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

India Country Study

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Abbreviations and Acronyms

ANM	auxiliary nurse midwife
ASHA	accredited social health activist
AWC	<i>anganwadi</i> center
AWW	<i>anganwadi</i> worker
CDPO	child development project officer
CRS	Catholic Relief Services
DAP	development assistance program
DPT	diphtheria/pertussis/typhoid (vaccine)
ECDC	early childhood development center
FANTA	Food and Nutrition Technical Assistance III Project
FFP	Food for Peace
FGD	focus group discussion
FY	fiscal year
g	gram(s)
GDP	gross domestic product
GOI	Government of India
HAZ	height-for-age z-score
ICDS	Integrated Child Development Service
INHP	Integrated Nutrition and Health Program
INR	Indian rupee(s)
kg	kilogram(s)
MCHN	maternal and child health and nutrition
NABARD	National Bank for Agriculture and Rural Development
NGO	nongovernmental organization
NREGA	National Rural Employment Guarantee Act
NRHM	National Rural Health Mission
POP	phase-out plan
PRI	<i>Panchayati Raj</i> Institution (local government institution)
SMCS	Safe Motherhood and Child Survival
USAID	U.S. Agency for International Development
VHW	village health worker
WAZ	weight-for-age z-score
WDC	watershed development committee
WHO	World Health Organization
WHZ	weight-for-height z-score

Executive Summary

Background

From 2009 to 2016, the Tufts University Friedman School of Nutrition Science and Policy, a partner on the U.S. Agency for International Development (USAID)-funded Food and Nutrition Technical Assistance III Project (FANTA), conducted a multi-country study to assess the effectiveness of USAID's 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.¹ This report describes the results of the study in India, where FFP development projects ended in 2009 and 2010.

Two nongovernmental organizations implemented FFP development projects in India: CARE and Catholic Relief Services (CRS). CARE's FFP development project dealt exclusively with the maternal and child health and nutrition sector in three successive cycles (called the Integrated Nutrition and Health Program I, II, and III) from 1997 to 2009. CRS implemented projects from 1997 to 2010 in three sectors: maternal and child health and nutrition, agriculture (watershed development), and education. Both organizations devoted their last project cycle, called the phase-out plan (POP), to transitioning (phasing over) their activities to Government of India programs.

Objectives

The objectives of the study were to determine the extent to which activities, outcomes, and impacts of the FFP projects were sustained after the withdrawal of these projects' funding, identify project and non-project factors that made it possible to sustain project benefits after the projects ended, assess how the exit process affected sustainability, and provide guidance to future project implementers and funders regarding how to improve sustainability.

Methods

Both CARE and CRS implemented baseline studies at the start of their second project cycle (2002), and final evaluations at the end of that project cycle (2007) served as a baseline for the POP. Endline evaluations at the end of the POP were conducted in 2009 for CARE and 2010 for CRS. The study team then replicated the endline evaluations 2 years later (in 2011 for CARE and in 2012 for CRS) in a follow-up quantitative survey implemented in a subset of the states in which the endline evaluations had been conducted. The study team also implemented a qualitative investigation in the same subset of states at the time of the endline evaluations and returned to the same areas 2 years later to repeat the qualitative investigation. The qualitative investigation consisted of key informant interviews and focus group discussions with project beneficiaries, staff, and other stakeholders.

Results

A striking observation seen across the focus sectors of both FFP development projects in India was the inconsistency of results across states. In each sector, there were examples of indicators that improved significantly from POP endline to follow-up in some states while declining significantly in other states. Consequently, the aggregate results for all states in the study mask substantial state-by-state differences.

¹ This report defines sustainability plans and exit strategies as follows:

Sustainability plan: A plan describing those elements of a project that incorporate sustainability concerns and increase the likelihood that project activities, outcomes, and impacts will continue after project exit.

Exit strategy: An operational plan for withdrawing from target communities without jeopardizing progress toward project goals.

Further, there appears to be no discernable pattern among results across states: states that improved significantly on one indicator declined in other indicators; no one state saw consistent improvements (or continuation of previous improvements) or consistent declines across the majority of indicators. In addition, differences across states were often larger than any endline-to-follow-up change within a given state. This inconsistency suggests that even with well-designed national government programs as the designated phase-over entity, as was the case in India, variability in implementation is possible, and effective implementation at the local level is critical to success.

Maternal and Child Health and Nutrition: CARE

At follow-up, the POP showed some notable sustainability successes in the maternal and child health and nutrition sector. Administrative components of the project's activities in this sector, such as sector meetings, were adopted by the state and national health systems: more than 95 percent of frontline *anganwadi* workers reported attending monthly sector meetings, and regular sector meetings were associated with improved compliance with several measures of frontline worker performance (e.g., home visits, use of field tools). Nonetheless, *anganwadi* worker attendance at sector meetings varied widely by state, from 9.7 percent in Chhattisgarh to 92.7 percent in Andhra Pradesh. Reported home visits by *anganwadi* workers within the past month were sustained or improved from endline to follow-up, reaching 40 percent of mothers at follow-up—a figure that would likely have been higher if a less stringent time frame for home visits had been applied.

Multivariate regression showed that *anganwadi* worker home visits were consistently associated with growth monitoring participation among mothers, diet diversity, and good handwashing practices in most states. Other positive results include the fact that Nutrition and Health Days² continued to be held every month and that the provision of take-home rations at these Nutrition and Health Days was sustained or improved in all states except Orissa. Uninterrupted food supply at *anganwadi* centers was also well maintained in all states. In addition, some maternal caring practices were well maintained: institutional deliveries consistently improved in all states, and mothers' reports of not reducing feeding during diarrhea was also maintained or increased in all states (to 71.8 percent overall). In contrast, participation in growth monitoring (in the past month) was less well maintained, with increases in one state, decreases in two other states, and an overall participation rate of 47.4 percent. There was similar inter-state inconsistency in the maintenance of other behaviors (e.g., exclusive breastfeeding to 6 months of age, introduction of complementary food).

The purpose of the present study was to assess the sustainability of activities, outcomes, and impacts achieved by the FFP projects, not to conduct an impact evaluation of the project. Despite many sustainability successes, the project during its life did not achieve a positive impact on malnutrition as measured by weight-for-age z-score: rates rose over the life of the project, and endline rates were unchanged at follow-up in 2011. Therefore, we do not and cannot explicitly assess the sustainability of changes in this measure of malnutrition.³ Although the core assumption that improvements in service delivery, service use, and care practices would substantially reduce the prevalence of undernutrition was not supported by the evidence, the sustainability of indicators such as access to food, participation in

² Nutrition and Health Days are organized monthly at the *anganwadi* center serving the communities. At the Nutrition and Health Days, children are weighed, their health cards are checked, appropriate immunizations are given, and take-home rations are provided. Nutrition and Health Days are attended by the *anganwadi* workers and the accredited social health activist, as well as the supervisor.

³ No baseline information was available on rates of stunting or wasting, so achievements over the life of the project could not be measured, but from endline to follow-up, rates of stunting were unchanged (remaining at 40%), and rates of wasting fell slightly but significantly (reaching 25% at follow-up).

growth monitoring, and institutional deliveries offers some lessons about factors that make sustainability more likely to be achieved.

Maternal and Child Health and Nutrition: CRS

In the CRS project's maternal and child health and nutrition component, service delivery and service use were largely sustained and, in many cases, expanded as village health workers encouraged women to make use of services offered by the Government of India's Integrated Child Development Service and health system. The percent of women accessing prenatal and postnatal care in health centers continued to increase from baseline through the endline and follow-up periods. In addition, rates of pregnancy and postnatal complications continued to decline across the project's life and through follow-up. The percent of institutional deliveries, which rose from 20 percent to 76 percent between baseline in 2002 and the end of the POP in 2010, continued to increase to 87 percent at follow-up in 2012. Rates of immunization were also well maintained or improved overall, with the biggest improvements in coverage in the states that had the lowest coverage at endline. These positive results suggest that the transition from reliance on village health workers to reliance on services provided through Government of India health centers and clinics worked well. In particular, the improvements in institutional deliveries and immunizations may be due to the activities of the accredited social health activists, community-based health workers whose pay is linked to improvements in these indicators.

Overall rates of stunting declined in CRS project areas between endline and follow-up, reaching 35% at follow-up. Among the seven states studied, however, three experienced a significant increase in stunting, one experienced a non-significant increase, and three experienced declines (one significant). (Note that the overall figure reflects the substantial differences in sample sizes across the individual states.) The pattern for wasting was similar; across the seven states studied, the prevalence of wasting fell from 25 percent to 22 percent but with three states experiencing significant declines and one experiencing a significant increase. The only anthropometric indicator measured at baseline in 2002 was underweight (weight-for-age z-score < -2). This indicator showed a slight improvement from 37 percent to 34 percent between the POP baseline (2007) and endline (2010), and there was no significant change in the indicator between endline in 2010 and follow-up in 2012, with an overall prevalence of 35 percent.

The assumptions underlying CRS's maternal and child health and nutrition interventions, and the Government of India health services that took responsibility for these activities when CRS exited, was that improving maternal caring practices would ultimately affect rates of malnutrition. Multivariate logistic regression adjusting for tribal and caste status, measures of household socioeconomic status, and the age and sex of the child found, however, that maternal care practices, including participation in growth monitoring, not reducing feeding during illness (continuing to breastfeed or provide other fluids), and compliance with appropriate breastfeeding practices (exclusive breastfeeding practices to 6 months of age and introduction of complementary feeding from 7 to 9 months of age), showed no significant effect on the probability of a child being stunted. These results are similar to those for CARE areas, where no relationship was seen between key child care practices and rates of stunting (except that in CARE areas, exclusive breastfeeding did show an association with reduced stunting). As noted above, the present study did not intend to assess project impact, but rather to identify factors leading to the sustainability of those changes in activities, outcomes, and impacts that were achieved by the project.

Agriculture: CRS

The focus of the agriculture component of CRS's FFP development project was watershed development. CRS planned to link project-targeted farmers with a national guaranteed employment scheme (the National Rural Employment Guarantee Act) to support labor for the maintenance and repair of watershed infrastructure. CRS also planned to link farmers to the government agricultural credit scheme (the

National Bank for Agriculture and Rural Development) to access credit. The percent of land under irrigation increased more than twofold, from 8.7 percent at POP endline in 2010 to 21.7 percent at follow-up in 2012, and the percent of farmers irrigating their land similarly increased significantly in all states. The amount of land that was double cropped increased on both irrigated and non-irrigated land between baseline in 2002 and endline in 2010, with a small decrease at follow-up, but nowhere near to baseline levels. In addition, the percent of farmers engaged in sales rose dramatically, reaching close to 100 percent in three of the four states studied at follow-up, and revenue from agricultural sales similarly increased during this time frame. The number of days of grain sufficiency (when the household could rely on its own production for its consumption) and the percent of households reporting year-round grain sufficiency also increased from endline to follow-up in CRS areas. Given the sustained improvements in irrigation, crop sales and revenue, grain sufficiency, and the use of the National Rural Employment Guarantee Act to support labor in watershed infrastructure maintenance, among other indicators, the causal pathway underlying the design of CRS's agriculture sector interventions appears to have been supported, and the project's sustainability strategy for these interventions appears to have been successful at the time of this study.

Education: CRS

In the education sector, CRS provided school meals at Early Child Development Centers, primary schools, and boarding schools run by the Catholic Church. The education intervention also included improving teaching methods through teacher training, and conducting outreach to ensure that age-eligible children enrolled in school. CRS's exit strategy for these activities was to "phase over" (transfer responsibility of) the school feeding activities to the Government of India-run Mid-Day Meals program, though this approach had only limited success. The mandate of the Mid-Day Meals program is to supply food to government schools. However, the CRS project implemented school feeding activities in private schools and boarding schools run by or affiliated with the Catholic Church. While the Mid-Day Meals program is authorized to serve private schools, especially those targeting minorities and underserved populations (as the CRS project's schools did), only a few of the schools formerly supported by CRS had successfully obtained authorization to participate in the Mid-Day Meals program at the time of follow-up. It seems that some schools did not start the application process until close to the end of the POP, and principals reported in qualitative interviews receiving variable levels of assistance from the CRS project in applying to the program. Boarding schools are not eligible for the Mid-Day Meals program, and the boarding schools whose school feeding was previously supported by CRS's FFP project had to rely on other sources of support, including other donor organizations' and church funds.

Improvements in net school enrollment achieved between the CRS project's 2002 baseline and 2010 POP endline were sustained at follow-up, and, while timely enrollment in Class I fell somewhat between endline and follow-up, the rate of student retention to Class IV was high and sustained.⁴ Qualitative interviews suggested that the new educational methods introduced under CRS's FFP development project continued to be used following the project's closure. Parents also cited the high quality of the education (compared with public schools) as one reason for continuing to send their children to these schools even in instances where school meals had been withdrawn.

