did not provide public agricultural extension services except in the context of specific individual projects.

Figure 7.6. Use of Technical Assistance by PA Membership at Follow-Up, by Awardee

Source: 2011 Agriculture, IGA, and NRM Surveys.

Significance based on Pearson chi-square test; NS=not significant, * $p < 0.05$.

SC and WV: Percentage of participating farmers who reported at follow-up that they previously participated in farmer field schools sponsored by the awardee, compared with farmers reporting that they currently participate in farmer field schools. ADRA 2011: 0.9% of values missing.

SC 2011: 3.3% of values missing

7.4 Sustainability of Agriculture, Income-Generating Activity, and Natural Resource Management Practices

7.4.1 Agricultural Production and Sale

The key element of the sustainability plan for all awardees was to promote farmers' participation in agricultural marketing through increased production of traditional crops (to produce marketable surplus), production of non-traditional crops (mostly fruits and vegetables) for sale, and the organization of small enterprises to market transformed products. **Table 7.7** shows the percentage of farmers engaging in agricultural sales and the percentage of farmers who continued to produce non-traditional crops after the projects ended, as well as those who sold coffee in WV areas. In both ADRA and SC areas, the percentage of farmers producing at least one non-traditional crop fell after these projects' exit. Comparison data regarding agricultural sales were not available for SC, though more than one-third of farmers in the SC area continued to produce at least one such crop (though apparently not always for sale). In WV areas, non-traditional crops were promoted as a strategy for increasing dietary diversity through home gardens and were not taken up by a large proportion of farmers as a potential commercial crop by the end of the project. Instead, WV focused its commercial intervention on coffee farmers, while also promoting commercial production of non-traditional crops. Still, the majority of farmers engaging in agricultural sales in former WV implementation areas were selling coffee, which was sustained. In addition, the percentage of farmers selling crops other than coffee rose slightly in the 2 years after project exit.

In qualitative interviews and discussions following the FFP projects' closure, farmers who were not producing non-traditional crops said that they found non-traditional crops expensive to produce and difficult to store for future sale. Without direct marketing support, these farmers said that there were not readily available markets where they could sell their produce before it spoiled. They also explained that these non-traditional horticultural crops would not feed their households as traditional staple crops would, which further reduced their motivation to produce them.

Table 7.7. Farmers Engaging in Agricultural Production and Sale at Baseline (Where Available), Endline, and Follow-Up, by Awardee

| | ADRA | | | | SC | | | | WV | | |
|--|------|-------|-------|------|-------|-------|-------|------|-------|-------|------|
| | 2005 | 2009 | 2011 | Sig. | 2005 | 2009 | 2011 | Sig. | 2009 | 2011 | Sig. |
| n | n/a | 771 | 557 | | n/a | 1,072 | 640 | | 1,115 | 538 | |
| % of farmers engaging in any agricultural sales | n/a | 87.1% | 49.4% | 0.00 | n/a | n/a | 20.0% | n/a | 53.7% | 54.6% | 0.73 |
| % of farmers producing at least one non-traditional crop (excluding coffee) | n/a | 60.7% | 3.4% | 0.00 | n/a | 44.7% | 38.2% | 0.11 | 7.9% | 6.7% | 0.38 |
| % of farmers producing at least two non-traditional crops (excluding coffee) | 4% | 49.5% | 1.6% | 0.00 | n/a | 28.7% | 28.5% | 0.95 | 2.8% | 3.7% | 0.31 |
| % of farmers directly involved in FFP project activities ^a producing at least one non-traditional crop | | | | | n/a | 64.3% | 39.9% | 0.00 | | | |
| % of farmers directly involved in FFP project activities ^a producing at least two non-traditional crops | | | | | 19.8% | 46.2% | 32.6% | 0.01 | | | |
| % of farmers selling crops other than coffee (WV only) | | | | | | | | | 16.7% | 24.0% | 0.00 |
| % of farmers selling coffee (WV only) | | | | | | | | | 47.9% | 44.5% | 0.19 |

Sources: 2009 awardee endline reports, 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on two-sample z-test of proportions.

^a Direct involvement in FFP project activities was defined as participating in sector-implemented activities, such as farmer field schools, during the life of the project.

In SC areas, data on production of non-traditional crops were available for those farmers who indicated at follow-up that they were participating or had participated directly in the related sector activities of the FFP project. These farmers were equally likely to be producing one non-traditional crop and were slightly more likely to be producing two non-traditional crops than was the case for all farmers (that is, both project participants and non-participants). Project-engaged farmers were almost twice as likely to produce a non-traditional crop as were non-participants at endline (64.3 percent and 35.8 percent, respectively), but this difference fell by follow-up (39.9 percent of former project participants produced a non-traditional crop, as did 36.8 percent of non-participants).

Crop sales were particularly low in SC areas, which are especially vulnerable to climate shocks, such as drought and flooding, resulting in frequent insufficient marketable surpluses of farmers' non-traditional horticultural crops to make it profitable to access any but local markets. According to qualitative interviews in SC areas, markets were easily saturated by farmers who were largely producing the same crop for sale.

7.4.2 Collective and Individual Sales

Another goal of the FFP projects' agriculture, IGA, and NRM sector activities was to encourage farmers to join PAs to improve their incomes by undertaking marketing collectively. **Table 7.8** shows that, in ADRA areas, the percentage of farmers selling their crops individually actually rose from endline to follow-up, while the percentage of farmers using more than one mode of sale fell significantly, and the percentage selling through associations remained low.²³

Table 7.8. Percentage of Farmers Reporting Where and How Crops Were Sold at Endline and Follow-Up in ADRA Areas

| | Endline (2009) | Follow-Up (2011) | Significance |
|--|----------------|------------------|--------------|
| n | 677 | 275 | |
| How Crop Was Sold | | | |
| Individually | 83.5% | 95.6% | .001 |
| At fairs | 1.8% | 1.3% | .720 |
| Through agricultural associations | 1.0% | 2.7% | .132 |
| Using more than one modality | 12.5% | 0.4% | .000 |
| None of these methods | 1.2% | n/a | n/a |
| Where Crop Was Sold^{a,b} | | | |
| On the farm | 3.0% | 1.1% | .116 |
| Within the community | 86.4% | 54.2% | .000 |
| At a local market | 47.7% | 20.7% | .000 |
| At a regional market | 17.3% | 11.9% | .190 |
| At an agriculture fair | 3.7% | 10.2% | .000 |
| Other | n/a | 2.5% | n/a |

Source: 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on two-sample z-test of proportions.

^a Multiple answers were possible.

^b 18.2% of values missing from follow-up data.

²³ Information was collected differently in each awardee's endline evaluations; the follow-up surveys maintained the same questions so that endline and follow-up results could be compared.

The vast majority of sales in the ADRA implementation areas were made individually in the farmers' own communities at endline; this proportion increased significantly over the 2 years after the project's exit. Sales through agricultural associations increased slightly from endline to follow-up in these areas, although these sales only represented 2.7 percent of farmers' total sales in 2011. The sole example of collective farming and selling discussed in qualitative interviews at follow-up came from a group of chili farmers who had participated in ADRA's project. During the project life, ADRA organized a PA and helped it secure a contract to sell chilies to a large exporter. In 2010 (1 year post-project), the group continued to grow and sell chilies collectively, ostensibly because the contract provided them with the incentives (income) and financial resources necessary to continue farming as a group. However, in 2011, the contract was not renewed because the PA had not been able to meet its obligations. In a FGD at follow-up, one farmer mentioned (to general agreement) that the group had been poorly organized, that they were not able to produce enough chilies, and that they encountered problems transporting their products to a commercial center, a service that ADRA had provided without charge during the project life. In 2011, the former chili farmers (and several other farmers in areas served by ADRA) lamented that high costs of transportation meant that they could not afford to commercialize. Although farmers were capable of growing an array of non-traditional crops, and although a contract had been secured with an international buyer, in the case of the chili growers, the farmers had not had sufficient time to test their abilities and troubleshoot problems, such as the high cost of transport, or organize themselves as a business, because ADRA was providing free transport and other services up to the time of project exit. Other producer groups formerly supported by ADRA noted similar experiences: They had been producing, but not commercializing, independently, and had been receiving free services from the project up to the time of project exit.

Table 7.9 shows how crops were sold in SC and WV areas. The nature of SC crop sales at follow-up was similar to that of ADRA areas in that sales generally took place within communities (to neighbors) or in local markets; sales in regional markets were less common. (Recall that the percentage of farmers selling crops was low in SC areas due in part to production challenges associated with a high prevalence of climatic shocks.) Aside from the previously mentioned barriers to collective marketing—lack of production of a sufficient quality and quantity to meet the needs of PAs, cost of membership—farmers in qualitative interviews often expressed a reluctance to engage in collective marketing and a preference for marketing independently.

In WV areas, the picture is different. Sales through middlemen increased significantly from endline to follow-up, and direct marketing to the consumer (through local markets, without middleman involvement) fell, as the awardee had primarily worked to develop linkages with the international coffee market through such institutions as CIGRAH and IHCAFE.

Table 7.9. Percentage of Farmers Reporting Where and How Crops Were Sold at Endline and Follow-Up in SC and WV Areas

| | SC | | | WV | | |
|---|---------|-----------|------|---------|-----------|--------|
| | Endline | Follow-Up | Sig. | Endline | Follow-Up | Sig. |
| n | n/a | 128 | | 350 | 132 | |
| Crops sold to middlemen | n/a | 17.2% | n/a | 29.1% | 50.8% | 0.0000 |
| Crops sold to neighbors | n/a | 33.6% | n/a | 34.0% | 38.7% | 0.3454 |
| Crops sold at local market | n/a | 18.8% | n/a | 6.6% | 4.0% | 0.3025 |
| Crops sold at regional market | n/a | 9.4% | n/a | 9.1% | 1.6% | 0.0052 |
| Crops sold directly to consumer | n/a | 18.0% | n/a | 19.7% | 0.8% | 0.0000 |
| Crops sold through a cooperative | n/a | 0.0% | n/a | n/a | 0.0% | n/a |
| Other (crops sold to a family member, at a local store) | n/a | 3.1% | n/a | 1.4% | 4.0% | 0.0000 |

Source: 2009 and 2011 Agriculture, IGA, and NRM Surveys. No endline data from SC.

Significance based on two-sample z-test of proportions.