Conclusions and Recommendations

The study findings in India demonstrate that successful phase-over to government programs depends, in part, on the resources, capacity, and commitment (motivation) of government entities to provide services; these three factors must be present at the level of the national government to facilitate the sustainability of

⁴ Class I is equivalent to first grade. Primary schools in India cover classes I–IV, targeting children 6–10 years of age.

project activities, outcomes, and impacts post-project. In India, the strategy for sustainability in all FFP development project sectors was to phase over to existing Government of India programs that combined these three critical factors: resources dedicated to the programs, functional infrastructure at the national and state levels (capacity), and a legal commitment to provide services (motivation). However, the findings of the India study also underscore that successful phase-over to government programs further depends critically on effective local implementation of national programs, and therefore effective linkages between local activities and the Government of India programs at the state and national levels are important. The study team observed wide variability in the continuation of activities, outcomes, and impacts across states and among localities within states, suggesting that the systems put in place at the national level differed in their implementation at the state and local levels, yielding different results from the same system in different contexts.

Part of this difference is attributable to the extent to which linkages had been established and were functional prior to project exit. Clear linkages had been established during project implementation and tended to be effective in the health sector (with the Integrated Child Development Service and National Rural Health Mission) and agriculture sector (with the National Rural Employment Guarantee Act), but where linkages had not been clearly established (e.g., with the Mid-Day Meals program to substitute for FFP-supported school meals), the activities did not continue post-project. Relatedly, the study found that the overall timing of phase-over is also critical to its effectiveness: transitions should be gradual and project-established/project-strengthened systems should be operating independently prior to project exit.

In addition, the study found that, in many instances, motivation for service provision can be maintained through pay-for-performance and salary models. In the health sector in India, two categories of frontline workers are paid according to different models: *anganwadi* workers are salaried, while accredited social health activists are paid on the basis of specific performance indicators. These performance indicators (e.g., institutional deliveries, complete immunizations) were well maintained or improved at the time of follow-up.

Finally, the study findings demonstrate that it is critical to verify the validity of a project's underlying theory of change at the project design stage and to reassess its validity throughout project implementation. For example, despite the successful continuation of many project activities in the health sector, the underlying impact of improved child nutritional status (wasting, stunting) was not consistently achieved across the two projects, raising the question of whether the project activities were sufficient to address this goal.

Recommendations for Project Designers and Managers

- Carefully assess the factors of financial resources, technical and administrative capacity, and commitment on the part of the government (at all levels) as conditions for adopting a strategy of phase-over to government entities.
- Critically examine the mechanisms by which communities and beneficiaries will gain access to the services and resources provided by national government programs: resources, capacity, and motivation must be present at every level down to the most local (including at the level of the beneficiary) for project activities, outcomes, and impacts to be sustained.
- Allow sufficient time to ensure the technical capacity of relevant government entities and, when necessary, establish or strengthen these entities' existing organizational and administrative systems; engage the relevant government entities from the beginning of the project and allow a gradual transition to independent functioning of any system, to allow time for troubleshooting prior to project closure.

- Critically assess the theory of change underlying the design of the project to ensure that, if sustainability of activities, outcomes, and impacts is achieved, the project's goals will be met and sustained.
- Critically assess the assumptions underlying each component of the sustainability plan; ensure that the assumptions are valid and have been tested.

Recommendations for Donors/Funders

- Build time into the project cycle after resources are withdrawn so that assessment of the sustainability of activities, outputs, and impacts may continue after the endline evaluation. This was done in the case of the FFP-supported development projects in India (the POP, which was the final project cycle, was devoted to the process of phase-over), and should be considered for incorporation into future development projects.
- Set aside funding for post-project evaluations as a matter of donor policy.
- Incorporate indicators of sustainability, along with impact indicators, into project evaluation, to ensure that a focus on immediate impact does not jeopardize investment in longer-term sustainability. The India projects' POPs assessed not only impacts, but also the persistence of activities, behaviors, and administrative systems that were presumed to be conducive to sustained impact. Endline and follow-up assessments of future projects should include these other areas of inquiry.
- Allow sufficient time in the project cycle for design modifications if activities are not achieving the desired impacts, and ensure time for gradual phase-over to the government or other entity tasked with continuing project activities.

Recommendations for Future Research

- Conduct research into the causal pathways that determine the nutritional outcomes for children in India. Despite the sustained implementation of many of the Government of India programs aimed at reducing childhood undernutrition, this key impact indicator was not consistently achieved. Research is needed to identify the barriers to achieving this goal.
- Conduct qualitative and quantitative assessments to identify the factors underlying the variability among states and localities within states in successful implementation and sustainability of project activities, outcomes, and impacts. Use information from the POP endline, the present follow-up study, and other sources to identify outliers and develop explanations for variable success that could inform future programming.
- Explore the differential impact on worker effectiveness and beneficiary outcomes of the alternative models of salary and pay-for-performance as a basis for remuneration, as demonstrated in the cases of *anganwadi* workers and accredited social health activists.
- When possible, implement pre-/post-studies using randomly assigned control groups to strengthen conclusions and permit cause-and-effect attribution.

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 projects⁵ include explicit sustainability plans, that is, explanations of how projects intend to ensure that their benefits will last beyond the project life cycle. The USAID-funded Food and Nutrition Technical Assistance III Project (FANTA) contracted the Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy at Tufts University to assess the effectiveness of sustainability plans and exit strategies used in FFP development food assistance projects in achieving sustainable program impacts. The multi-country study was conducted using a mixed-methods approach in Bolivia, Honduras, India, and Kenya between 2009 and 2016. This report presents key findings of the India research. A report synthesizing findings from all four countries is also available (Rogers and Coates 2015).

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, rural 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.

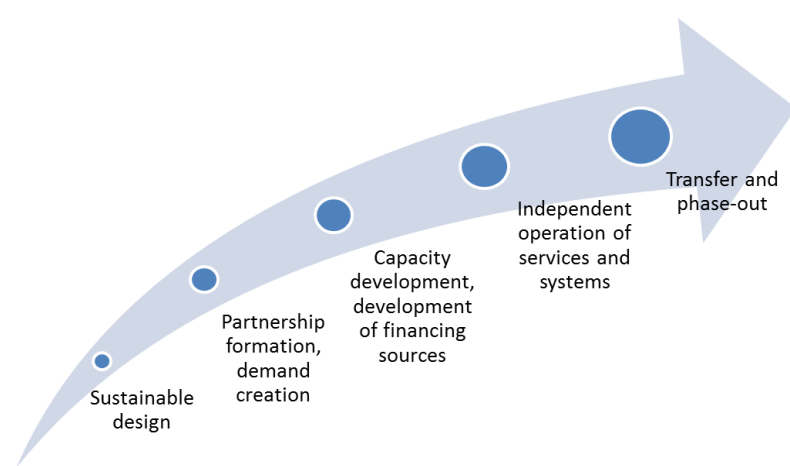
The present study addresses the sustainability of FFP development projects implementing activities in a range of technical sectors in India. The findings of the study are likely to be applicable not only to FFP and other food-assisted projects, but to a broad range of development interventions.

⁵ Development food assistance projects have previously been referred to as Title II programs, development programs, development assistance programs, and multi-year assistance programs.

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, 2004; 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 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 to be taken only at the final phases of a project’s closeout. On the contrary, a well-designed sustainability plan should be developed from a project’s conception, with actions tailored to each stage of project design, implementation, and closeout. 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 awardees have developed detailed, explicit sustainability plans or exit strategies.⁶ 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—Bolivia and Honduras—had developed detailed and explicit sustainability plans and exit strategy documents that were

Figure 1.1. Sustainability throughout an Illustrative Project Cycle



⁶ FFP guidance for FY 2016 development projects now requests a fairly comprehensive description of all the necessary and sufficient capacities, practices, behaviors, systems, and linkages that 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-out, phase-over, 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 development project guidance also provides links to multiple resources on how to consider various aspects of sustainability and how to incorporate sustainability into project plans in several sectors (USAID n.d. [updated April 20, 2016]).

intended to be used as roadmaps for project implementation (Koo 2009). That said, the FFP projects implemented by CARE and Catholic Relief Services (CRS) in India devoted their entire final development food assistance project to implementing phase-out plans (POPs) for their projects' phase-over and exit.

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 results. These evidence gaps exist partly because funds for evaluation have typically been tied to project cycles, not reserved for assessment after projects end. A second reason relates to the real methodological challenges of attributing progress or lack thereof to projects that ended years ago. And, despite the fact that sustainability plans have been required in FFP project applications since 2006, FFP has typically held projects accountable for achieving impacts over the life of the project, but not for ensuring that those benefits are maintained following projects' closure.⁷ There is an implicit assumption that large, short-term impacts will result in improved sustainability. However, the strategies used to achieve short-term impacts may actually undermine the likelihood of producing lasting results.

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. While FFP has been taking steps to increase its focus on sustainability, additional strides must be made to build the evidence base to institutionalize these changes within FFP's processes and to ensure broader learning within the implementing community.

This study is designed to contribute to that evidence base by achieving the following objectives:

- Determining the extent to which activities, outcomes, and impacts of FFP projects are sustained after the withdrawal of external funding⁸
- Identifying project and non-project factors that make it possible to sustain project benefits after the project ends
- Assessing how the process of “exiting” affects sustainability
- Providing guidance to future projects regarding how to increase the likelihood of sustainability

Many of these evidence gaps fall under the umbrella of “delivery science,” that is, the study of how to better deliver assistance. In the context of sustainability, this extends to understanding the dynamic processes that continue (or do not continue) after a development project has ended. The results of this multi-country study, including those specific to the India research documented here, are intended to help guide FFP development food assistance projects and other development practitioners in effective approaches for achieving lasting positive change.

⁷ 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.

⁸ The following definitions, taken from USAID's *Glossary of Evaluation Terms* (2009), are applied in this study (please 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 specific 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 FFP development food assistance projects studied in India were implemented by CARE and CRS (who are referred to in this document as FFP awardees). CARE's activities were entirely focused on the maternal and child health and nutrition (MCHN) sector, whereas CRS's activities were implemented in three sectors: MCHN, agriculture (with a focus on watershed development as a means of improving agricultural production and income), and education (including school feeding and educational improvement). Both awardees had been working in India in various capacities for more than 50 years. For their FFP development projects, both CARE and CRS devoted their last project cycles to phasing over responsibility for the continuation of the activities they were implementing to the appropriate Government of India (GOI) program(s) or service(s). At the time of this study, this approach was unique among FFP implementers and recipient countries, giving the study team an opportunity to assess the impact of a distinctive strategy for project exit.

The report is structured as follows:

- **Section 2** details the conceptual framework guiding the study design
- **Section 3** describes the data collection and analysis methods used, as well as the study's limitations
- **Section 4** describes the operating context of the projects
- **Section 5** describes the exit strategies and activities of the CARE project and presents results
- **Sections 6–8** describe the exit strategies and activities of the CRS project and presents results by sector: MCHN, agriculture (watershed development), and education
- **Section 9** discusses overall findings
- **Section 10** presents a set of associated recommendations

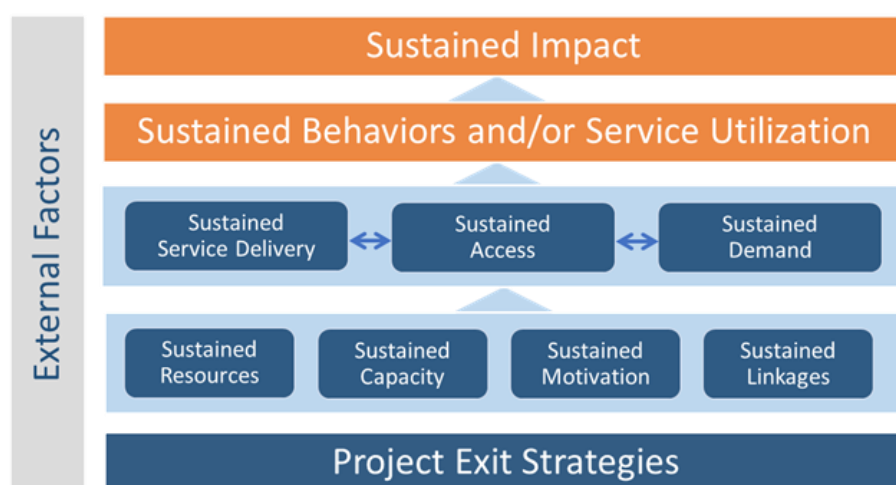
Each of the results sections (5–8) first summarizes the elements of the sector interventions that were intended to lead to sustained or expanded benefits. The subsequent subsections present results related to the implementation of these sustainability components and the de facto exit processes, in association with the documented sustainability of service delivery, service use, uptake and continuation of recommended practices, and impacts. The final subsections for each sector summarize lessons learned and key sustainability findings.