7.4.3 Small Enterprise Development

Small enterprise development, especially of businesses devoted to the transformation and processing of agricultural products for sale, was an important element of the sustainability plans of all three FFP awardees. Small enterprise development, as implemented in the FFP projects studied, provided training in processing, marketing, and management for a range of individually and group-owned businesses. For example, SC organized and trained a group of farmers to establish a pork processing business. SC also trained one farmer to produce and market homemade soap; at follow-up, this farmer was establishing a contract to sell his products in the capital. In a third, less successful example, SC supported a family business producing pickled vegetables (using their own vegetable yields, as well as those purchased from other farmers). At the time of follow-up, the pickling business was producing products and had invested in a production facility separate from the family's home kitchen, but their legal recognition had not been finalized, limiting their product sales to local agricultural fairs, because they could not obtain the needed sanitary certificate to sell to supermarkets.

WV worked with coffee growers to establish their own businesses: Two coffee growers were trained to roast and sell their own coffee, and one woman was producing coffee syrup for local sale at the time of the project's exit. WV also trained a small group of farmers to process and sell wine within the community.

ADRA also invested in small enterprise development, including an enterprise to produce and sell cookies and sweet baked goods. ADRA provided training in production of the goods, helped construct an oven, and donated the first supply of inputs. Unfortunately, the inputs arrived close to the Christmas holidays, and the women used them to bake for their families and friends. Qualitative interviews revealed that they did not have an idea of how to establish a profitable price for the goods because they had not needed to buy them initially. The combination of free inputs and a very short period of operation, along with training that appeared to focus on the technical more than the marketing and management aspects of the business, jeopardized its sustainability.

All of the awardees attempted to assist small enterprises in obtaining legal recognition so that they could engage in commercial transactions, borrow money, and, especially important for producers of food

products, obtain a sanitary certificate that allowed the products to be sold outside of local agricultural fairs. Despite these efforts starting early in the projects, most enterprises were unable to obtain legal recognition before the FFP projects ended. Obtaining legal recognition is a long, bureaucratic process, and small enterprises need to be well established before they can apply for it. The family-run pickled vegetable business cited above demonstrates this challenge: They had invested in constructing a production facility separate from their kitchen in order to meet sanitary standards, and, in 2010, they applied for legal recognition, which they received 1 year later. However, they were told that recognition would not become official until it was published in the government “Gazette,” which still had not happened at the time of the follow-up survey several months later. Given this extended timeline, the barriers to obtaining legal recognition within the project life are very high.

Qualitative interviews at follow-up revealed one particularly successful small business: a group of women who processed dairy products, which was formed during WV’s project and continued to expand beyond their community and adapt to these additional markets. WV helped organize the group to process milk into cheese products, provided them with business and technical training, and helped the group obtain legal recognition and sanitary registration. As of 2011, the group was processing various cheeses and dairy products and had increased production from 30 liters of milk per day in 2006 to 400–600 liters per day in 2011. They had contracts to buy milk locally, as well as contracts to sell their products to various hotels and restaurants in Copan Ruinas, a popular tourist destination. They also had access to credit through a rural bank and were making plans to purchase their own vehicle so that they could further expand their sales. In addition to having resources, technical and management training, motivation, and market linkages, the dairy processing group benefited because it received support from a wide range of stakeholders throughout its formation. Some of this support was intentional in that WV facilitated linkages between the dairy business and community groups. Other forms of support, such as securing sales to additional restaurants, was not part of WV’s sustainability plan. WV helped with their initial organization and training, but the women also received continued training from other organizations, including the government’s National Institute for Professional Training. The municipality helped with purchasing land for their business, and another project trained the farmers from whom the women bought milk on how to manage their herds. The group also had a substantial period of independent operation before WV withdrew.

Only SC measured the percentage of farmers engaged in product transformation both for sale and for home consumption at endline. The percentage of farmers processing food for sale rose significantly from endline to follow-up, but only from about 5 percent to 10 percent, while the percent processing food for their own home consumption rose significantly, from about 30 percent to 90 percent, demonstrating that technical capacity was not the barrier to commercialization of processed products.

The strategy of organizing communities into small enterprises for road construction did not appear to take hold in most of the communities visited during the qualitative survey. While many municipalities did undertake road maintenance and improvement projects, the municipal governments generally hired workers directly, not perceiving any benefit to making a contract with a small business for work that they were used to contracting with the workers themselves.

7.4.4 Agriculture and Natural Resource Management Practices

All the awardees worked to teach farmers agricultural practices that would increase their productivity through soil improvements, improved cultivation practices, and use of inputs, with the expectation that farmers would have access to needed resources from increased sales, retain their technical capacity through regular application of learned practices, and be motivated by increased production to continue to use these practices.

Each awardee taught different specific practices and assessed their use in their final evaluations. **Table 7.10**, **Table 7.11**, and **Table 7.12** show in detail for each awardee the degree to which individual agricultural practices were sustained over the 2 years after each project's exit. The study team also constructed a composite variable on whether farmers were implementing at least 20 percent of the practices explicitly promoted during the projects (based on farmers' self-report of the use of each promoted practice) to make comparisons across awardees. This variable is also shown in each of the aforementioned tables.

There was a steep and significant decline in the reported use of all of the practices that were promoted in ADRA project areas (Table 7.10). At endline, 96.1 percent of farmers reported using 20 percent of the recommended practices and, at follow-up, only 9.4 percent did. Those practices requiring little financial investment, such as crop rotation, use of compost as fertilizer, integrated pest management, and planting of live and dead barriers (for flood control), were no more likely to be sustained than costlier practices, such as installation of greenhouses and micro-tunnels, use of certified seed, irrigation, and the construction of stone walls. The best maintained practices were reforestation, reported by almost a quarter of the farmers at follow-up, enclosures, reported by 23%, and live barriers, reported by almost 16 percent of farmers. Even interventions with a direct impact on productivity, such as reduction of post-harvest losses and the use of organic fertilizer, were not well sustained after exit.

Table 7.10. Sustainability of Agricultural and NRM Practices in ADRA Areas from Endline to Follow-Up

| | Endline | Follow-Up |
|--|---------|-----------|
| n | 771 | 557 |
| % of all farmers using at least 20% of ALL promoted agroforestry practices | 96.1% | 9.4% |
| Recuperation of soil fertility through application of organic fertilizer | 65.4% | 2.0% |
| Protection and conservation of water sources | 85.0% | 2.0% |
| Use of agroforestry | 56.0% | 6.1% |
| Use of crop diversification | 44.4% | 7.7% |
| Use of crop rotation | 40.5% | 3.8% |
| Use of integrated pest management | 30.9% | 7.4% |
| Use of irrigation | 32.3% | 3.4% |
| Use of greenhouses/micro-tunnels | 37.2% | 6.1% |
| Reduction of post-harvest losses | 21.5% | 0.9% |
| Use of commercialization standards for production | 7.0% | 1.4% |
| Use of certified seeds | 40.1% | 0.9% |
| Safe application of pesticides | 44.5% | 2.7% |
| Use of compost for soil fertility | 31.7% | 3.9% |
| Use of organic pesticides | 14.4% | 8.9% |
| Use of dikes | 8.2% | 0.9% |
| Use of banked terraces | 30.5% | 2.0% |
| Use of hillside ditches | 37.2% | 2.7% |
| Use of dead barriers | 38.0% | 6.3% |
| Use of stone walls | 82.9% | 4.2% |

| | Endline | Follow-Up |
|---|---------|-----------|
| n | 771 | 557 |
| Use of live barriers (for erosion prevention) | 67.6% | 15.7% |
| Use of live fences (for enclosure) | 69.3% | 9.6% |
| Use of seed collection | 41.9% | 6.7% |
| Use of pine tree nurseries | 72.4% | 10.5% |
| Reforestation | 80.4% | 24.1% |
| Use of enclosures | 89.0% | 23.0% |

Source: 2009 and 2011 Agriculture, IGA, and NRM Surveys.
Changes in all practices were statistically significant at $p < .001$.
Significance based on two-sample z-test of proportions.
ADRA follow-up: 0.9% of values missing.

Most project-promoted agricultural practices also declined from endline to follow-up in SC areas. However, more than half of farmers (57.0%) were still using 20 percent of recommended practices at follow-up (a decline from 78.7 percent at endline, but still an improvement over the baseline percentage of 31.1 percent; Table 7.11), and a number of individual practices were maintained. As with ADRA, there was no obvious pattern to explain which practices were maintained. Financial and labor costs associated with various practices did not seem to provide a systematic explanation. Because the SC area was affected by both drought and severe flooding in 2010–2011, the motivation to implement practices related to flood control, such as live barriers, terracing, and the construction of rock walls to impede water flow, would have been high, and, indeed, a substantial percentage of farmers reported using these practices, though fewer farmers reported using them more than at the time of exit, when these practices were being actively promoted. The practice of “not burning” field residues (burning field residues is a common but prohibited practice in Honduras) was reported at close to 75 percent at endline but, despite a significant decline, was still maintained by more than 60 percent of farmers 2 years later.²⁴ This may be due to the convergence of several factors: some level of government enforcement; the fact that *not* burning crop residues is cost-free; and the fact that over only a few crop cycles, productivity benefits should be experienced if crop residues are left on fields.

Table 7.11. Sustainability of Agriculture and NRM Practices in SC Areas at Baseline (Where Available), Endline, and Follow-Up

| | Baseline | Endline | Follow-Up | Sig. |
|--|----------|---------|-----------|------|
| n | n/a | 905 | 581 | |
| % of farmers using at least 20% of ALL promoted agroforestry practices | 31.1% | 78.7% | 57.0% | .000 |
| Practices to improve soil fertility | | | | |
| Crop rotation | n/a | 24.1% | 10.8% | .000 |
| Use of chemical fertilizer | n/a | 49.7% | 34.8% | .000 |
| Incorporation of crop residues | n/a | 36.5% | 15.8% | .000 |
| Not burning crop residues | n/a | 83.5% | 56.5% | .000 |
| Use of organic fertilizer | n/a | 16.7% | 15.7% | .750 |

²⁴ Note that “not burning” was asked twice: in the context of conserving soil fertility and again in the context of conserving natural resources. The numbers were slightly different, but the trend was the same in both cases.

| | Baseline | Endline | Follow-Up | Sig. |
|---|----------|---------|-----------|-------|
| n | n/a | 905 | 581 | |
| Other ^a | n/a | 0.3% | 3.4% | .000 |
| Practices to conserve soil | | | | |
| Use of live barriers | n/a | 31.4% | 21.0% | 0.002 |
| Use of low/no tillage | n/a | 42.2% | 10.8% | 0.000 |
| Use of windbreaks | n/a | 7.4% | 2.6% | 0.002 |
| Construction of physical infrastructure (stone walls, ditches for water conservation, terraces) | n/a | 46.5% | 34.4% | 0.001 |
| Use of seed spacing | n/a | 50.4% | 14.5% | 0.000 |
| Use of gully control | n/a | 6.4% | 3.3% | 0.028 |
| Other ^b | n/a | 0.0% | 2.6% | 0.000 |
| Practices to conserve soil water | | | | |
| Use of hillside irrigation channels | n/a | 9.5% | 7.1% | 0.179 |
| Application of green manure | n/a | 18.8% | 9.5% | 0.000 |
| Management of crop residues | n/a | 41.2% | 31.8% | 0.015 |
| Tree planting with crops | n/a | 22.1% | 6.0% | 0.000 |
| Use of cover crops | n/a | 26.1% | 1.7% | 0.000 |
| Other ^c | n/a | 3.1% | 8.1% | 0.032 |
| Practices to conserve natural resources | | | | |
| Not burning crop residues | n/a | 73.9% | 64.0% | 0.009 |
| Use of live enclosures | n/a | 20.9% | 13.8% | 0.010 |
| Construction of firebreaks | n/a | 11.8% | 10.3% | 0.476 |
| Construction of fencing around water sources | n/a | 4.7% | 5.2% | 0.750 |
| Use of reforestation | n/a | 18.1% | 12.4% | 0.004 |
| Not cutting down trees | n/a | 31.1% | 6.9% | 0.000 |
| Allowing natural regeneration | n/a | 4.7% | 2.8% | 0.049 |
| Other ^d | n/a | 0.4% | 1.4% | 0.135 |

Sources: 2009 awardee endline reports, 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on z-test of proportions.