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, CARE's FFP development project, which worked entirely in the MCHN sector in India, helped the GOI establish systems to ensure that *anganwadi* workers (AWWs) provided the health education and growth monitoring services for which they were responsible. CRS worked to establish linkages between communities and government services in the health and agriculture sectors to promote access to and use of these sector services, while raising awareness among community members of their eligibility and entitlement to receive these services in order to ensure continued demand.

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 and use of these types of services and/or the continued adoption of practices and behaviors promoted in the project. The study team hypothesized 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 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 provided by the awardees 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 at project closure. 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.

These hypotheses apply equally to the India case, where the assumption underlying the phase-over strategy was that the GOI would have the resources, capacity, and commitment (motivation) necessary at all levels (national, state, and local) to continue providing services, and that, at the community level, beneficiaries would be motivated to make use of them.

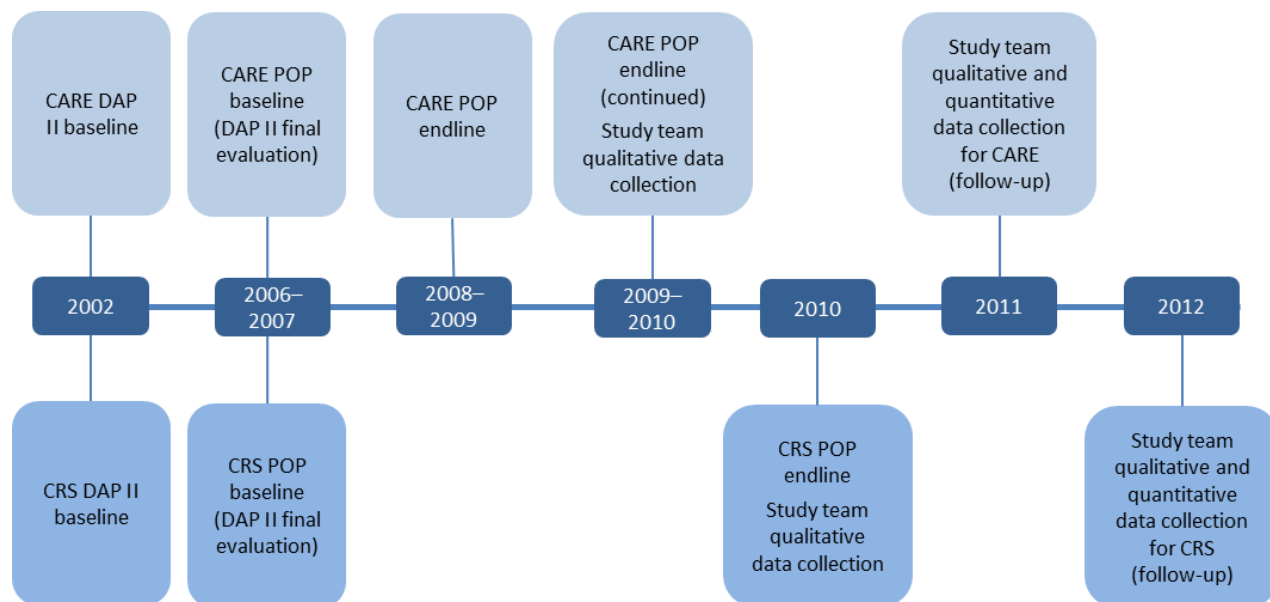
3. Research Methods and Analysis Approach

3.1 Overview of Data Sources and Timeline

The CARE and CRS POPs ended in 2009 and 2010, respectively. Two years later (in 2011 and 2012, respectively), the study team—consisting of researchers from Tufts University and enumerators from a local research firm, Sambodhi Pvt. Ltd.—replicated the projects’ quantitative endline evaluation surveys in a subset of the locations that had been surveyed in the projects’ final evaluations. Data from these follow-up surveys were compared to the projects’ endline evaluation results to judge the sustainability of project activities, outcomes, and impacts over the intervening period. The study team also drew on information in the projects’ development assistance program (DAP) II 2002 baseline reports, 2007 final evaluation reports, and other reports to assess the degree to which changes in key indicators from endline to follow-up reflected a continuation of trends that had occurred from baseline to endline.

In addition, the study team collected qualitative data in the CARE and CRS target areas at the end of the POP and again 2 years later. Qualitative information was used to understand the factors that influenced the degree to which benefits were sustained and stakeholder perceptions of the processes involved in project phase-out, exit, and post-exit. Secondary data and data from other CARE and CRS reports on their FFP development projects in India complemented these results. The study protocols were reviewed and approved by the Tufts University Institutional Review Board for the Social and Behavioral Sciences.⁹ The timing of the study in the two awardee areas differed; **Figure 3.1** shows the data collection timeline for each.¹⁰

Figure 3.1. Timeline of Data Collection and Sources



⁹ The study was not reviewed by the Indian review board, since it was not viewed as medical or clinical research.

¹⁰ The study team had access to data for analysis from the CARE and CRS POP endline evaluations only. Data from the preceding FFP development projects’ baselines and final evaluations (the latter of which served as the POP baseline) were taken from relevant associated project reports.

The study team contracted Sambodhi Pvt. Ltd. to implement both the qualitative assessments and the quantitative follow-up surveys. This firm had also conducted the baselines and endlines for both awardees' POPs. Qualitative and quantitative enumerators were recruited by the firm from among enumerators with whom they had worked before. Enumerator selection criteria included previous work performance and fluency in the local languages of the states and regions included in the study. In addition, a member of the study team who is fluent in Hindi and other local languages participated with the Sambodhi team of enumerators in qualitative and quantitative interviews at follow-up to understand the process and to monitor the quality of data collection.

3.2 Selection of States

The study team purposively selected a subset of states in which to conduct follow-up data collection. These states were chosen to represent a range of ecological and economic conditions among the areas included in the CARE and CRS projects.

The CARE endline evaluation was conducted in all nine of the states in which CARE operated: Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, and West Bengal. Of these, follow-up data collection for CARE sites was conducted in four states: Andhra Pradesh, Chhattisgarh, Orissa, and Uttar Pradesh.¹¹

The CRS endline evaluation was conducted in of the 23 states in which CRS operated: Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Uttar Pradesh, and West Bengal. Among these states, follow-up data collection for CRS sites was conducted in nine states: Andhra Pradesh, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Uttar Pradesh, and West Bengal. Of these, the MCHN component of the follow-up survey was implemented in Andhra Pradesh, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Uttar Pradesh, and West Bengal; the agriculture (watershed development) component was implemented in Chhattisgarh, Jharkhand, Madhya Pradesh, and Orissa; and the education component was implemented in Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, and West Bengal, with the education outreach component implemented in Orissa.

3.3 Qualitative Methods

In both CARE and CRS sites, focus group discussions (FGDs) and key informant interviews were conducted with a broad range of stakeholders, including project beneficiaries, service providers, project staff, and government officials. **Table 3.1** and **Table 3.2** present, for CARE and CRS respectively, the types of respondents, by sector, that participated in the qualitative data collection and the number of communities where the data were collected for each type of respondent. FGDs with beneficiaries were conducted in at least two districts per state and at least two communities per district; additional respondents identified outside of these communities were interviewed when relevant.

¹¹ Of the four states selected for the CARE follow-up, Andhra Pradesh is relatively well off, with a per capita gross domestic product (GDP) in 2011-12 of US\$1,527, which is close to average for all of India. Uttar Pradesh is relatively poor, with a per capita GDP in 2011-12 of US\$611, less than half of that in Andhra Pradesh. Chhattisgarh and Orissa fall between these two poles, with per capita GDPs in the same year of US\$936 and US\$962, respectively. The populations of the four states ranged from 25 million in Chhattisgarh to more than 199 million in Uttar Pradesh, based on 2011 census data. Andhra Pradesh's population was 84 million and Orissa's was 41 million in the 2011 census. The states also differ in the proportion of the population that is tribal (members of indigenous tribes not part of the caste system). Chhattisgarh and Orissa are relatively more tribal (with 31.8 percent and 22.2 percent of the state population classified as tribal, respectively) and Andhra Pradesh and Uttar Pradesh are relatively less so (with 6.6 percent and 0.07 percent of the state population classified as tribal, respectively).

3.3.1 Sample Selection

Selection of districts and communities for the qualitative assessment was purposive: within the states chosen for inclusion in the study, districts were selected to represent variations in local conditions. The two qualitative rounds of data collection were conducted 2 years apart. The qualitative assessments were conducted in the same locations and in the same season of the year to minimize the confounding of comparisons due to geographic and seasonal variations.

Table 3.1. Qualitative Data Sources, CARE Sites

Program Sector	Respondent	Phase 1: Number of Interviews	Phase 1: Number of Communities	Phase 2: Number of Interviews	Phase 2: Number of Communities
MCHN	Auxiliary nurse midwife	5	5	0	0
	Anganwadi worker	8	8	16	16
	Accredited social health activist	7	7	18	18
	Child development project officer	8	8	7	7
	District program officer	5	5	6	6
	Supervisor	6	6	0	0
	Health supervisor	1	1	0	0
	Eligible woman	32	8	16 key informant interviews; 12 FGDs	16 key informant interviews; 12 FGDs
	Panchayati Raj Institution (local government institution)	5	5	7	7
	CARE project officer	8	8	0	0
	Project coordinator	1	1	0	0
	Nongovernmental organization partner	7	7	2	2
	District health information officer	2	2	0	0
	Block health education officer	1	1	0	0
	Sahayka (assistant)	1	1	0	0
	Pradhan (village official leader)	1	1	7	7
	District program manager	0	0	1	1

Note: All interviews were qualitative key informant interviews except interviews with beneficiaries, which were conducted both individually and in FGDs. The number of participants in each FGD ranged from 9 to 12.

Table 3.2. Qualitative Data Sources, CRS Sites

Program Sector	Respondent	Phase 1: Number of Interviews	Phase 1: Number of Communities	Phase 2: Number of Interviews	Phase 2: Number of Communities
MCHN	Anganwadi worker	3	3	5	5
	Village health worker	5	5	4	4
	Auxiliary nurse midwife	1	1	0	0
	Eligible woman	12	6	4	4
	Health beneficiaries FGD	5	5	5	5
Agriculture (watershed development)	Watershed beneficiaries FGD	6	6	7	7
	Watershed beneficiaries	12	6	6	6
	Agricultural extension worker	7	7	0	0
Education	Principal	10	10	8	8
	Teacher	8	6	7	7
Cross-Cutting All Components	Operating partner director	8	7	10	10
	Cooperating partner program coordinator/functionary/director	5	5	6	6
	CRS program coordinator/manager	3	3	1	1
	CRS linkage officer	1	1	0	0
	<i>Panchayati Raj</i> Institution (local government institution)	0	0	2	2

Note: All interviews were qualitative key informant interviews except interviews with beneficiaries (MCHN and agriculture/watershed development), which were conducted both individually and in FGDs. The number of participants in each FGD ranged from 6 to 12.

3.3.2 Instrumentation and Implementation

FGD and key informant interview guides were developed by Sambodhi during the endline evaluations of the CARE and CRS projects, both of which included qualitative and quantitative components. The study team reviewed these guides and added questions as necessary to address the specific hypotheses of the study. The enumerators returned to the same communities in both phases of qualitative data collection, but did not necessarily interview the same individuals in both phases, except in cases where the same individual held the position being interviewed at both time points. In addition to interviews and FGDs, the team conducted site visits to observe activities at *anganwadi* centers (AWCs) and schools, and to observe irrigation infrastructure and farmer fields.

3.3.3 Data Analysis

Data were analyzed using NVivo software. Key themes were identified based on the study hypotheses, and additional themes were added based on the collected data. The qualitative data were used to help understand and interpret the study's quantitative results.

3.4 Quantitative Methods

3.4.1 Sample Selection

The sampling procedures used for the follow-up surveys in both the CARE and CRS areas replicated those used for the POP endlines: multistage cluster sampling using random selection with probability proportional to size.