^a Other soil improvement practices reported in 2011 included: establishing barriers around parcels, clearing ground, cutting crop residues, planting grass, using herbicides or fertilizers, burning residues, and practicing tillage and irrigation.

^b Other soil conservation practices reported in 2009 included: using cover crops, covering soil with straw or maize residue, and using drip irrigation. Those reported in 2011 included: draining ditches, leaving land fallow, digging pits for leaf composting, and using irrigation.

^c Other soil water conservation practices reported in 2009 included building dead barriers and walls (including rock walls). Those reported in 2011 included applying chemical and organic fertilizer, clearing ground, cultivating tree crops, practicing minimal tillage, and planting for shade.

^d Other natural resource conservation practices reported in 2009 included spreading cow dung. Those reported in 2011 included cleaning crop residues, aerating the soil, and applying fertilizer.

As was the case with the other awardees, Table 7.12 shows that the use of almost all agricultural and NRM practices declined significantly between endline and follow-up in WV areas. Although the use of at least 20 percent of the practices taught fell at follow-up to under 50 percent (from 82.5 percent at exit) in WV areas, this was still considerably higher than the extent to which these practices were employed when the project started in 2005. A number of practices were still used by a substantial number of farmers, despite significant declines from endline. Practices that persisted included those related to flood control (e.g., live erosion barriers) and a number of productivity-enhancing practices, such as multicropping, seed selection, and planting at an appropriate distance. The management of crop residues was well maintained, and the practice of not burning these residues showed a significant improvement.

Table 7.12. Sustainability of Agricultural and NRM Practices in WV Areas at Baseline (Where Available), Endline, and Follow-Up

| | Baseline | Endline | Follow-Up | Sig. |
|---|----------|---------|-----------|-------|
| n | n/a | 1,115 | 538 | |
| % of farmers practicing at least 20% of ALL promoted agroforestry practices | 17% | 82.5% | 47.2% | 0.000 |
| Management of post-harvest clippings | n/a | 60.0% | 58.2% | 0.480 |
| Use of live barriers | n/a | 45.7% | 28.3% | 0.000 |
| Use of dead barriers | n/a | 30.9% | 11.2% | 0.000 |
| Use of seed selection | n/a | 82.9% | 55.6% | 0.000 |
| Application of recommended seed sowing distances | n/a | 79.1% | 28.4% | 0.000 |
| Use of contour farming | n/a | 39.2% | 10.0% | 0.000 |
| Not burning crop residues | n/a | 26.6% | 76.6% | 0.000 |
| Construction of irrigation channels | n/a | 17.7% | 8.4% | 0.000 |
| Use of terraces | n/a | 11.7% | 7.1% | 0.041 |
| Use of irrigation | n/a | 11.3% | 6.7% | 0.003 |
| Planting several crops simultaneously on the same parcel | n/a | 36.6% | 16.0% | 0.000 |
| Use of any integrated pest management practice | n/a | 26.6% | 7.8% | 0.000 |
| Use of organic fertilizer | n/a | 15.3% | 7.6% | 0.000 |
| Use of green fertilizer/cover crop | n/a | 5.9% | 2.8% | 0.006 |
| Use of soil analysis | n/a | 4.6% | 1.1% | 0.000 |
| Use of vermiculture | n/a | 5.7% | 2.0% | 0.001 |
| Construction of live fences | n/a | 36.7% | 18.0% | 0.000 |
| Use of row cropping | n/a | 23.5% | 2.4% | 0.000 |
| Use of shade growing | n/a | 49.3% | 29.0% | 0.000 |
| Other agroforestry practices | n/a | 33.4% | 24.0% | 0.000 |
| Other (use of minimal tilling, firebreak enclosures) | n/a | 0.7% | 3.2% | 0.000 |

Sources: 2009 awardee endline reports, 2009 and 2011 Agriculture, IGA, and NRM Surveys. Significance based on two-sample z-test of proportions.

It is not surprising that most practices declined to some degree in all awardees' project areas when they were no longer being actively promoted. ADRA areas had a relatively higher proportion of participating farmers who were renters as opposed to landowners, but ADRA's process of exit was also different from that of the other awardees—it was less gradual. In qualitative interviews in both SC and WV areas, farmers reported that the importance of not burning crop residues was reinforced by UMAs and by environmentally-focused NGOs, while farmers in ADRA areas mentioned no such continued reinforcement.

Farmers did recognize the value of the practices that they were taught. In FGDs and qualitative interviews, many farmers reported that they now used better land management practices than they had before the projects and were able to explain some of the practices that they had been taught. Those who served as model farmers, who were already landowners and leaders in their communities, said that they continued to apply the practices that they learned and cited increased yields, improved dietary diversity, greater food security, and the opportunity to invest in their children's education and in improved housing as benefits. Those who were not model farmers were generally more resource-poor, with less ability to produce sufficient surplus to benefit beyond local markets.

7.4.5 Sustained Practices: Animal Husbandry (SC)

In addition to promoting improved crop production practices, SC promoted improved animal husbandry, including use of vaccinations, engaging in deparasitization, providing vitamins, and introducing genetically improved species. Farmers who reported using any one of these practices on their animals (excluding bees and fish) were defined as engaging in improved or intensified animal systems. The percentage of farmers with animals in SC areas using such practices declined significantly between exit and follow-up, as did the percentage of all households owning animals. At the time of exit, 28 percent of households owning animals were using intensified animal production systems; 2 years later, the percentage of households using these systems had declined to or below baseline levels. **Table 7.13** shows the use of animal husbandry practices and overall animal ownership. These results indicate that the inputs needed for intensive animal production, many of which must be purchased, were no longer being used 2 years after the project ended, though it was unclear whether this was because households could not afford the cost of these inputs, because the households no longer owned the animals, or because of some other reason.

Table 7.13. Household Ownership and Management of Small Animals in SC Areas at Baseline (Where Available), Endline, and Follow-Up

| | Baseline | Endline | Follow-Up | Sig. |
|---|----------|---------|-----------|-------|
| Animal Production Practices | | | | |
| n | n/a | 1,072 | 640 | |
| % of households with small animals (poultry, goats, pigs, bees, or fish) | n/a | 88.4% | 76.4% | 0.000 |
| n | n/a | 948 | 489 | |
| % of project households with animals and using intensified or diversified animal production systems | 19.1% | 28.4% | 14.5% | 0.000 |
| Of those project households, owning each type of animal | | | | |
| Chickens | n/a | 97.7% | 97.8% | 0.925 |
| Ducks | n/a | 12.5% | 6.5% | 0.001 |
| Turkeys | n/a | 5.0% | 2.3% | 0.040 |
| Pigs | n/a | 33.4% | 20.7% | 0.002 |
| Goats | n/a | 4.1% | 1.0% | 0.002 |
| Fish | n/a | 3.4% | 1.2% | 0.044 |
| Bees | n/a | 1.5% | 0.4% | 0.034 |
| Other | n/a | 0.2% | 0.0% | 0.319 |

Sources: 2009 awardee endline reports, 2009 and 2011 Agriculture, IGA, and NRM Surveys.
Significance based on two-sample z-test of proportions.

7.4.6 Sustained Agricultural Practices: Role of Landownership and Training

As previously mentioned, farmers who cultivated land that did not belong to them were less likely to adopt project-promoted agricultural practices. The study team hypothesized that a barrier to sustainability of these agricultural practices was that farmers who borrowed or rented land may have had a lower motivation to invest in land improvement or maintenance. The data confirmed that, in SC and WV areas, sustainability of practices was greater among owners than non-owners (defined as those who rented, borrowed, or sharecropped), though there were declines in both groups. **Table 7.14** shows the comparison of owner and non-owner use of at least 20 percent of project-promoted practices (those who cultivated on both owned and not-owned land were excluded from the table). The use of project-promoted practices declined significantly between endline and follow-up for both landowners and non-owners, but, in SC areas, owners were more likely to implement these practices than renters in both time periods. Use of these practices declined for both groups in WV areas as well, but by 2 years after the project's exit, owners were more likely to remain engaged in promoted agricultural and NRM practices. The steep decline in the use of practices in ADRA areas was comparable for owners and non-owners, though some individual practices were sustained more by landowners.

Table 7.14 also compares those who received training during the life of the project with those who did not. In all the awardee areas, farmers trained by the project were significantly more likely to implement promoted agricultural practices 2 years after exit than those who did not receive this training.