In the CARE area, two sample groups of eligible beneficiaries were surveyed: 1) mothers with children up to 6 months of age, to estimate outcome indicators related to pregnancy, delivery and newborn care, and aspects of child care (including breastfeeding) in the first 6 months and 2) mothers with children 6–23 months of age, to estimate outcome indicators related to infant feeding practices, immunization, and vitamin A supplementation. Quantitative data were also collected from service providers at the village level—all AWWs and auxiliary nurse midwives (ANMs) and at least one accredited social health activist (ASHA) per selected AWC—and at the block level¹²—one child development project officer (CDPO) and all Integrated Child Development Service (ICDS) supervisors for a sample of blocks.¹³

Sampling for both the CRS endline and follow-up surveys was done independently for the MCHN, agriculture (watershed development), and education sectors, as they were implemented in different places. For the MCHN sector, a probability proportional to size method was used to sample villages randomly in the selected states from the list of villages that participated in the CRS project. A household census of the selected villages was conducted and 16 mothers per village were randomly selected. For the agriculture (watershed development) sector, all 72 watersheds in the selected states that had agriculture projects were included in the study; a household census was conducted within these 72 watersheds and 20 farmer households were randomly selected for inclusion in the sample. The samples for both the MCHN and agriculture sectors were area-based and not dependent on having directly participated in the CRS project. For the education sector, the sampling strategy differed by impact indicator. To estimate net enrollment in primary school, villages were randomly selected from the list of villages included in the education component of the project, and households with children 6–14 years of age were selected based on household listing in the villages. To estimate rates of retention in school, similar procedures were used to select early childhood development centers (ECDCs) and primary schools: schools were randomly selected from the list of all schools participating in the project; school administrators and teachers from the selected schools were interviewed; information was taken from school records; and the children to be interviewed were selected randomly from the list of enrolled children.

Sample sizes for both the CARE and CRS surveys were calculated based on the ability to detect a three or five percentage point change (depending on the indicator) from endline to follow-up in the selected indicators. **Table 3.3** and **Table 3.4** show the distribution of the sample for CARE and CRS, respectively.

¹² Administrative structures in India start with the state (or union territory), which is divided into districts and subdistricts. In rural areas, subdistricts are further divided into blocks, each of which is made up of a variable number of villages.

¹³ For CARE sites, the primary sampling unit was the AWC. Each AWC had a defined catchment area. For the selected AWCs, a household census was conducted to identify households with children in the target age ranges. Children 0–5 months of age and 6–23 months of age were randomly selected from these lists. The health care workers associated with each AWC catchment area were included in the sample of AWWs, ANMs, and ASHAs for the study, and the relevant district-level supervisors for each AWC catchment area were interviewed.

Table 3.3. Quantitative Data Sources, CARE

Data Source	Dates	Sample Size	Location (States)	Data Collected by:	Data Available for Analysis?
CARE					
<i>DAP II Baseline</i>	2002	n/a	n/a	n/a	No
<i>DAP II Final Evaluation (POP Baseline)</i>	2006	n/a	n/a	n/a	No
POP Endline					
Beneficiaries 0–5 months of age	2009	5,691	Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, West Bengal	CARE/Sambodhi	Yes
Beneficiaries 6–23 months of age	2009	6,184			
ANMs	2009	559			
ASHAs	2009	672			
AWWs	2009	842			
CDPOs	2009	130			
Supervisors	2009	635			
Study Team Follow-Up					
Beneficiaries 0–5 months of age	2011	2,257	Andhra Pradesh, Chhattisgarh, Orissa, Uttar Pradesh	Study Team/Sambodhi	Yes
Beneficiaries 6–23 months of age	2011	3,455			
ANMs	2011	124			
ASHAs	2011	416			
AWWs	2011	433			
CDPOs	2011	55			
Supervisors	2011	58			

Note: Although the 2009 CARE POP endline evaluation was conducted in more states than the 2011 follow-up survey, all comparisons of endline with follow-up in this report are based on the states that were included in both rounds of data collection.

Table 3.4. Quantitative Data Sources by Sector, CRS

Data Source	Dates	Sample Size	Location (States)	Data Collected by:	Data Available for Analysis?
CRS					
DAP II Baseline	2002	n/a	n/a	n/a	No
Safe Motherhood and Child Survival (SMCS) (MCHN intervention)	2002	n/a	n/a		No
Agriculture (watershed development)	2002	1,244	n/a		No
Education	2002	600	n/a		No
Education Outreach	2002	n/a	n/a		
DAP II Final Evaluation (POP Baseline)					
SMCS	2007	3,544	n/a	CRS/Sambodhi	No
Agriculture	2007	1,140	n/a	CRS/Sambodhi	No
Education	2007	777	n/a	CRS/Sambodhi	No
Education Outreach	n/a	n/a	n/a	n/a	No
POP Endline					
SMCS	2010	4,312	Andhra Pradesh, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Uttar Pradesh, West Bengal	CRS/Sambodhi	Yes
Agriculture	2010	2,439	Bihar, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, West Bengal	CRS/Sambodhi	Yes
Education	2010	6,311	Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Uttar Pradesh, West Bengal	CRS/Sambodhi	Yes
Education Outreach	2010	1,131	Andhra Pradesh, Orissa, Rajasthan	CRS/Sambodhi	Yes
Study Team Follow-Up					
SMCS	2012	4,137	Andhra Pradesh, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Uttar Pradesh, West Bengal	Study Team/Sambodhi	Yes
Agriculture	2012	1,348	Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa	Study Team/Sambodhi	Yes
Education	2012	2,139	Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, West Bengal	Study Team/Sambodhi	Yes
Education Outreach	2012	851	Orissa	Study Team/Sambodhi	Yes

Note: Although the 2010 CRS POP endline evaluation was conducted in more states than the follow-up survey, all comparisons of endline with follow-up in this report are based on the states that were included in both rounds of data collection.

3.4.2 Instrumentation and Survey Implementation

Follow-up questionnaires and other data collection instruments (e.g., record abstraction forms) replicated the awardees' endline questionnaires to ensure comparability of data from endline to follow-up.

Additional questions specific to sustainability were also added to the follow-up questionnaire. Completed questionnaires were reviewed by field supervisors to check for completeness and errors. Anthropometric

measurements were taken by the study team using the research firm's height/length boards and child weighing scales that were calibrated prior to each use. Data were entered into password-protected files and respondents in the database were identified only by number to ensure anonymity. Consistency checks within the data entry program CSPro provided a second line of quality control on the data. Inconsistent entries were checked against the completed forms and corrected accordingly.

3.4.3 Data Analysis

To examine the sustainability of activities, outcomes, and impacts, the study team compared key project indicators across the baseline, endline, and follow-up surveys. As noted above, information from the 2006 POP baseline reports,¹⁴ rather than baseline data, was used to compare the change in these indicators from POP baseline to endline (in 2009 for CARE and in 2010 for CRS), since the study team did not have access to the original data from the baseline surveys. Data from the CARE and CRS POP endlines, as well as the study team's follow-up surveys, were used to calculate outcome and impact indicators consistent with the methods described in the POP endline reports to ensure comparability of the data between the two time points. Because of the wide variation in results among individual states, CARE and CRS project results are reported by individual state, as well as in the aggregate across the selected states.

The awardees collected and reported weight-for-age z-score (WAZ) as their metric of nutritional status throughout the project. The study team measured both height and weight to derive indicators of stunting (height-for-age z-score [HAZ]) and wasting (weight-for-height z-score [WHZ]) from the data.¹⁵ Z-scores were calculated using the 2006 World Health Organization (WHO) Child Growth Standards (WHO 2006). Because anthropometric indicators collected prior to the endline had been constructed using different growth reference curves, they were converted for comparison using the method described in Yang and de Onis (2008). Stunting and wasting were defined using a cutoff of HAZ or WHZ < -2 , and outliers were treated according to WHO guidelines (2006).

As stated above, the sample size for the follow-up surveys was calculated to detect a three or five percentage point difference in indicators or in proportions (depending on the indicator) from the POP endline value for the most demanding key indicators (that is, assuming a starting value of 50 percent, the most conservative assumption) in a two-tailed test with 80 percent power and an $\alpha=0.05$. The significance level used for all hypothesis tests was $\alpha=0.05$. All significance tests were two-sided, using the null hypothesis of no difference between POP endline and follow-up results. Statistical analyses were performed using Stata v12. Differences between values of indicators at POP endline and follow-up were assessed using chi-square tests for proportions and two-sided independent sample t-tests for means. In addition, multivariate regression models were used to assess relationships between project inputs and their outcomes or impacts, controlling for related external factors. Survey commands were employed in multivariate analysis to adjust for the study's two-stage cluster sampling design.

A significant change ($\alpha<0.05$) in the desired direction for an indicator was interpreted as evidence of improvement from POP endline to follow-up, 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 implied that the researchers could not state with statistical certainty that there was any change in either direction. Whether an observed change is important in terms of its relevance to assessing project

¹⁴ As noted, the baselines for the CARE and CRS POPs were the endline for each awardee's previous FFP development project.

¹⁵ Anthropometric data collected as part of the POP endlines were collected by a professional research firm experienced in anthropometric measurements. At follow-up, anthropometric measurement was supervised by the same research firm, with participation by a study team member. At POP endline and at follow-up, data were cleaned and outliers eliminated using World Health Organization (WHO) (2006) guidelines.

sustainability (separate from statistical significance) is a matter of judgment, and the results are reported with this perspective. In some cases, the study team computed additional indicators to have comparable indicators across awardees. In instances where this was done, these indicators are described in the corresponding results sections of this report.

There was great inconsistency in the results observed across states, so that aggregating information over the states included in each component of the study masks substantial state-by-state differences in the degree to which activities, outcomes, and impacts were sustained between endline and follow-up. Results in each of the following sections are therefore presented and discussed separately by state as well as in the aggregate.

3.5 Limitations

The study encountered challenges related to design and data quality, many of which are unique to this type of post-project evaluation and the retrospective nature of the research. As described previously, the study was started as the projects were ending their phase-out period and after their endlines were complete. This meant that the study team did not have influence over the design of the POP endlines. Consistent with USAID policy, awardees were not required to assign a control or comparison group for their evaluations. Therefore, the study team could not employ an experimental study design. The lack of a comparison group compromised the study team's ability to determine statistically whether maintenance, improvements, or deterioration in impact indicators after the projects ended were attributable to the projects' effectiveness and the sustainability of their benefits or to non-project factors. Triangulation of multiple data sources, including key informant interviews, FGDs, and direct observation, was used, along with assessment of potential confounding factors, to mitigate these challenges. While the optimal study design might have been longitudinal, this was not feasible because endline surveys did not collect household identifiers to enable the study team to return to the households that had been previously surveyed.

Another challenge was ensuring comparability between the POP endline surveys and the study team's follow-up surveys. The study team based the follow-up surveys on the questionnaires that were administered in the awardees' endlines, with some additions, but without modifying the original questions. This was done to enable endline/follow-up comparisons, even where overall survey design and individual questionnaire items could have been improved. Some indicators that would have been useful to compare at follow-up were not collected at endline, and often not reported in the baseline reports. As a result, some elements of the awardees' projects were not addressed in the follow-up surveys, and their sustainability could not be determined.

Because of resource limitations, it was not possible to implement the follow-up surveys in all states in which the POP endline evaluations had been conducted. Therefore, comparisons between POP endline and the study's follow-up data are based on only those states that were included in both rounds of data collection.

Unfortunately, the institutional archiving of monitoring and evaluation data was not a prioritized or standardized practice among the FFP development projects at the time of the study. DAP II baseline and endline (POP baseline) survey datasets were not available. In lieu of raw data, the team relied on indicator results as reported in the awardees' reports and/or their Indicator Performance Tracking Tables, preventing statistical comparisons with baseline data. In addition, the study used the POP endline survey for comparison. However, because this survey was conducted some years after the projects had started closing down (recall that the point of the POPs was to transition project activities to other stakeholders), some changes resulting from project exit had already taken place by the time of the POP endline. Finally,

many former project staff had departed the organizations for which they had worked by the time of the follow-up surveys and were not available for interviews. Detailed project documentation was also not always available to facilitate study inquiries. These limitations underscore the challenges of conducting sustainability research, particularly if such research is not anticipated from the start of the project.

4. Operating Context

4.1 Development Food Assistance Projects in India: CARE and CRS

CARE and CRS administered food assistance projects in India for more than 50 years. In 2003, FFP announced a plan for accelerated phase-down of its program in India based on several factors, including India's emergence as a food aid donor and the GOI's decision to prohibit the importation of corn-soy blend (a commodity often included in the basket of FFP-funded MCHN intervention rations, including in India) because of concerns over its potentially genetically modified nature.

CARE began distributing food in India in 1950, before the formation of FFP. In its first four decades, the organization distributed food to mothers of small children. In 1996, however, CARE shifted from this distribution approach to a results-focused approach in which the provision of food was incorporated into a more comprehensive MCHN program. CARE's FFP development food assistance projects in India operated entirely in the MCHN sector and were focused on strengthening GOI health sector institutions and structures.