Table 7.14. Sustainability of Agricultural Practices by Landownership and Training Received, by Awardee

| | ADRA ^a | | | SC | | | | WV | | | |
|---|-------------------|-----------|------|-----------|----------|-----------|------|-----------|----------|-----------|------|
| | End-line | Follow-Up | Sig. | Base-line | End-line | Follow-Up | Sig. | Base-line | End-line | Follow-Up | Sig. |
| % of all farmers using at least 20% of project-promoted practices | 96.1% | 9.4% | .00 | 31.1% | 78.6% | 57.0% | .00 | 17% | 82.5% | 47.2% | .00 |
| n | 771 | 557 | | | 905 | 581 | | | 1,115 | 538 | |
| % of farmers who owned land | 96.2% | 10.4% | .00 | n/a | 86.0% | 60.9% | .00 | n/a | 90.8% | 56.6% | .00 |
| n (owning) | 289 | 192 | | | 321 | 225 | | | 425 | 235 | |
| % of farmers who did not own land | 96.1% | 7.3% | .00 | n/a | 69.8% | 52.4% | .00 | n/a | 90.5% | 35.1% | .00 |
| n (not owning) | 482 | 300 | | | 464 | 319 | | | 283 | 225 | |
| P (own v. not own) | 0.944 | 0.229 | | n/a | 0 | 0.049 | | | 0.893 | 0.000 | |
| % of trained farmers | 98.7% | 20.7% | .00 | n/a | n/a | 74.5% | n/a | n/a | n/a | 63.5% | n/a |
| n (trained) | 697 | 58 | | | | 94 | | | | 52 | |
| % of untrained farmers | 71.6% | 8.0% | .00 | n/a | n/a | 52.4% | n/a | n/a | n/a | 45.5% | n/a |
| n (untrained) | 74 | 499 | | | | 546 | | | | 486 | |
| P (trained v. untrained) | 0.000 | 0.002 | | | | 0.012 | n/a | | | 0.014 | |

Sources: 2009 awardee endline reports, 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on two-sample z-test of proportions.

^a ADRA follow-up: 0.9% of values missing.

7.5 Sustainability of Agriculture, Income-Generating Activity, and Natural Resource Management Impacts

Four impact indicators were considered for the agriculture, IGA, and NRM sector components of the studied FFP development projects in Honduras: 1) improved income from agricultural sources; 2) improved yield of staple and non-traditional crops; 3) improved quality of the diet, as indicated by reported household dietary diversity (the number of different food groups consumed in the day prior to the survey); and 4) improved household food security, as measured by reported months of adequate household provisioning.

7.5.1 Income

Agricultural income earned by farm households at endline and follow-up is shown in **Table 7.15**. The sustainability of agricultural income between 2009 and 2011 was determined by two factors: the percentage of farmers who continued to engage in agricultural sales and the value of their sales. In ADRA areas, farmers' incomes fell significantly between endline and follow-up, mostly due to the decline in the number of farmers who engaged in any agricultural sales, from 87.1 percent to 49.4 percent. This decline coincided with the withdrawal of ADRA's marketing assistance. However, median agricultural income from those farmers who did sell crops also fell significantly. The (truncated) mean income of these farmers, though, was unchanged over these 2 years, suggesting that there were still farmers at the upper end of the distribution who are capturing large incomes from their sales. ADRA areas experienced flooding in 2011, which affected production in the follow-up time frame.

SC areas were also subject to climate shocks and experienced both drought and flooding in the period between endline and follow-up. Although SC did not include any information on agricultural or livestock sales in their endline, at the time of the follow-up survey, only 20 percent of farmers reported selling any crops at all. The (α -truncated) mean income earned from agricultural sales from all farmers in SC's former target areas was US\$15.78. Among those who did sell, median income was US\$61.60 and the truncated mean was US\$183.00. The area that SC served is drought-prone, affected by floods, and generally poorly suited to agriculture. As such, while virtually all farmers grow crops in these areas, they typically produce for subsistence. Few produce enough for commercialization. However, among the SC respondents, 85 percent cited agriculture as their main source of employment, complemented by high levels of migration to cities and abroad due to the limited possibilities for earning a livelihood in the ecologically challenged region SC targeted.

In WV areas, the project promoted non-traditional crops and improved production practices, but also worked with coffee farmers to improve production and commercialization of this crop. At the time of the WV project's exit, about 54 percent of farmers were engaged in agricultural sales, and this level of engagement was maintained 2 years later. As noted earlier, the percentage of farmers selling coffee was maintained and the percentage of farmers selling other crops rose between endline and follow-up. Table 7.15 shows income from agricultural sales for these different awardee groups.

Table 7.15. Median and Mean Annual Income (in US Dollars) from Agricultural Sales from Endline to Follow-Up, by Awardee^{a,b}

| | ADRA | | | SC | | | WV | | |
|---|----------|-----------|-------|----------|-----------|------|----------|-----------|-------|
| | End-line | Follow-Up | Sig. | End-line | Follow-Up | Sig. | End-line | Follow-Up | Sig. |
| n | 771 | 557 | | n/a | 640 | | 1,115 | 538 | |
| Median ^c income from agricultural sales (all farmers) | 519.2 | 0.0 | 0.000 | n/a | 0.0 | n/a | 52.8 | 43.7 | 0.369 |
| Mean (α -truncated ^c) income from agricultural sales (all farmers) | 720.0 | 358.0 | 0.000 | n/a | 15.8 | n/a | 520.7 | 889.0 | 0.000 |
| % of all farmers engaging in any agricultural sales | 87.1 % | 49.4% | 0.000 | n/a | 20.0% | n/a | 53.7% | 54.6% | 0.730 |
| n | 672 | 275 | | n/a | 128 | | 599 | 294 | |
| Median income from any agricultural sales (farmers who had any sales) | 625.0 | 381.6 | 0.008 | n/a | 61.6 | n/a | 558.5 | 620.8 | 0.168 |
| Mean (α -truncated) income from agricultural sales (farmers who had any sales) | 837.6 | 854.9 | 0.885 | n/a | 183.1 | n/a | 1,146 | 2,136.8 | 0.000 |
| n | | | | | | | 1,115 | 538 | |
| Median income from agricultural sales of crops other than coffee (farmers who had any sales) | | | | | | | 111.5 | 180.2 | 0.000 |
| Mean (α -truncated) income from agricultural sales of crops other than coffee (farmers who had any sales) | | | | | | | 208 | 825.1 | 0.000 |
| n | | | | | | | 187 | 128 | |
| % of farmers selling crops other than coffee | | | | | | | 16.7% | 24.0% | 0.000 |
| % of all farmers selling coffee | | | | | | | 47.9% | 44.5% | 0.197 |
| n | | | | | | | 503 | 238 | |
| Median income from sale of coffee (farmers who had any sales) | | | | | | | 703.9 | 845.4 | 0.063 |
| Mean (α -truncated) income from sale of coffee (farmers who had any sales) | | | | | | | 1,293.3 | 2,054.1 | 0.000 |

Source: 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Comparison of proportions by two-sample z-test of proportions; mean comparison by independent samples t-test; median comparison by Wilcoxon rank-sum test.

^a All 2009 figures are adjusted for inflation to their equivalent in 2011 US dollars. Income was reported for the previous full year (both seasons).

^b Only WV had information on coffee sales.

^c Median and α -truncated mean measures were used to correct for the extreme rightward skew of the distribution of income.

The median income of all farmers in WV areas was maintained (although it fell slightly), but the truncated mean income rose significantly from endline to follow-up. This increase was primarily driven by a large and significant increase in income from coffee sales among those who sold coffee, as shown in the lower portion of Table 7.15. Note, however, that incomes for 2011 were calculated based on producer prices for the 2010–2011 crop year, which was a particularly good year for coffee prices. By the 2012–2013 crop year, prices had dropped to about 60 percent of their level at the time of WV’s exit.

Coffee farmers were not only linked to the export market but also given the means to improve the value of their crops through certification of high-value qualities, such as organic, shade-grown, and premium taste (“cup of excellence”). Nonetheless, as international prices fell, it is likely that these premium prices fell as well, demonstrating the benefit and the risk of linking to an international market affected by global economic forces. Those farmers who appeared to be most resilient to international market price fluctuations were those who sold both coffee and other crops, suggesting that diversification of income sources reduced the risks associated with any one market.

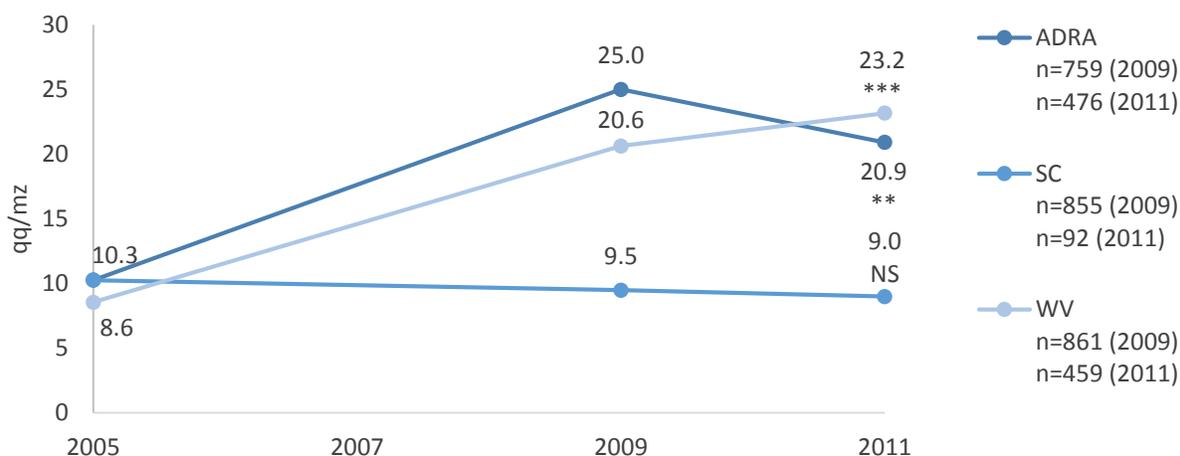
7.5.2 Crop Yields

Staple crop yields are shown in **Figure 7.7**, **Figure 7.8**, and **Figure 7.9**. In ADRA areas, with the provision of training in improved production techniques, farmers saw notable increases in yields of staples (e.g., maize and beans) between baseline and endline. Once this training was withdrawn, however, yields of maize, a crop primarily grown for subsistence and not sale, fell significantly. In the case of beans, the yield increases achieved between the project baseline and endline were also not sustained in the 2 years following the project close. In SC areas, neither maize nor beans saw an increase in yield over the life of the project, and yields stayed the same or declined to below baseline levels at follow-up. SC areas experienced a severe drought followed by flooding in 2010–2011, although these areas face climatological challenges in many years, demonstrating the importance of building resilience in these settings.

WV’s final evaluation report noted that 2004 (the crop year reported in its 2005 baseline) had been a particularly good year for crop production and that 2008 (the year reported in the endline evaluation) had been particularly unfavorable. This helps explain the drop in bean yield over the life of that project. However, these factors appeared not to affect maize yields, which increased significantly between baseline and endline. Yields of both maize and beans were higher at follow-up than at endline.