CARE's FFP development projects, called the Integrated Nutrition and Health Program (INHP), were implemented in three cycles: INHP I ran from 1996 to 2001; INHP II ran from 2002 to 2006; and INHP III, the POP, which was devoted to phasing over program responsibility to the GOI, ran from 2007 to 2009. Unique among FFP development projects, the INHP was closely tied to the GOI's ICDS, a national program administered largely through state governments, that provides MCHN activities, including growth monitoring, supplementary food provision, early child education, and other services at the community level through a system of AWCs.

CARE's close integration with the GOI's MCHN program had implications for the FFP development project's phase-out and exit. Phase-over to the government was a natural strategy for exit, as the INHP's overall approach to exit was to prepare the GOI's health system to take on full responsibility for activities that had been implemented by the project. Indeed, the last phase of the INHP (Phase III, the POP) focused entirely on strengthening the management of the health system, specifically the ICDS, to ensure the continuation of quality services following project exit. At the same time, two external developments coincided with the CARE FFP project's exit. First, the GOI universalized the ICDS in 2009, mandating program coverage for every Indian child under 6 years of age. This necessitated the rapid expansion of AWCs—where these services were provided—into areas that previously were not served. Meanwhile, rulings by the Indian Supreme Court in 2002 and 2003 determined food to be a basic right of citizenship. Consequently, withdrawal of food rations—both the take-home rations and the meals provided from the ICDS to children at AWCs—became unfeasible, since it would have been unconstitutional.

Thus, the focus of CARE's POP was the phase-out of the FFP development project's assistance through mainstreaming key elements of the project into GOI and state government services. The approach underlying CARE's exit strategy was to improve frontline services by strengthening supervision and building service capacity, thereby facilitating improvements in beneficiary practices and, ultimately, child nutrition. The goal was to put management systems in place to ensure continued service provision and reliable food delivery to beneficiaries. CARE's POP worked directly with the GOI at all levels to enhance capacities to deliver services and community outreach. CARE worked in partnership with the ICDS to strengthen operations and service delivery in AWCs. CARE also partnered with the National Rural Health Mission (NRHM), which incorporated design elements from INHP Phases I and II (e.g., convergence of services with the ICDS at community Nutrition and Health Days, creation of a cadre of ASHAs, and mobilization of *Panchayati Raj* Institutions [PRIs] [local governmental institutions]), as well as

nongovernmental organizations (NGOs), to promote services and monitor service delivery. In CARE's POP, the organization worked with government structures at the state and district levels, not directly with communities.

CRS had similarly been distributing food in India since 1951. In the early years, as with CARE's programming, CRS's food resources were distributed in "family feeding programs," but evolved to incorporate MCHN, agriculture, and education sectors components, as well as to provide food as humanitarian assistance.¹⁶ Starting with its first DAP (1997–2002), and continuing through its DAP II (2002–2007), CRS's programming focused on community-based maternal and child health and child survival, agriculture (watershed improvement), food for education, and general relief. Outside of general relief activities, food was used in these other sector activities as an incentive for project participation and as a nutritional supplement in MCHN interventions. CRS's POP originally spanned 2007–2011, though all FFP development projects were phased out of the country by the end of 2009. CRS implemented its FFP-funded development projects in areas that were remote and rural and that contained a high proportion of tribal or scheduled caste populations.¹⁷

CRS is affiliated with churches throughout India and has a permanent presence in the country that is independent of the resources it received through FFP. Typically, CRS implements its projects through affiliations with local NGOs, including cooperating partners, which fulfill a supervisory role, and operating partners, which provide direct services in the community. Operating and cooperating partners are typically organizations that existed prior to the start of FFP development projects. As such, their presence could be expected to continue after the FFP projects ended, though some operating and cooperating partners were started or began their affiliation with CRS explicitly to work on the FFP projects. Not all of these partners persisted after the FFP project exited.

The primary approach to CRS's FFP project phase-out was to work with partners and communities to explore options for phase-over to government programs and services and to educate and empower communities to obtain those services. Recognizing that it would not be possible to achieve 100 percent phase-over to government resources, CRS's POP also worked to identify alternative options to minimize the impact of closure of the FFP project in cases where phase-over to the GOI proved infeasible (that is, when it was not possible to link with another governmental organization or program that would provide the same or similar level of services and support). Cross-cutting strategies to empower communities to seek and obtain services included promoting awareness of the right to food,¹⁸ encouraging women's empowerment and leadership, identifying context-specific phase-over options, and developing linkages with organizations that would continue to support the work that CRS had started. For example, PRIs and watershed development committees (WDCs) were connected with the National Rural Employment Guarantee Act (NREGA) and the National Bank for Agriculture and Rural Development (NABARD), mothers participating in village health worker (VHW)-led mothers' groups were encouraged to seek services through the ICDS and the NRHM, and community groups were encouraged to continue their linkages with operating partner organizations. CRS also worked with partners to strengthen communities' capacities to engage with government structures and processes by building on vibrant existing community groups in most project areas. To promote women's empowerment and leadership, CRS's strategy was to strengthen and mobilize women's self-help groups, which secured financial services from banks,

¹⁶ This study did not assess CRS's humanitarian assistance interventions.

¹⁷ India's tribal regions have high populations of indigenous tribes that are not part of the caste system. "Scheduled castes" refers to lower-caste groups that tend to be socially and economically marginalized due to their low status.

¹⁸ India's Supreme Court rulings in 2002 and 2003 declared that food is a basic right, thus ensuring that the GOI had a responsibility to continue providing rations at AWCs and at Nutrition and Health Days.

maintained watershed structures, promoted behavioral changes in key maternal and child health practices, and worked to facilitate village children's enrollment in school.

CRS also sought to identify context-specific phase-over options, recognizing that such options might vary from state to state (leading to CRS's decision to name a linkage officer for each state in which it worked). Key activities included training local PRI and block officials on their responsibilities, raising awareness at the community level on the right to food, and mobilizing community-based organizations to monitor government performance.

CRS found that its identity (and that of its church partners) as a Catholic organization could be an asset in some senses and a liability in others. It was an asset in the sense that CRS built on institutions (cooperating and operating partners, as well as the church itself) that had a permanent presence in the areas where they worked, independent of the FFP projects. This permanent presence allowed for continuity of support. At the same time, this permanence might have discouraged a complete phase-over to independent community operation of project activities. Further, as a religiously affiliated institution, its beneficiaries were not necessarily automatically entitled to some government-provided benefits, as discussed below.

Additional challenges that affected CRS's implementation of the POP included the fact that the organization was better connected to governmental and nongovernmental networks in some states than in others. Government coverage, scale, and quality of government services also varied by state. Thus, detailed POPs were prepared by each state office of CRS, so that phase-over could be contextualized at the state level. In addition, as noted above, CRS posted linkage officers in each of its state offices with specific responsibility for establishing linkages and pursuing phase-over opportunities with service providers (government or private) based on local conditions.

In India, CARE worked on capacity building of the national ICDS for 13 years, gradually shifting from local-level capacity building in the first phase (INHP I) to higher-level institutional strengthening with an explicit focus on phase-over in the POP. Meanwhile, CRS started preparing for exit in the last 3 years of its project. While both organizations focused on both supply and demand to some extent, CARE's primary focus was on supply (improving service delivery by working through government structures) and CRS's main focus was on establishing demand by raising community awareness of entitlements and empowering beneficiaries to demand services.

4.2 Government of India National Programs

The GOI operates several national programs relevant to the sectors addressed in the CARE and CRS FFP development projects. In the health sector, the GOI's ICDS, a national-scale program administered largely through state governments, provides MCHN activities, including growth monitoring, supplementary food provision, and early child education, at the community level through a system of AWCs. Within the ICDS system, AWWs are responsible for all core nutrition activities, including providing supplemental food; conducting home visits to promote good child care, hygiene, and feeding practices; and maintaining a series of registers to keep track of home visits. In 2005, the GOI launched the NRHM, which created a new cadre of local village resident community health volunteers called ASHAs. ASHAs have a separate set of responsibilities, including referring children to health centers for common illnesses, counseling at home, referring women to health clinics for delivery care and whatever family planning services are offered, and supporting immunization activities. ANMs previously did much of the ASHAs' field work and now perform a more supervisory role. AWWs and ANMs are salaried employees; ASHAs are nominally volunteers, but are in fact paid on the basis of the services they perform. For example, they receive compensation for each pregnancy case that they refer for hospital delivery and for each child with

complete immunizations. The NRHM has a different supervisory structure for ASHAs from that for AWWs. The NRHM operates under the Ministry of Health and Family Welfare. The ICDS operates under the Ministry of Women and Child Development. (See Figure 5.1.)

As noted above, in 2003, the GOI implemented a ban on the import of genetically modified foods, resulting in the rejection of the corn-soy blend provided by FFP and the withdrawal of this resource from ongoing and future FFP projects in India. This ban might have resulted in the loss of supplementary food provision in GOI child health services. However, GOI Supreme Court's rulings in 2002 and 2003 declared that food must be considered a basic human right, obligating the government to continue providing supplementary food through the health system in the form of take-home rations given to mothers of small children during monthly Nutrition and Health Days, as well as through prepared food given to preschool children attending the AWCs. Therefore, withdrawal of FFP food commodities did not result in the loss of supplementary food. In addition, in 2009, the GOI made a commitment to universalize the ICDS system, with a goal of ensuring that there would be an AWC for every 1,500 households with children in all communities, and that all children under 6 years of age would have access to an AWC, as well as to the food provided in these centers.

In the agriculture sector, the GOI implements two programs relevant to CRS's FFP development activities: the NABARD, a government program providing credit to support community improvements in agricultural infrastructure, and the NREGA, which provides a legal guarantee of at least 100 days of employment at 7 hours of unskilled manual labor (at a minimum of 80 Indian rupees [INR] per day) to every rural household each year. At least one-third of NREGA jobs are reserved for women.

In the education sector, the GOI funds a national Mid-Day Meals program. This program provides food to children in primary and secondary schools, contingent on the child achieving 80 percent attendance. The Mid-Day Meals program is offered in all public (government-run) schools, but is not legally restricted to public schools.

5. CARE Maternal and Child Health and Nutrition Sector

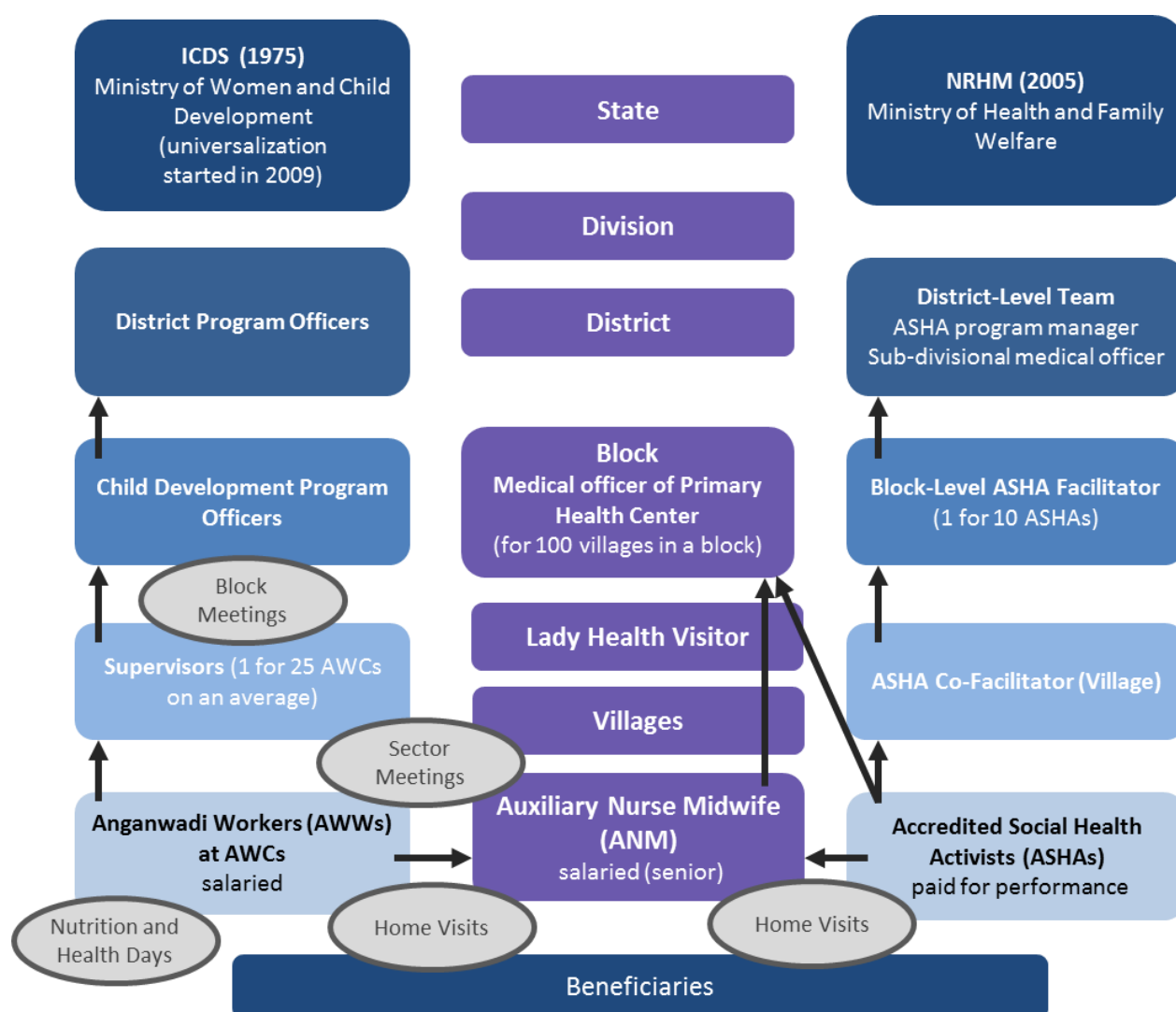
5.1 CARE Maternal and Child Health and Nutrition Sector Intervention Description