The endline and follow-up surveys in ADRA’s implementation regions also measured yields of broccoli, green peppers, and tomatoes. At endline, 114 farmers grew broccoli, 296 grew peppers, and 227 grew tomatoes, out of a sample of 771 farmers. At follow-up, out of 557 farmers surveyed, only 1 grew broccoli (with significantly reduced yields), 6 grew peppers, and 4 grew tomatoes. Once the ADRA project had closed, ADRA no longer provided free or low-cost service centers, market information, or transportation to markets for these perishable crops, and farmers appeared unable and/or unwilling to seek out alternatives.

Figure 7.7. Maize Yields at Baseline, Endline, and Follow-Up, by Awardee^{a,b}



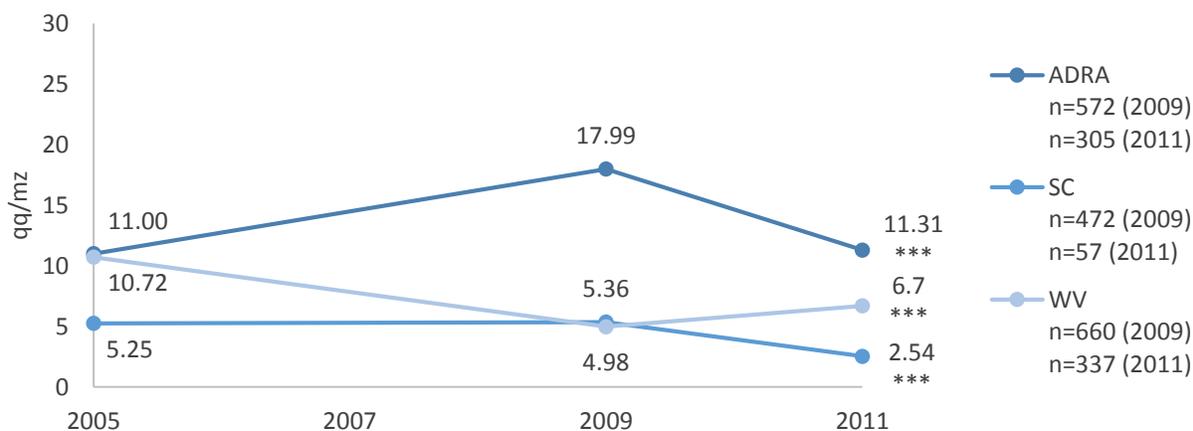
Sources: 2009 awardee endline reports, 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on independent samples t-test; NS=not significant, ** p<0.01, *** p<0.001.

^a To correct for the skewed distribution, yields were truncated at the upper end of the distribution at three times the interquartile range above the third quartile.

^b n of cases not available for 2005.

Figure 7.8. Bean Yields at Baseline, Endline, and Follow-Up, by Awardee^{a,b}

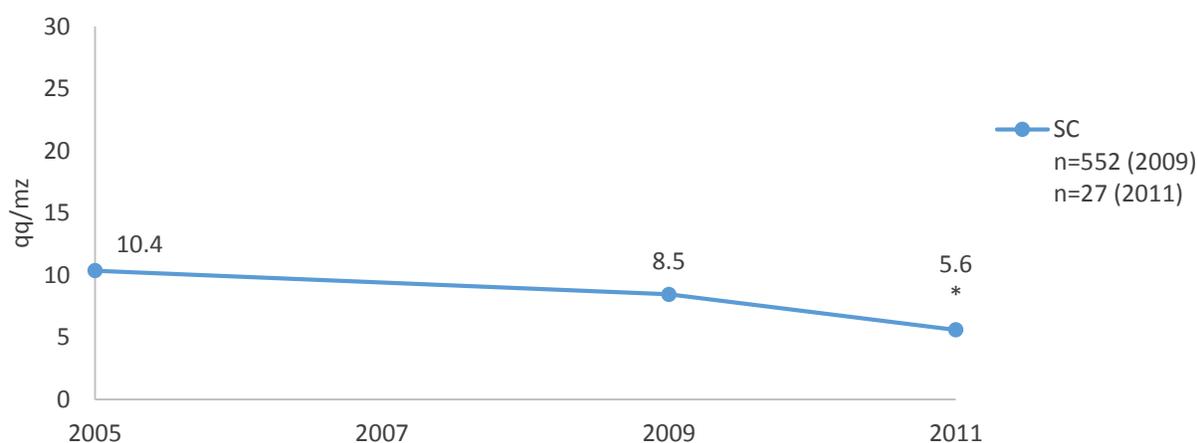


Sources: 2009 awardee endline reports, 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on independent samples t-test; *** p<0.001.

^a To correct for the skewed distribution, yields were truncated at the upper end of the distribution at three times the interquartile range above the third quartile.

^b n of cases not available for 2005.

Figure 7.9. Sorghum Yields in SC Areas at Baseline, Endline, and Follow-Up^{a,b}

Sources: 2009 awardee endline report, 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on independent samples t-test; * $p < 0.05$.

^a To correct for the skewed distribution, yields were truncated at the upper end of the distribution at three times the interquartile range above the third quartile.

^b n of cases not available for 2005.

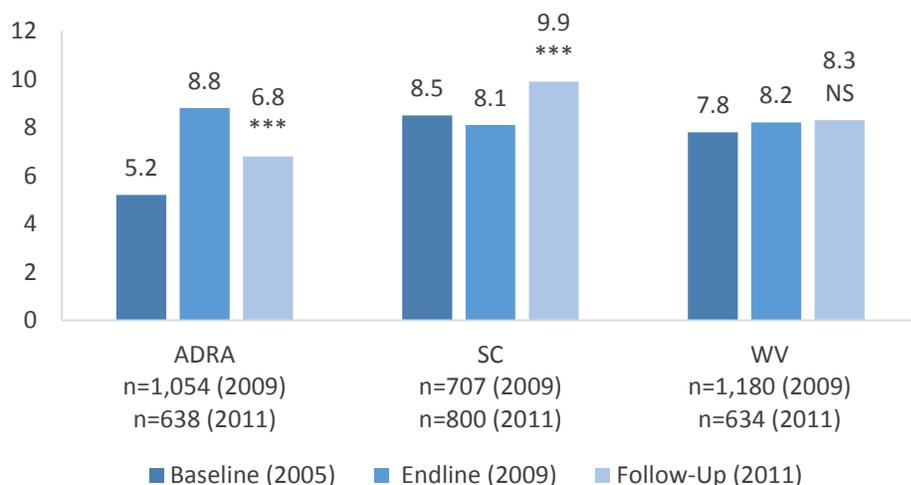
7.5.3 Household Dietary Diversity

Household dietary diversity is an indicator of food security and was measured as the number of food groups (out of 12) from which foods were consumed²⁵ in the household in the past 24 hours, with a diversified diet defined as having consumed food from seven or more food groups.²⁶ Dietary diversity was to be achieved through improved household food production and sale and through the promotion of home gardens (discussed in Section 5). Both SC and WV implemented home garden interventions to contribute to the dietary diversity and dietary quality of their beneficiaries' households. **Figure 7.10** shows the average number of food groups consumed, and **Figure 7.11** shows the percent of households achieving a dietary diversity of at least seven food groups. These tables show that household dietary diversity increased significantly from baseline to endline and from endline to follow-up in both SC and WV areas. These two awardees promoted home gardens specifically as a health strategy, along with their agriculture and livestock interventions, and WV worked to integrate agriculture with health interventions so that household production would permit improvements in households' diets, as recommended by health workers. In ADRA areas, the percentage of households with a diverse diet declined from endline to follow-up.

²⁵ The food groups were: cereals; legumes and nuts; milk and milk products; meat; fish and seafood; eggs; leafy green and vitamin A-rich vegetables; other vegetables; vitamin A-rich fruits; other fruits; roots, tubers, and musaceae; and fats and oils.

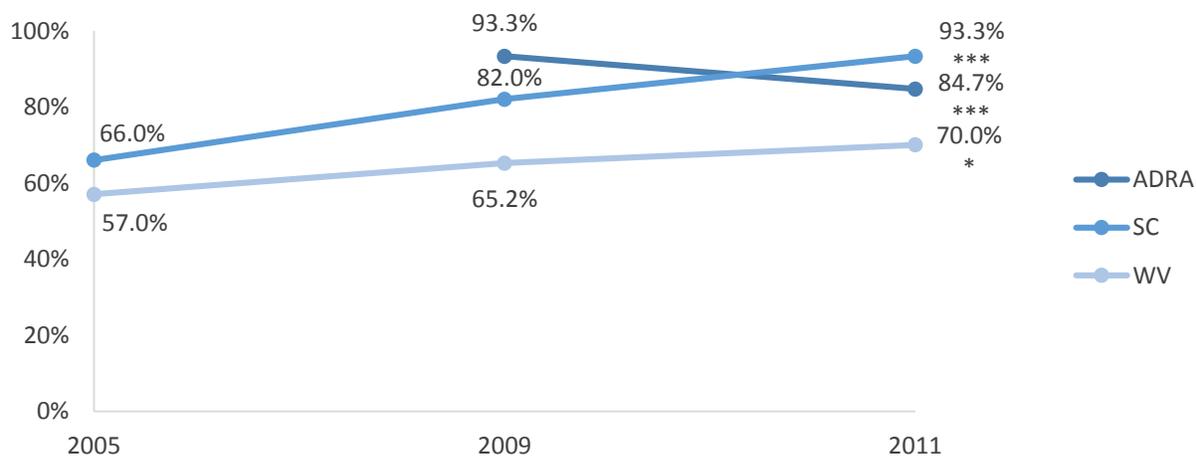
²⁶ This cut-off was used by SC and WV as their impact indicator. ADRA used a cut-off of eight food groups. The study team recalculated ADRA's results using a cut-off of seven to make the indicators comparable. This cut-off is different from the standard recommended by FANTA. The FANTA Indicator Guide for Household Dietary Diversity Score recommends setting targets for dietary diversity based on observed consumption patterns in the population (Swindale and Bilinsky 2006). In their endline evaluation reports, the awardees provide no explanation of the target set for adequate dietary diversity.

Figure 7.10. Average Household Dietary Diversity at Baseline, Endline, and Follow-Up, by Awardee



Sources: 2009 awardee endline reports, 2009 and 2011 Agriculture, IGA, and NRM Surveys.
 Significance based on independent samples t-test; NS=not significant, *** p<0.001.
 SC endline: 0.8% of values missing.
 SC follow-up: 2.1% of values missing.
 n of cases not available for ADRA, SC, and WV in 2005.

Figure 7.11. Percentage of Households Reporting Consuming Food from Seven or More Food Groups in the Previous 24 Hours at Baseline (Where Available), Endline, and Follow-Up, by Awardee



Sources: Awardee endline reports, 2009 and 2011 Agriculture, IGA, and NRM Surveys
 Significance based on independent samples t-test; * p<0.05, *** p<0.001.
 ADRA: Percentage of families with diversified diet (≥ seven food groups); p<0.01.
 SC: Percentage of families with diversified diet (≥ seven food groups); p<0.01.
 WV: Percentage of families with diversified diet (≥ seven food groups); p<0.05.

Figure 7.10 shows the change in the average number of food groups consumed in the household in the day before the survey. Once again, the level of dietary diversity by this measure increased or was maintained in SC and WV implementation areas. ADRA areas showed a significant decline in the number of food groups consumed between endline and follow-up.

The generally positive picture of sustainability of improvements in dietary diversity is noteworthy, especially because agricultural incomes declined in both ADRA and SC areas. We have no information about income from non-agricultural sources, but the increase in migration between endline and follow-up (due to climate challenges and, according to some qualitative discussions and interviews, the unstable political situation and increased levels of violent crime), especially in SC areas, resulted in remittances that would give households an alternative source of cash income. SC and WV areas promoted home gardens explicitly with the purpose of adding vitamin A-rich fruits and vegetables to the diet (these were defined as separate food groups from “other” fruits and vegetables). Although household dietary diversity was intended as an indicator of economic status, it was promoted by the CHWs as a measure to improve dietary quality by adding fruits, vegetables, and animal-source foods to the staple diet.

7.5.4 Household Food Security

Household food security was measured in terms of the number of months that households reported having adequate food, whether from their own production or from purchase. All three projects showed an increase in average months of adequate household food provisioning over the life of their activities, and both ADRA and SC showed continued significant improvement after the end of the project (data were missing for WV implementation areas) (**Table 7.16**). Both ADRA and SC also showed significant increases in the percentage of households reporting 12 months of adequate household food provisioning after these projects’ exit. WV areas started from a higher level at baseline and were close to 12 months of adequate household food provisioning at the time of their respective exits.

Table 7.16. Reported Months of Adequate Household Food Provisioning at Baseline, Endline, and Follow-Up, by Awardee

| | ADRA | | | | SC | | | | WV | | | |
|--|-----------|----------|-----------|-------|-----------|----------|-----------|------|-----------|----------|-----------|------|
| | Base-line | End-line | Follow-Up | Sig. | Base-line | End-line | Follow-Up | Sig. | Base-line | End-line | Follow-Up | Sig. |
| n | n/a | 771 | 557 | | n/a | 1,072 | 640 | | n/a | 1,115 | n/a | |
| Average months of adequate household food provisioning | 5.30 | 10.48 | 11.08 | 0.14 | 7.40 | 8.33 | 10.96 | 0.00 | 9.90 | 11.95 | n/a | n/a |
| Percent of households with 12 months of adequate food provisioning | n/a | 63.81 | 80.58 | 0.048 | n/a | 55.78 | 85.16 | 0.00 | n/a | 81.32 | n/a | n/a |

Sources: 2009 awardee endline reports, 2009 and 2011 Agriculture, IGA, and NRM Surveys.

Significance based on independent samples t-test.

ADRA follow-up: 1.0% of values missing.

SC endline: 0.8% of values missing.

SC follow-up: 2.1% of values missing.

7.6 Agriculture, Income-Generating Activity, and Natural Resource Management Sector Sustainability: Lessons Learned

7.6.1 Exit Process

The importance of gradual exit, with a period of independent operation, was again demonstrated in these sector results. At the time of exit, projects in ADRA's implementation areas showed many indicators of success. The ADRA exit strategy was implemented fairly rapidly, over a period of about 4 months, and depended on transferring substantial new responsibilities to the FODECOs that the project had established, which proved to be unsustainable. By 2 years after exit, the percentage of farmers engaged in agricultural sales had fallen by half, agricultural incomes had also fallen, and almost no farmers were producing non-traditional crops. In addition, despite their pledge to do so, the project-targeted model farmers did not continue to provide training once ADRA had withdrawn. Use of credit and technical assistance fell to very low levels, and the use of the promoted practices decreased. This experience supports the conclusion that ADRA's direct provisioning of free training and marketing services until just before exit had not built the independent capacity of either the farmers to continue implementing behaviors and practices that had benefited them during the project or the proposed substitute organizations (FODECOs) that might have continued to provide them.

In contrast, both SC and WV implemented their exit strategies over a period of 12–18 months. In WV areas, just over half of farmers engaged in agricultural sales at exit. Two years later, that percentage was maintained, with no change in the proportion of farmers selling coffee and an increase in the proportion selling other crops. Use of most agricultural practices declined significantly in SC and WV areas, as they did in ADRA communities, but the percentage of farmers still implementing these practices 2 years after exit was considerably higher in the areas of the former two projects: Between 47 percent and 57 percent were still implementing at least 20 percent of practices promoted in the projects, and more farmers were implementing each individual practice as well. Agricultural income levels were also maintained or improved in WV areas between endline and follow-up.²⁷

The differences among awardees in the degree to which practices and impacts declined or were sustained is consistent with differences in the period of exit and the speed of transition away from the provision of free services, as well as to the extent of phase-over to commercial marketers with an interest in providing a market and offering both credit and technical assistance to suppliers. In this study, provision of free goods and services risked creating unrealistic expectations and a resistance to paying for them later.

7.6.2 Sustainability Plans

All of the FFP development project awardees in Honduras based their capacity building on the training of model farmers who would then train other farmers in the context of farmer field schools. Two years after exit, most model farmers were no longer providing training and almost no farmers were making use of farmer field schools. The model farmers by all accounts maintained their technical capacity, reporting in qualitative interviews and discussions that they continued to apply practices on their own land, which the study team also observed on the ground. But other than the hope for continued personal commitment (and the signing of a pledge in ADRA areas), the projects made no provision to ensure continued motivation or incentives for the model farmers or to ensure that they would have access to agricultural inputs to use in continued demonstrations and training sessions. A fee-for-service model, which has been implemented in

²⁷ As previously noted, coffee prices were favorable for producers in 2010 and 2011, but fluctuations in the international price of coffee would likely affect the incomes of coffee farmers.

some countries for agricultural or veterinary technicians, might have better sustained the availability of training and technical assistance to farmers had it been implemented in these projects.

However, there is evidence that participation in training resulted in a higher level of implementation of the promoted practices. Although both trained and untrained farmers reduced their use of promoted practices over the 2 years after project exit, more trained than untrained farmers were using those practices at the time of follow-up in all three awardees' areas.

All the awardees envisioned participation in PAs as a vehicle for farmers to access credit, new knowledge, and market information, and to use collective buying and selling as a means to obtain better prices and more secure markets. However, 2 years after the projects' exit, the proportion of farmers in PAs was low. Most farmers either did not perceive a tangible benefit to membership in a PA or did not have the resources to pay membership fees in cases where fees were charged. In addition, qualitative interviews and discussions revealed a profound lack of interest in collective marketing among many farmers. Such reluctance might be overcome if the benefits were sufficient, but as of the time of the follow-up survey, most farmers did not appear to have a sufficient surplus of production for sale to motivate collective marketing. The lesson here is twofold: PA participation was limited by a lack of both resources and motivation and also by a cultural context in which the benefits of engagement in such entities would have to be substantial enough to overcome a palpable resistance to collective marketing. Cultural factors cannot be overlooked in planning for project sustainability.

Use of credit also fell in all awardee areas. While no one made use of FODECOs for credit, rural banks (the proposed vehicle for credit in the SC and WV projects) provided a small proportion of loans among those who made use of credit, while the most common credit sources were private (friends and relatives) or cooperatives. Most of the rural banks were pre-existing in communities, had their own funds, and were strengthened by the awardees through training. As with the water committees, building on existing institutions and strengthening them was an explicit part of the strategy to assure their continued operation post-project.

As previously noted, the provision of free resources during the life of the project also posed a threat to sustainability. There seemed to be a negative cycle influencing the sustainability of PA participation, marketing, and the use of promoted agricultural practices: As the availability of free or subsidized inputs declined at the end of the projects, farm production fell and the production of crops for sale dropped substantially. With lower sales, farmers found it more difficult to afford the inputs needed to apply the practices they learned, and many faced difficulties in obtaining credit for the purchase of inputs. Similarly, with lower sales, the incentive to participate in PAs was lower. The incentive to take credit was also lower, due to doubts about being able to pay back the loan. As such, the anticipated model of resources from increased sales, capacity from continued practice, and motivation from increased production in this case did not produce a sustainable increase in market participation (ADRA), practices (all awardees), or yields (all awardees, for almost all crops). ADRA and SC explicitly chose to work in the poorest and least resource-endowed areas of the country, with farmers who faced multiple challenges, including environmental vulnerability, landlessness, and lack of access to inputs and credit (addressed within the project). An exception where the anticipated model appeared to work was in the WV implementation area, where farmers were already producing coffee. An infrastructure for commercialization was already in place in these areas so that training farmers in high-quality production and linking them to existing marketing channels had a higher probability of success and required less lead time to implement (allowing more time for independent operation prior to project closure).

7.6.3 External Factors

The establishment of small enterprises appears to have been constrained by external factors, specifically, the bureaucratic barriers to obtaining legal recognition. Awardees understood the importance of legal recognition and worked with new enterprises to obtain it, but in many cases there was simply not enough time during the projects for the process to be completed.

Landlessness in Honduras is a factor that was found to inhibit the extent to which agricultural and environmental interventions were sustained. A very high proportion of farmers in Honduras cultivate rented or borrowed land, and owners were more likely than non-owners to implement improved practices in SC and WV areas. In addition, a lack of collateral was cited as an important reason for not making use of credit for agricultural production.

In the poor areas where the awardees worked, there are many other external challenges to successful agriculture: These areas (particularly ADRA and SC) are prone to both drought and flooding. Almost all farmers mentioned having had problems with these climate shocks or with pests or plant diseases at some point during their production cycle. The agricultural practices and inputs introduced by the awardees were intended to increase resilience and help in dealing with these challenges, but the environmental context, as well as the cultural and economic context, must be taken into account to achieve sustainable improvement.

WV's linkages to the coffee market posed risks, as well as benefits, due to the vulnerability of farmers to fluctuations in the international price of coffee. While coffee farmers benefited from commercialization, sustainable improvements in income were in part dependent on these market forces; diversification of income sources (sale of both coffee and other crops) appeared to be a useful protective measure.