The first phase of CARE's FFP-funded MCHN sector interventions (INHP I, 1996–2001) implemented activities to improve child health and nutrition in select ICDS sites. INHP I introduced take-home rations to increase outreach and to provide an incentive to pregnant and lactating women and to women with children under 2 years of age to attend AWCs, as well as to serve as a nutritional supplement. INHP I also introduced the concept of convergence between the maternal and child health departments through jointly managed Nutrition and Health Days, where growth monitoring, immunizations, and counseling were performed to improve delivery of the services that are critical for better pregnancy and child growth outcomes. Take-home rations were also provided at these events, which were held at the AWC. To implement these activities, INHP I developed training packages, monitoring and evaluation systems, management systems, and approaches to engage communities.

Several categories of workers were responsible for supporting ICDS program services under CARE's three INHP phases. CARE created the AWW position, making AWWs responsible for all core nutrition activities within the ICDS, including providing supplemental food, conducting home visits, and maintaining registers. The high workload among AWWs created a gap in delivering other essential health services and propelled CARE to partner with the NRHM and to work with ASHAs as well.

Two different GOI ministries provide separate systems of training and supervision for these frontline workers. The AWWs of the ICDS fall under the purview of the Ministry of Women and Child Development and the ASHAs fall under the purview of the Ministry of Health and Family Welfare. That said, both AWWs and ASHAs report to ANMs, and ANMs make visits to AWCs to check on their functioning and the work of the AWWs, although AWWs are officially trained and managed by Supervisors.

The NRHM has an independent supervisory structure from the ICDS. ASHAs are supervised by the ASHA co-facilitator at the village level, who reports to the block-level ASHA facilitator. The block-level ASHA facilitator in turn reports to the District-Level Team. ANMs are supervised by a category of health worker known as a Lady Health Visitor. A Lady Health Visitor is responsible for visiting each ANM monthly. ANMs also report to the Medical Officer of the primary health center at the block level. To support effective function of these roles, CDPOs supervise ANMs and Supervisors at the block level, and District Program Officers are responsible for CDPO supervision and program implementation at the district level. **Figure 5.1** shows in schematic form the relationships between the ICDS and NRHM staff supervision and services.

Figure 5.1. Organizational Structure of Maternal and Child Health Services

Note: Figure represents the structure at the time of the INHP III, after the (2005) implementation of the NRHM. There is considerable interstate variability in the organization of health services; not all of the positions shown are consistently filled in every state. See Section 4.2 for the main tasks of the frontline workers listed here. Arrows denote reporting relationships.

The second phase of the INHP (INHP II, 2002–2006) focused on technical interventions known to affect nutritional status: antenatal care, child immunization, micronutrient supplementation, food supplementation, and infant and child feeding behaviors (including appropriate breastfeeding). The project established more than 100 partnerships with local NGOs to help monitor ICDS systems and to mobilize communities to scale up coverage of key interventions. INHP II also worked with AWWs and ASHAs, who were responsible for making home visits to encourage the use of health services; promote good health, hygiene, and feeding behaviors; and monitor such behaviors. INHP II aimed to strengthen supportive supervision and convergence at the sector level through improved supervisory training, record-keeping, automated management systems, and regular joint meetings of health and ICDS staff. Health officers were trained in using checklists and data for supportive supervision of the 20–25 AWWs in their sector, and tools such as home visit planners were introduced to assist AWWs and ASHAs in prioritizing home visits and providing critical messages during those contacts.

The third phase of the INHP (the POP, 2007–2009) focused on phase-over of supervision and management to the health sector at the national level and in nine states¹⁹ by providing training and technical assistance to health sector officials at all levels. The POP phase of the INHP did not provide services directly to communities. Instead, CARE worked with both the ICDS and the NRHM to develop systems for management and supervision: checklists for the activities of frontline workers, reporting tools to gather information about the quality of service provision and the availability of supplies and equipment, and regular sector meetings and supervision of line staff. During the POP, the ICDS greatly expanded its reach due to mandated universalization. Thus, while CARE anticipated targeting 94,592 AWCs at the time that the plan for the POP was written, that number increased to 234,891 by the time the project closed in September 2009.

5.2 CARE Maternal and Child Health and Nutrition Sector Sustainability Plans and Exit Strategies

The systems developed during INHP I and II and consolidated during the POP were intended to ensure that, after CARE's exit, beneficiaries would continue to receive food rations (take-home rations at Nutrition and Health Days, cooked meals at the AWCs), health services (immunizations, growth monitoring, antenatal and postnatal care, hospital deliveries), and behavior change communication (at Nutrition and Health Days and during home visits), with the overall goal of improving the nutritional status of children through improved nutrition and health care. The POP was implemented in phases, with staged exit over 3 years. As part of the phased exit strategy, the highest-performing districts, with strong leadership, were phased out during the first year, districts deemed to have average capacity were phased out in the second year, and those with less initial capacity were given the full 3 years to prepare for exit.

During the POP, CARE ensured that sector meetings, conducted by Supervisors to monitor the performance of frontline workers, took place monthly. Supervisors were to ensure that AWWs and ANMs used field tools to better organize their work, including home visit registers and “due lists” to keep track of which children were due to receive certain vaccines. Strengthened supervision was expected to improve the delivery of services by increasing the coverage of home visits conducted by AWWs and ANMs and by maintaining the organization of Nutrition and Health Days. These key services (home visits and Nutrition and Health Days) were expected, in turn, to have a positive effect on key beneficiary behaviors, including feeding practices, handwashing, and participation in growth monitoring. Finally, the assumption underlying all of these activities was that improved beneficiary practices would lead to better child nutrition outcomes, including reduced prevalence of stunting and wasting and reduced incidence of diarrhea. CARE's strategies for sustainability and the underlying assumptions are presented in **Box 5.1**.

¹⁹ As noted in Section 3.2, the states in which CARE's POP focused on phase-over of supervision were: Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, and West Bengal.

Box 5.1. CARE MCHN Sustainability Strategies and Key Assumptions

SUSTAINABILITY STRATEGIES	KEY ASSUMPTIONS*
<ul style="list-style-type: none"> Institutionalize monthly ICDS sector and block meetings. 	<ul style="list-style-type: none"> Regular supervisory meetings that bring frontline workers and supervisory-level personnel together will ensure that frontline workers make home visits and participate in Nutrition and Health Days as required. Regular supervisory meetings will motivate frontline workers to continue using tools to ensure correct service provision.
<ul style="list-style-type: none"> Develop tools for frontline workers to use (e.g., due lists, checklists, and visit registers). 	<ul style="list-style-type: none"> Frontline workers will find these tools useful for their work and will be motivated to continue using them. Use of these tools will improve the quality of frontline work: AWWs and ANMs will visit beneficiary households according to schedule and promote behaviors and use of health services appropriate to the age/physiological status of the mother and child.
<ul style="list-style-type: none"> Institutionalize supervision of frontline workers by their direct supervisors within the ICDS and NRHM systems. 	<ul style="list-style-type: none"> Regular, individual, direct supervision will ensure that frontline workers perform their tasks as required, including home visits, promotion of good caring practices, and encouragement of mothers/caretakers to make use of health services and to participate in Nutrition and Health Days. Regular supervision will ensure frontline workers' use of tools and will maintain the effectiveness of their work.
<ul style="list-style-type: none"> Develop supply chain management systems and perform capacity building within the ICDS for procurement and monitoring of food used in take-home rations and AWC meals. 	<ul style="list-style-type: none"> ICDS functionaries at the district and sub-district levels will continue to make use of project-developed tools for management of the food supply chain. Effective supply chain management by ICDS functionaries at the district and sub-district levels will ensure uninterrupted delivery of take-home rations and AWC meals. State-level functionaries will understand and use project-developed management systems to monitor and adjust the quantities of food that are procured and distributed.
<ul style="list-style-type: none"> Gradually transfer responsibility for all INHP activities to health officials at the state and district levels. 	<ul style="list-style-type: none"> Maintenance of ICDS and NRHM activities will result in improved service use and maternal behaviors, and will thus reduce child stunting and wasting.

* Not all of these assumptions were an explicit part of CARE's sustainability strategy, and therefore not all were critically assessed in advance of the strategy's implementation; some were inferred by the study team based on project documents and plans.

5.3 CARE Maternal and Child Health and Nutrition Sector Results

This section presents the results of the assessment of the effectiveness of the sustainability plan embedded in CARE's POP.

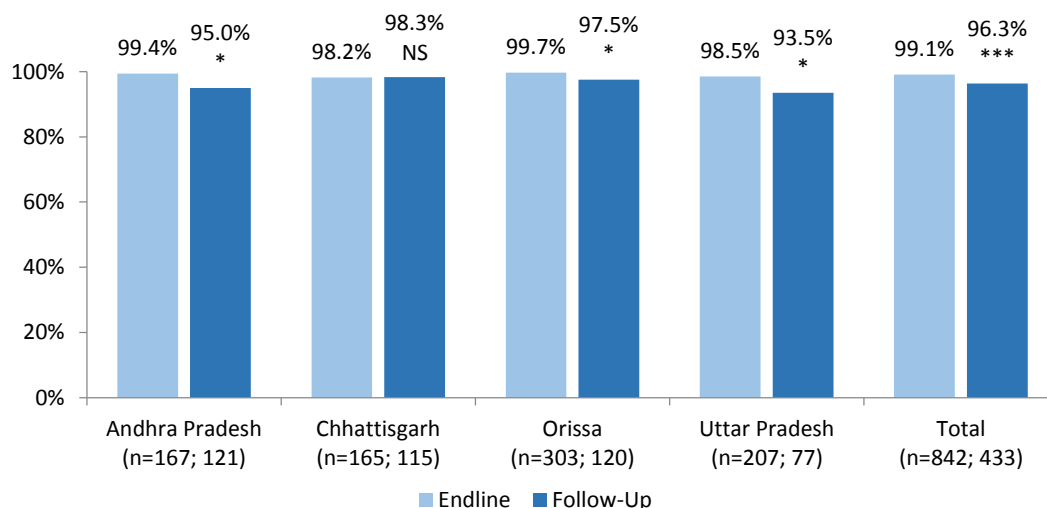
5.3.1 Sustainability of Maternal and Child Health and Nutrition Service Delivery

Training and Supervision

The maintenance of monthly ICDS sector meetings was a key element of CARE's sustainability plan. At follow-up, at least 95 percent of AWWs reported that regular sector meetings were being held, although, as **Figure 5.2** shows, there was a small but significant decline between endline and follow-up in the percent of AWWs who reported that monthly sector meetings were held regularly. That said, **Figure 5.3** shows that regular attendance at these meetings increased in the aggregate across all states. But, as is evident in many of the results reported here, this aggregate figure masks substantial differences among states in the rate of attendance at these meetings at both endline and follow-up. Two of the states studied (Andhra Pradesh and Orissa) saw substantial increases in attendance rates at monthly sector meetings between the end of the POP and the follow-up survey, while the other two states (Chhattisgarh and Uttar Pradesh) saw sustained attendance rates but no further increases. Qualitative interviews with health workers suggested that AWW attendance at monthly meetings was related to their perception of the effectiveness of their individual supervisor or CDPO.²⁰ Despite the POP's emphasis on institutionalizing systems, it seemed that individual relationships still explained some of these measures of compliance.