Commitments made by entities of the central and municipal governments to the awardees to continue providing support to farmers in the form of training and technical assistance and for agricultural commercialization once the projects closed were generally not met. Given scarce resources and shifting priorities, government entities were not reliable targets for an exit strategy of phase-over, despite the apparent convergence of goals with those of the project activities that they were meant to continue supporting. ADRA sought written commitments from various government entities to continue the activities that they had supported, and WV had written agreements with the secretariats of Health and Agriculture and with municipalities, but these agreements were not effective. Similar agreements were made with the country's major agricultural universities, but these also did not persist, and it is not clear that they were ever effectively implemented. One lesson here is that these support activities were not put in place before exit and were not already functioning at the time of exit, making this strategy for phase-over ineffective. Another lesson is that the presumed partners (municipalities, universities) themselves often lacked both resources and motivation to take over the activities previously provided by the awardees.

The role of other NGOs in providing services was also an important factor in the continuation of many of the activities supported by the FFP projects. Other than road maintenance (a largely municipal activity), most new projects in communities after the FFP projects' exit were undertaken with support from NGOs, and NGOs were cited in the qualitative study discussions as a source of technical assistance to farmers who no longer had access to it through the FFP projects. WV, in fact, explicitly linked farmers with other donor awardees so that the communities could make a smooth transition after its FFP project ended. This raises the question of whether a project or activity should be considered sustainable if it continues based on a new source of external support. It was the belief of the study team that project activities, outcomes,

and impacts are not sustainable until they have fully transitioned to independent functioning based on their own resources, capacities, and motivation.

7.6.4 Summary

The convergence of all three key factors—resources, capacity, and motivation—was necessary to increase the likelihood of sustainability of project activities, outcomes, and impacts in the agriculture, IGA, and NRM sector. However, the gradual transition from project support to independent activity is also critical. Furthermore, projects need to be designed based on a careful assessment of the underlying assumptions behind their sustainability plans. Projects require sufficient time to build the linkages and facilitate the independent functioning that are conducive to sustainable impact. Plans to turn over activities to any organization or group that does not itself integrate those three key factors are unlikely to succeed. In particular, phase-over to government entities is a risky strategy, given constraints on government resources, while phase-over to commercial buyers was more successful in this instance because both buyers and sellers benefited from the buyer's support. Furthermore, any phase-over needs to be accomplished with enough time for these linkages to be operating independently well before exit.

Direct provision of free inputs and services poses risks to sustainability; if free resources are provided, they should be phased out with enough time to develop alternative, sustainable sources for them, and beneficiaries should become accustomed to the idea that these resources need to be paid for. Resources provided for free may produce immediate impact but have the potential to undermine sustainability over time.

Key agriculture, IGA, and NRM sustainability strategies that worked and did not work in the Honduras projects are summarized in **Box 7.2**.

Box 7.2. Agriculture, IGA, and NRM Sector Sustainability: Key Findings

WHAT WORKED

- Although the use of most improved agricultural practices declined after exit, a substantial number of farmers continued to use these practices where awardee withdrawal had been gradual.
- Practices promoted by the projects were more likely to be sustained among farmers who owned their own land (though practices declined among both landowners and non-landowners).
- Project-provided training improved the sustainability of use of promoted agricultural and NRM practices.
- The proportion of farmers engaged in sales was sustained in many areas where farmers had established and were independently nurturing links to commercial markets at the time of exit.
- Linkages of coffee farmers to commercial marketers gave the farmers access to technical assistance and credit.
- Consistent with some awardee sustainability plans, other NGOs took over some activities formerly implemented by the awardees.

WHAT DID NOT WORK

- Model farmers stopped providing training once project-provided inputs and incentives were withdrawn.
- Participation in PAs was low at exit and declined at follow-up due to barriers (e.g., membership fees), lack of motivation (e.g., no recognized benefit and an apparent cultural preference to operate independently).
- Application of most agricultural and NRM practices declined when inputs and training were no longer provided.
- The proportion of farmers engaged in sales fell in areas where marketing support had been provided directly and without charge until project exit.
- The continuation of some activities depended on the presence of new NGOs taking over activities formerly implemented by the FFP awardees.
- Bureaucratic barriers (e.g., the prolonged process of obtaining legal recognition) impeded the establishment of successful small enterprises.
- Written commitments by municipal and national government entities and by universities to support project activities following project closure were largely not met.

8. Overall Findings

Below are the overall conclusions that the study team drew from the implementation, exit experiences, and follow-up study data collection across the sectors in which the three FFP development project awardees in Honduras engaged.

Activities, outcomes, and impacts measured at the time of exit were poor predictors of their sustainability 2 years later.

In all technical sectors studied, there were examples of project impacts that looked promising at exit but declined, sometimes dramatically, 2 years later. For example, in the health sector, provision and use of community-based growth monitoring declined from 2009 to 2011. Similarly, use of some health practices that had improved substantially between baseline and endline, including adequate handwashing and increased provision of liquids during childhood diarrhea, declined significantly in the following 2 years. By the same token, there were activities, outcomes, and impacts that were not only sustained but, in some cases, significantly improved over the same period. For example, the practice of exclusive breastfeeding not only maintained its improvement from baseline, but increased further by the time of follow-up, and the prevalence of stunting, which also improved from baseline to endline, was maintained or continued to improve after exit.

In the agriculture sector, some outcomes that were very high at exit declined steeply over the next 2 years, while others that were not as high at exit were better maintained. For example, in ADRA areas, the percentage of farmers engaged in agricultural sales, production of non-traditional crops, use of improved practices, and use of training were high at endline (compared to baseline levels), but fell to low percentages 2 years later. By contrast, in WV areas, these outcomes were practiced by a lower percentage of farmers at exit, but the outcomes were maintained or improved 2 years later. Impacts such as income from agricultural sales and household dietary diversity showed a similar pattern: In ADRA areas, income and household dietary diversity were high at endline, but dropped significantly, while in WV areas (for income and dietary diversity) and in SC areas (for dietary diversity), trends for these indicators started out lower at baseline, but improved significantly by follow-up. Regardless of the reasons, the lesson is that the long-term success of a project in achieving its goals cannot be adequately judged at the time of the final evaluation, especially a final evaluation that strongly emphasizes meeting impact indicators, without also addressing factors conducive to sustainability. An exclusive focus on impact at the time of exit can, in fact, jeopardize sustainability. For example, providing free inputs and services up to the time of exit can maximize short-term impact at the cost of building sustainable systems to replace those inputs once the project ends.

The convergence of three critical factors—resources, capacity, and motivation—is critical to sustainability, while the importance of linkages is variable.

The experiences of these awardees across technical sectors confirm that all three of the factors hypothesized as critical to sustainability must be present for project activities, outcomes, and impacts to be sustained. The absence of any one of these factors can jeopardize the continuation of activities and the maintenance of impacts. In the health sector, for example, a lack of resources from the government to sustain linkages with AIN-C centers resulted in reduced provision of growth monitoring services, despite the technical capacity and motivation of the CHWs. In the W&S sector, resources, capacity (technical and administrative), and motivation converged to ensure the sustainability of the provision of piped water to households, while the lack of motivation (even with adequate capacity and resources) meant that water quality testing and water purification activities were not sustained.

In the agriculture, IGA, and NRM sector, the use of improved agricultural practices declined even among trained farmers because they were unable to afford the inputs needed to continue using them (resources) and possibly because the benefits of their use had not been adequately demonstrated (motivation). Model farmers, who were well trained and fully capable of applying improved practices, lacked motivation to continue training others when materials and incentives were no longer provided to them.

There was no observed case in which the absence of any one of these three critical factors could be overcome. There were cases in which the source of resources shifted once the FFP projects' resources were withdrawn. For example, capacity building was turned over to a different organization or, as some CHWs reported, motivation shifted from receipt of tangible incentives to personal satisfaction from meeting community demand, but all three factors appeared essential for sustained activities, outcomes, and impacts.

Horizontal linkages proved to be largely ineffective, but vertical linkages were often important in ensuring the continuation of resources, capacity, and/or motivation.

Horizontal linkages among CHWs from different communities, envisioned by the projects as a mechanism for providing mutual support, motivation, and information sharing, never developed into a useful mechanism for keeping the CHWs working. Similarly, water committees did not seek to join into associations with other neighboring water committees, but preferred to operate independently. PAs, intended to provide horizontal linkages among farmers in a community, attracted a relatively low level of participation, as farmers tended to prefer selling their produce individually rather than collectively.

Vertical linkages, in contrast, often proved to be important in perpetuating the critical sustainability factors. For example, coffee farmers sold their production largely through commercial intermediaries linked to the export market, and these linkages were instrumental in providing training, technical assistance, and access to credit. Similarly, the women's dairy enterprise not only had contracts with buyers, but had established vertical linkages with other government and quasi-governmental institutions for marketing, technical assistance, and support. Likewise, vertical linkages between CHWs and the AIN-C-focused system were important for maintaining these workers' access to training and supervision and for maintaining their motivation by valuing the information that they could provide. In instances where these linkages were lost, the provision of CHW services in the community decreased. That said, not all sectors made use of vertical linkages. Water committees resisted vertical linkages to municipal government entities, for example. But vertical linkages along the supply chain were important for agriculture, and such linkages to the health system showed promise 1 year after exit in replacing the supervision and material support provided by the FFP awardees. The establishment of vertical linkages where appropriate for the implementing context is one possible mechanism for ensuring a continued source of the resources, capacity, and motivation needed for sustainability.

One of the awardees (WV) attempted to establish horizontal linkages among the different components of its project. The WV project explicitly linked its training and support of CHWs in the health sector to agricultural interventions that would allow the CHWs to improve their quality of life while devoting time to their health-related responsibilities. They also tried to encourage PAs to allocate some of their resources to supporting the work of the CHWs, a strategy that did not prove successful due to low PA membership and insufficient resources to be able to divert some from agriculture to health activities.,

Gradual exit with a period of independent operation is necessary for sustainability.

There were many examples to demonstrate the importance of ensuring that activities to be maintained after project exit are implemented with a gradual period of phase-over, so that individuals or groups had

an opportunity to carry out activities independently. Linkages must be established and processes put in place well before awardee support is withdrawn. In the health sector, CHWs who had been actively participating in AIN-C-focused activities and receiving visits, supervision, and training from AIN-C center staff were more likely (based on qualitative observations 1 year after exit) to continue functioning in their communities than those who were abruptly shifted from awardee to AIN-C center staff supervision and training at the time of the FFP projects' exit. In the agriculture, IGA, and NRM sector, established linkages with markets were key to the longer-term success of coffee commercialization in WV areas and the women's dairy marketing enterprise in Copán. Conversely, water quality testing was not conducted after exit in part because the awardees, not the water committees, had taken on responsibility for ensuring testing up to the time of project closure. Similarly, farmers for whom some of the FFP projects had provided free transportation and marketing services had not built up experience in negotiating for transportation or incorporating the cost of transportation and marketing into their assessment of potential profitability and hence encountered difficulties carrying out the activities for which these inputs were important when, following these projects' closure, the inputs were no longer available.