At the next level up, block meetings between Supervisors and CDPOs were also sustained (at about 50 percent) between endline and follow-up, though, as in the previous example, there were differences among the states in the report of the number of meetings being held, as shown in **Figure 5.4**.

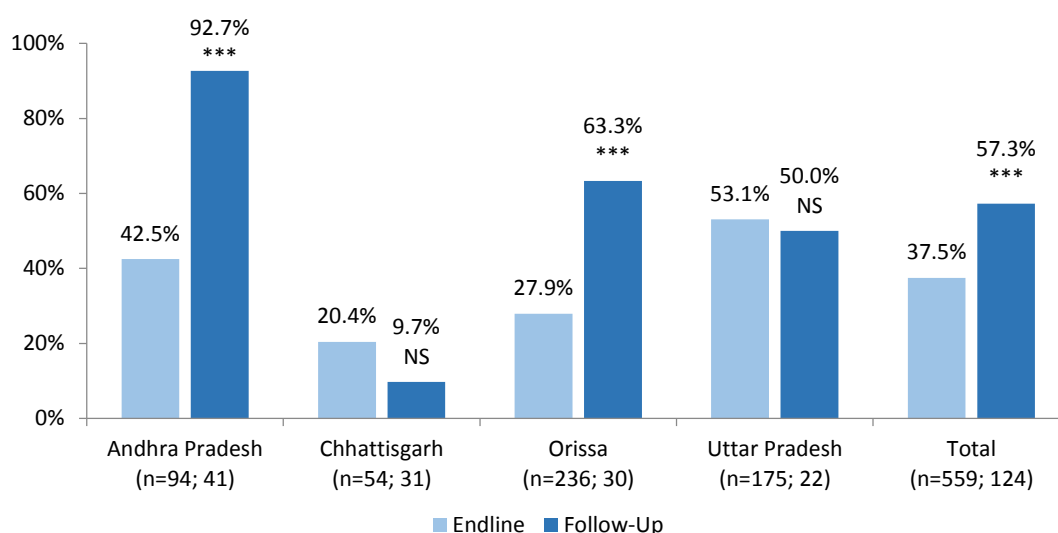
Figure 5.2. Percentage of AWWs Reporting That Monthly Sector Meetings Occur Regularly



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, * $p < 0.05$, *** $p < 0.001$.

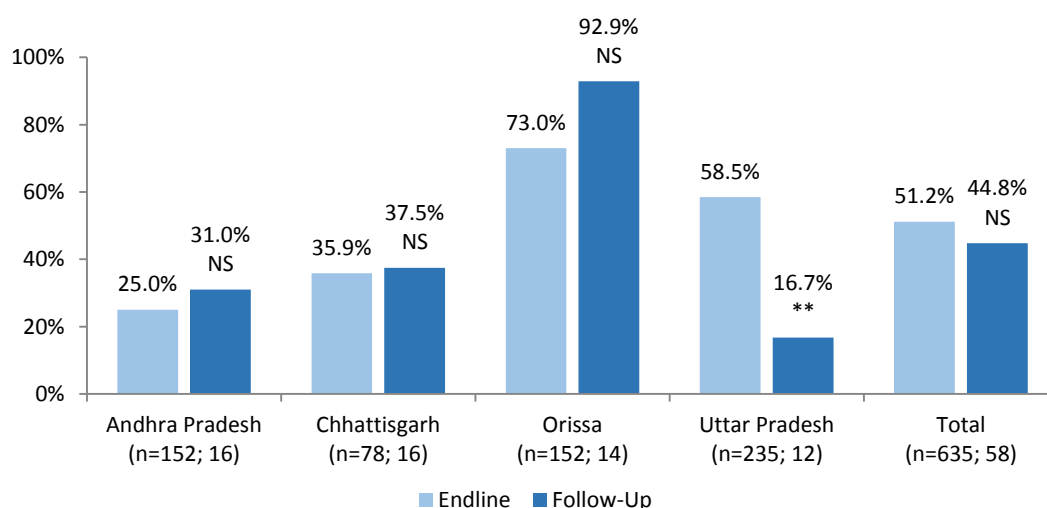
²⁰ The CDPO attends monthly meetings along with the AWW and the ANM. AWW perceptions refer to their direct supervisors as well as more senior staff.

Figure 5.3. Percentage of AWWs Who Attended Sector Meetings Three Times in the Past 3 Months^a

Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, *** p<0.001.

^a Attendance by AWWs was reported by their direct supervisors.

Figure 5.4. Percentage of Supervisors Reporting Block Meetings Occur Monthly^a

Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, ** p<0.01.

^a Numbers in parentheses are number of block meetings at endline and number of block meetings at follow-up.

Because these supervisory mechanisms were intended to improve the provision of frontline services, the study team looked at the effect of supervision on services provided and field activities conducted.

Table 5.1 reports on the association of monthly sector meetings with various measures of service delivery and field work. Results varied by state, but, in Andhra Pradesh and Uttar Pradesh at follow-up, sector meetings were strongly associated with the continued use of due lists by ANMs, supervision of AWWs by ANMs, occurrence of Nutrition and Health Days, home visits conducted by AWWs, and take-home ration availability during Nutrition and Health Days.

Table 5.1. Association of Occurrence of Monthly Sector Meetings with Other Measures of Service Delivery

	Andhra Pradesh		Chhattisgarh		Orissa		Uttar Pradesh	
	2009	2011	2009	2011	2009	2011	2009	2011
AWW using home visit register	0.06 (0.42)	0.15 (0.09)	-0.0018 (0.98)	0.08 (0.36)	0.06 (0.26)	0.09 (0.30)	-0.18 (0.008)	0.12 (0.28)
AWW using due list	-0.07 (0.36)	0.1 (0.25)	0.04 (0.58)	-0.03 (0.69)	0.18 (0.0013)	0.06 (0.46)	0.0076 (0.91)	0.19 (0.09)
ANM using due list	100% make due lists	0.49 (0.0009)	-0.15 (0.25)	0.12 (0.51)	100% make due lists	100% make due lists	-0.12 (0.1)	0.62 (0.002)
ANM using home visit register	-0.02 (0.8)	0.30 (0.05)	-0.08 (0.5)	0.33 (0.069)	0.05 (0.4)	Only 4 ANMs use registers	-0.17 (0.018)	0.18 (0.4)
ANM supervisory visits to AWCs	-0.03 (0.68)	0.39 (0.0001)	0.08 (0.28)	0.18 (0.05)	0.13 (0.017)	0.12 (0.17)	0.02 (0.72)	0.40 (0.0003)
Home visits by AWWs	-0.03 (0.67)	0.22 (0.014)	0.06 (0.40)	0.15 (0.1)	0.08 (0.12)	-0.02 (0.8)	-0.05 (0.49)	0.43 (0.001)
Nutrition and Health Days occurrence	-0.01 (0.84)	0.18 (0.038)	-0.06 (0.41)	0.12 (0.2)	0.009 (0.86)	0.01 (0.87)	0.06 (0.36)	0.26 (0.018)
Take-home ration availability on Nutrition and Health Days	-0.03 (0.67)	0.21 (0.02)	0.03 (0.64)	0.11 (0.22)	0.08 (0.14)	0.08 (0.34)	-0.08 (0.22)	0.25 (0.02)

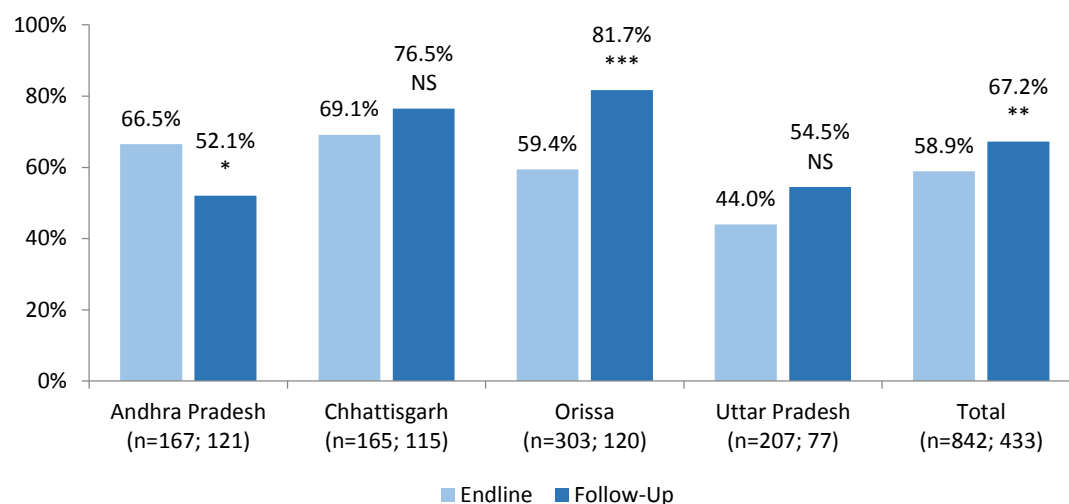
Note: The statistical significance of these Pearson correlation coefficients is at 0.05 significance level. The p-values are reported below these coefficients in parentheses. The correlations between pairs of outcome and predictor variables are given for each state at 2009 and 2011. Statistically significant relationships are shown in bold.

CARE's POP aimed to strengthen the supervision structure within the ICDS by ensuring that senior health workers regularly visited their subordinate staff. ANMs were supposed to visit AWWs at AWCs every month and Lady Health Visitors were supposed to visit ANMs every month, while Supervisors and CDPOs were supposed to meet at the block level every month. CARE's POP also focused on ensuring that frontline health workers were trained by the senior staff of the ICDS, not only at monthly sector meetings, but also during periodic supervisory field visits.

While the results varied by state, supervision was largely sustained. **Figure 5.5** shows the percent of AWWs receiving monthly supervisory visits by their ANM. When a less stringent criterion is used (one visit in the last 3 months), nearly 90 percent of AWCs were visited by ANMs. The percent of Supervisors reporting that they provided training to AWWs at sector meetings was also sustained, except in Andhra Pradesh, where the figure declined significantly from more than 80 percent at endline to less than 25 percent at follow-up (data not shown). The picture for ASHAs was still more positive: more than 95 percent of ASHAs reported at follow-up that they received training, a slight (non-significant) increase over endline (data not shown).

Training of Supervisors was less well sustained (**Figure 5.6**). The percent of Supervisors who received job or refresher training declined in two states (significantly in Andhra Pradesh, from 71.1 percent at endline to 37.5 percent at follow-up) and showed a slight, non-significant drop overall, from 60.8 percent at endline to 50.0 percent at follow-up. Further, Supervisors' use of checklists to guide their sector meetings declined significantly overall, from 52.4 percent at endline to 27.6 percent at follow-up, and dramatically so in Orissa and Uttar Pradesh (from 49.3 percent to 14.3 percent and from 52.6 percent to 16.7 percent, respectively). In contrast, Supervisor use of checklists for Nutrition and Health Days increased significantly in all states but Uttar Pradesh, rising from 36.2 percent at endline to 56.9 percent at follow-up overall.

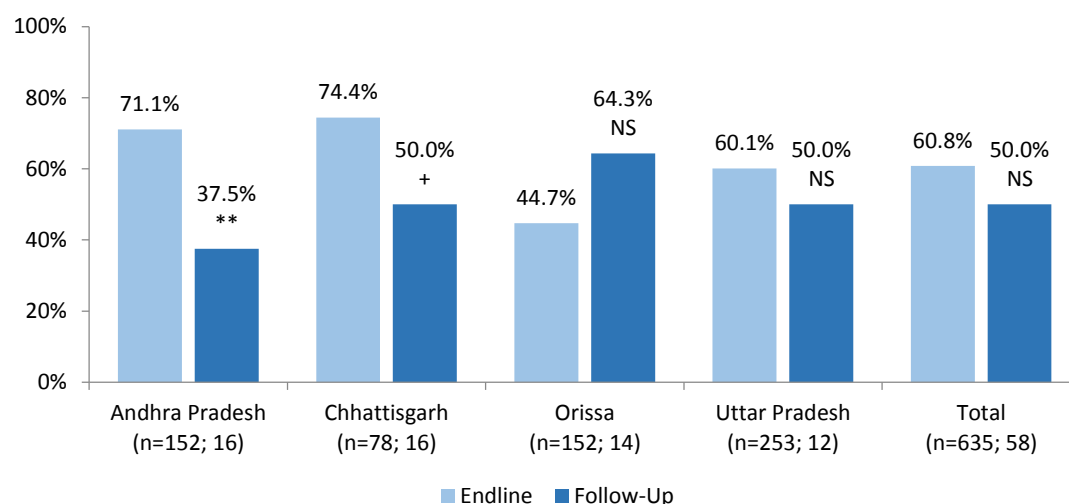
Figure 5.5. Percentage of AWWs Reporting Visits by Their ANM at least Three Times in the Past 3 Months



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Figure 5.6. Percentage of Supervisors Reporting Receiving Both Job Course and Refresher Training



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, + $p\leq 0.1$, ** $p<0.01$.