Gradual exit and independent operation are not, however, sufficient to sustain activities if other factors are not in place. For example, both WV and SC had operational linkages with AIN-C centers prior to their exit, but in the places where the lack of resources prevented AIN-C centers from continuing to pay for CHW travel to the centers for training and sharing of information, those linkages were eventually undermined.

Phase-over to government was inconsistently effective, but phase-over to other NGOs contributed to the persistence of some activities and impacts in many places.

In the context of Honduras, plans to turn over responsibility for support of community activities to government entities were variably successful. Due to resource shortfalls, the government's ability to support AIN-C center outreach to CHWs eroded over the 2 years after FFP exit. The AIN-C-focused model was convergent with the awardees' approach to community-based health services, and the central government was committed to implementing it, independent of the FFP projects. But the central government's commitments to provide support for community-based health activities, which the awardee-trained CHWs could support, were not consistently met. This is a reflection of the resource constraints and shifting priorities that governments face, possibly more severely in light of the political crisis that occurred in Honduras in 2009, at the time the FFP projects were ending. Similarly, the central government was instrumental in implementing some agricultural projects in former FFP communities, but commitments to specific activities and community groups were generally unfulfilled. Two exceptions were the women's dairy enterprise in Copán, which benefited from the support of several government agencies, and the coffee commercialization activities of WV, which included government agencies involved in coffee export.

At the municipal government level, support for FFP activities was also difficult to obtain. UMAs were supposed to take over the job of organizing NRM activities and giving ongoing training to farmers and community members, but they generally lacked both staff and financial resources to carry out these tasks. The municipalities themselves often lacked resources, although the majority of municipalities did implement road improvement projects in the 2 years after FFP exit (although not through the small enterprises organized by the awardees for that purpose). Relatedly, municipal governments faced budget constraints that created problems for some of the water committees, who found that their vertical links into the municipality cost them budgetary autonomy and jeopardized their ability to maintain their local

piped water systems. Ultimately, in the Honduran context, phase-over to government at any level was not reliable as an approach to exit at the time this study was undertaken.

In a number of arenas, new NGOs took over or implemented new activities formerly implemented by the FFP awardees. NGOs were active in starting new health projects, providing technical assistance to farmers, contributing to agriculture projects, and supporting the development of small enterprises. Phase-over to other donors was an explicit element of the exit strategy of one of the awardees. Reliance on continued external support, however, could prove risky as compared to sustainability plans and exit strategies that create systems whose resources come from within.

Building on existing institutions and organizations can contribute to sustainability.

The provision of piped water was one of the most consistently sustainable interventions across the FFP development projects implemented in Honduras. Many of the water committees managing these systems had been in place for years prior to the arrival of the FFP projects. Awardees were able to strengthen the functioning of these committees, but did not have to organize them from the ground up. Similarly, most of the rural banks strengthened by SC and WV as providers of credit existed prior to the onset of these projects' activities. In contrast, FODECOs were started by one awardee (ADRA), which provided funds along with management training to support their establishment. Two years after the projects exited, rural banks remained in most communities, but almost no FODECOs persisted. One could make the case that the projects' MCHN strategy also built on the existing structure of AIN-C-focused CHWs. The benefit of working with existing organizations is that they have had time to establish themselves prior to project engagement, giving them longer than the typical 5-year time horizon of an FFP development project to establish independent function. Further, the presence of some of these organizations may reflect community priorities, suggesting that they may have an advantage in achieving sustainability. The role of the awardees, then, is to strengthen the technical and management capacities of these existing organizations and possibly to give them an initial (but not ongoing) provision of resources to contribute to their ability to serve their purposes more effectively and sustainably. This is not to preclude the idea of establishing new organizations when there are no existing ones, or when the existing organizations function poorly or do not serve the intended purpose well.

The direct provision of free resources poses risks to sustainability.

There are many examples among the experiences of the three FFP development project awardees in Honduras that demonstrate the risk of directly providing free goods and services to beneficiaries or to service providers. Providing free resources can create unrealistic expectations, and the loss of these resources may jeopardize beneficiaries' continued motivation more than if the resources had never been given. For example, the withdrawal of supplementary food in growth monitoring sessions resulted in a decline in demand for these services from CHWs, as beneficiaries who continued to participate in growth monitoring activities did so in locations where incentives were offered (although mothers also overwhelmingly cited health benefits to their children as the motivation for participating in growth monitoring). The CHWs themselves lost motivation when no longer provided with the occasional material incentives that they had received during the FFP projects, though decline in demand was also a factor reported to have reduced their motivation to continue offering services. A similar trajectory was seen with model farmers, who received incentives in the form of inputs and farm improvements during the FFP projects and lost motivation when these were no longer forthcoming. They continued to use improved practices on their own land, but stopped training other farmers to do so. Relatedly, the provision of free marketing and transportation services to ADRA-targeted farmers up until the time of exit meant that farmers did not internalize that they would need to pay for these services once ADRA left. As

mentioned previously, providing free goods and services may produce short-term impact, but potentially at the cost of achieving longer-term sustainability.

The influence of contextual factors can be difficult to overcome.

As illustrated in the interventions discussed in the agriculture, IGA, and NRM sector, external factors, such as landlessness, fluctuations in the international economy, and bureaucratic procedures, as well as climate shocks, play a role in sustainability. For example, with a high proportion of farmers cultivating land that they did not own in the FFP project contexts in Honduras, their motivation to implement long-term improvements on the land was reduced. As such, while the use of project-promoted improved agricultural practices fell from endline to follow-up in all groups, farmers who owned their land were more likely to continue implementing these practices than those who did not.

The international economy can influence outcomes in ways that are beyond the control of beneficiaries or service providers. In WV areas, the cultivation and commercialization of coffee was a success story, improving incomes, and thereby diets, of participating households. However, dependence on marketing an internationally traded crop like coffee makes farmers vulnerable to fluctuations in world prices for that crop: The study team saw that significant income gains among coffee producers measured in 2011 would have been much attenuated if 2013 prices had been obtained instead.

Bureaucratic procedures in government regulation of business enterprises were difficult to overcome in many cases. The process of applying for legal recognition, essential for the functioning and expansion of a business in Honduras, was cumbersome, lengthy, and unreliable. As a result, some small enterprises that had the resources, technical and management capacity, and motivation to continue their current operation were stymied in terms of further expansion by their inability to obtain legal recognition within the time frame of the FFP projects. Apparently, a much longer lead time and perhaps a better ability to negotiate these complex bureaucratic systems is needed to overcome the hurdle of obtaining legal recognition for small businesses in this country context.

None of these examples is unexpected; all are constraints that could have been anticipated during the design of the projects. A development project should carefully explore and take account of these threats to sustainability in the design phase. For example, model farmers might emphasize those agricultural practices that are low cost and have short-term (same season) benefits over those that involve a long-term investment of time or money in land improvements. Vulnerability to international market fluctuations can be mitigated by ensuring that income sources are sufficiently diversified, so that farmers do not rely on a single crop for their livelihoods. Awardees might start the process of seeking legal recognition early in the project cycle and perhaps use their influence to move the process forward faster than would otherwise be the case. A realistic assessment of contextual constraints should therefore be built into project planning from the beginning.

Sufficient time is needed to develop sustainable change in a community.

A realistic plan for sustainable change needs to build in enough time to develop or strengthen systems, ensure that they are working, and have time to turn the necessary pieces over to the community or other entity with an adequate period of independent operation so that the likelihood of sustainability is increased.

9. Recommendations

The following recommendations are derived from the experiences and lessons learned summarized in the previous sections. While they are based on the results relating to the projects and technical sectors of the FFP development projects implemented in Honduras, they are broadly applicable to other locations that face comparable conditions. These recommendations apply not only to FFP-supported development food assistance projects, but to any development intervention that aims to achieve sustainable change.

Recommendations for Project Designers and Managers

- Explicit sustainability plans and exit strategies should be incorporated into development project plans from the beginning.
- Assumptions underlying sustainability plans should be realistically assessed, taking into account the time horizon, contextual factors, and available resources; projects based on unrealistic expectations (or hopes) should be adjusted accordingly.
- Exit strategies should clearly allocate responsibilities for phase-over.
- Project exit should be gradual; support should be progressively withdrawn so that organizations and individuals (and, as appropriate, their linkage partner) have a significant period of independent operation before project exit.
- Sustainability strategies should incorporate clear and realistic plans for continued access to resources, capacity, and motivation over the long term.
- Plans for linking project activities to external entities should consider carefully whether the institutions involved in these planned linkages have the resources, capacity, and motivation to sustain them.
- Linkages should be established early so that linkage partners (including commercial entities) have time to develop relationships and procedures and have time to test and modify them before project exit.
- Provision of free resources should be avoided, or should be structured as a one-time donation that will result in ongoing service delivery or service use without further free resources. If free resources are provided, projects should identify locally available replacement resources and build in a shift to cost-sharing these resources and, ultimately, to full beneficiary payment for any goods and services prior to project exit.

Recommendations for Donors/Funders

- Criteria for project success should incorporate indicators for sustainability, not only impact indicators, possibly by means of staged evaluations with indicators adjusted for the stage of implementation.
- Progress toward sustainability should be monitored throughout the project cycle (e.g., at baseline, midterm, and endline) so that identified modifications can be implemented as necessary in ongoing and/or future projects.
- The project cycle should allow sufficient time to build capacity and have a period of independent operation of activities and linkages prior to project exit.
- Projects should be required to maintain archives of baseline, midterm, and endline evaluations, as well as associated data, along with information derived from routine project monitoring and associated reporting so that these are accessible for learning.

Recommendations for Future Research

- Incorporate into sustainability studies, when possible, a control (randomly assigned) or comparison group to permit an experimental research design in order to strengthen conclusions.
- Collect information on outcomes and impacts at the level of the target communities and beyond, rather than focusing only on the intended direct beneficiaries. That is, design sustainability studies to capture not only direct, but also second- and third-order indirect effects (for example, project impact not only on agricultural income, but on household income from all sources, and not only on agricultural households, but on all households in the target communities).
- Consider studies to compare the long-term impacts on low-income communities of targeting project resources to the poorest of poor recipients versus targeting those with more resources.

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NOTE: The authors also reviewed the detailed exit strategy plans and matrices developed by the awardees for internal use.