Associations between ANM visits to the AWC (at least three times in past 3 months) and AWW service delivery were inconsistent. **Table 5.2** shows the association of monthly ANM visits with three measures of AWW performance: making home visits, using the visit register as trained, and using due lists to plan home visits. In Andhra Pradesh at follow-up, there were significant positive associations between ANM monthly visits to AWCs and all three indicators of AWW performance. In the other states, these supervisory visits did not show a significant association with AWW performance. Similarly, AWW Supervisor visits were only inconsistently related to AWW performance: in Andhra Pradesh, Supervisor visits were associated only with AWW home visits; in Chhattisgarh, only with home register use; and in Uttar Pradesh, only with the use of due lists (data not shown).

Table 5.2. Association of AWW Visitations by ANMs Three Times in the Previous 3 Months with Other Measures of Service Delivery and Field Work

	Andhra Pradesh		Chhattisgarh		Orissa		Uttar Pradesh	
	2009	2011	2009	2011	2009	2011	2009	2011
AWW home visits	0.06 (0.38)	0.27 (0.0026)	-0.01 (0.8)	0.24 (0.01)	0.09 (0.11)	0.13 (0.15)	-0.03 (0.67)	0.14 (0.22)
AWW using home visit register	0.08 (0.29)	0.20 (0.02)	-0.04 (0.57)	0.14 (0.13)	-0.04 (0.45)	0.006 (0.94)	-0.05 (0.39)	0.06 (0.59)
AWW using due list	0.07 (0.32)	0.25 (0.005)	0.03 (0.69)	0.12 (0.18)	0.06 (0.28)	0.13 (0.13)	0.03 (0.6)	0.15 (0.17)

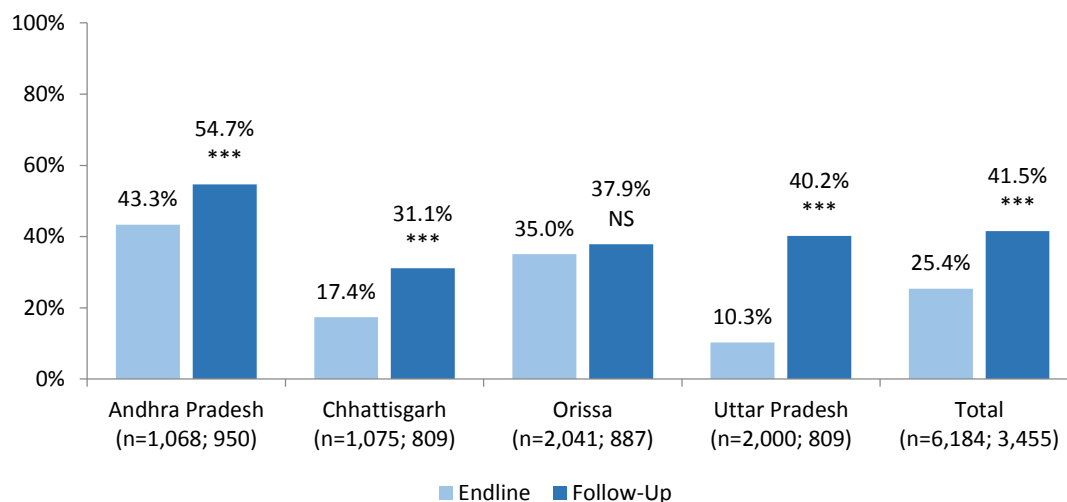
Note: The statistical significance of these Pearson correlation coefficients is at 0.05 significance level and the p-values are reported below these coefficients in parentheses. The correlations between pairs of outcome and predictor variables are given for each state at 2009 and 2011. Statistically significant relationships are shown in bold.

Frontline Worker Performance

Home visits were a critical component of the health strategy of all three of the INHP phases. The POP phase focused on establishing systems and providing tools to ensure that AWWs, ANMs, and ASHAs made home visits and covered the appropriate topics. Home visits by both AWWs and ANMs generally increased or were sustained between endline and follow-up (**Figures 5.7 and 5.8**). Visits by AWWs in the past month increased at follow-up in all but one state (where it was maintained, with a small, non-significant increase), and increases were highest in the states where, at endline, they had been lowest.

Home visits by ANMs were less frequent (except in Andhra Pradesh), but showed the same positive change between endline and follow-up. Overall, ANM home visits in the past month at follow-up ranged from 53.9 percent in Andhra Pradesh to 11.1 percent in Chhattisgarh, though it should be noted that these numbers would likely be higher if the respondents had been questioned as well about visits in the past 3 months. Qualitative interviews with AWWs and ANMs confirmed that home visits were viewed as a critical part of their responsibilities, and were frequently credited with having an important role in beneficiary behavior change. Both AWWs and ANMs are salaried health workers and, as part of their jobs, receive regular training and supervision. Thus, if they are motivated to perform home visits (as they reported), the health system provides them with the capacity (training) and resources (salary) to do so. Notably, home visits by ASHAs were much lower than those of AWW at follow-up; not exceeding 25 percent in any state studied (**Figure 5.9**). Home visits, while part of ASHAs' duties, were not included in the pay-for-performance model associated with their remuneration.

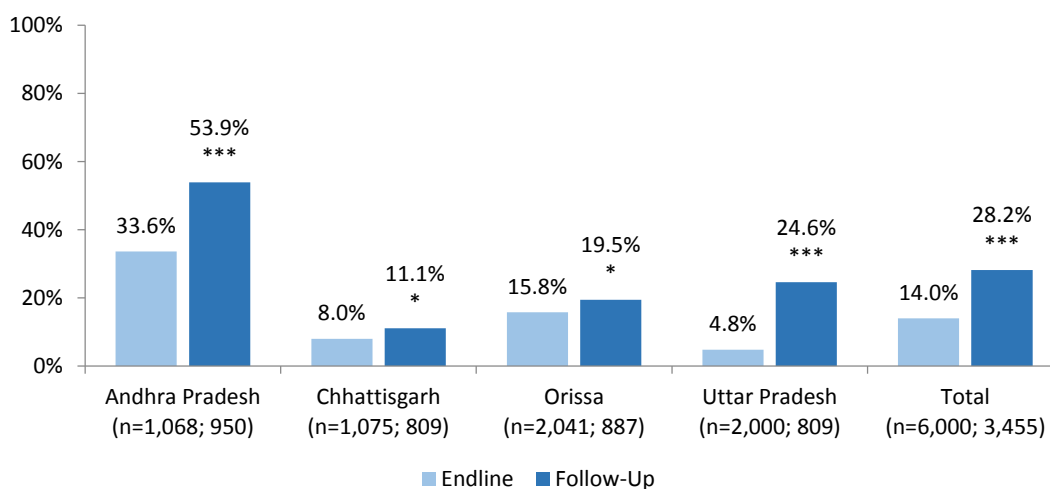
Figure 5.7. Percentage of Mothers with Children 6–23 Months of Age Reporting Being Visited by an AWW at Home in the Previous Month



Sources: 2009 and 2011 CARE endline and follow-up surveys.

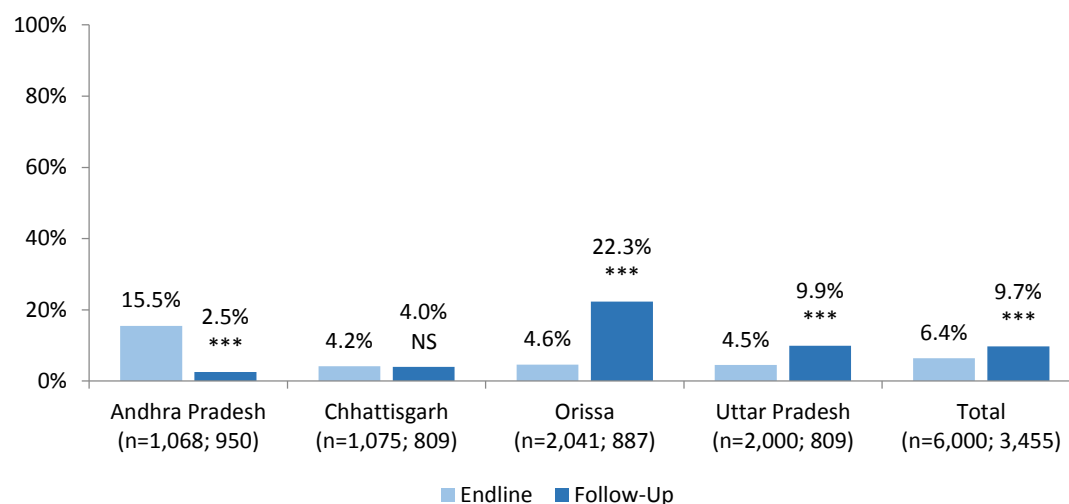
Note: Significance based on two sample z-tests; NS=not significant, *** p<0.001.

Figure 5.8. Percentage of Mothers with Children 6–23 Months of Age Reporting Being Visited by an ANM at Home in the Previous Month



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; * p<0.05, *** p<0.001.

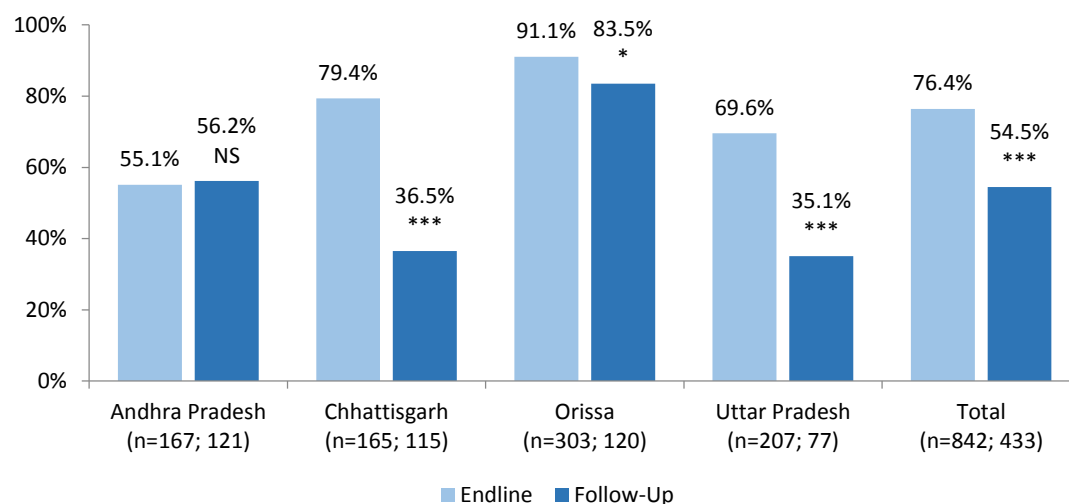
Figure 5.9. Percentage of Mothers with Children 6–23 Months of Age Reporting Being Visited by an ASHA at Home in the Previous Month

Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, *** $p < 0.001$.

The AWWs reported in FGDs that home visits were important for promoting behavior change. However, AWW use of field tools at these home visits, such as visit registers and due lists, declined significantly from endline to follow-up. Use of registers declined in three states (significantly in Orissa) and overall; use of due lists for immunization also declined in three states (in Chhattisgarh from 79.4 percent to 36.5 percent, in Orissa from 91.1 percent to 83.5 percent, in Uttar Pradesh from 69.6 percent to 35.1 percent, and overall from 76.4 percent to 54.5 percent). **Figure 5.10** shows changes in the use of due lists for either immunizations or Nutrition and Health Days, which reflects the pattern seen with the other field tools (e.g., visit registers): significant declines in use in three states (with the exception of Andhra Pradesh) and overall. That said, the results again show large differences from state to state such that in Orissa at follow-up, 83.5 percent of AWWs were still using due lists, while in Chhattisgarh and Uttar Pradesh, use of due lists declined to around 35 percent. Several AWWs noted in qualitative interviews and in FGDs that they did not use due lists and visit registers because they had been working as AWWs for a long time and they did not need reminders of what to tell the mothers. A few also said that the focus on documentation and paperwork added to their burden and diverted time at sector meetings from open discussion to the submission of their paperwork. In contrast, the percent of ASHAs keeping formal records of their home visits (which were much less frequent than AWW home visits) increased in all states, and reached more than 80 percent overall at follow-up (data not shown).

Figure 5.10. Percentage of AWWs Reporting Using a Due List for Immunization Days or Nutrition and Health Days



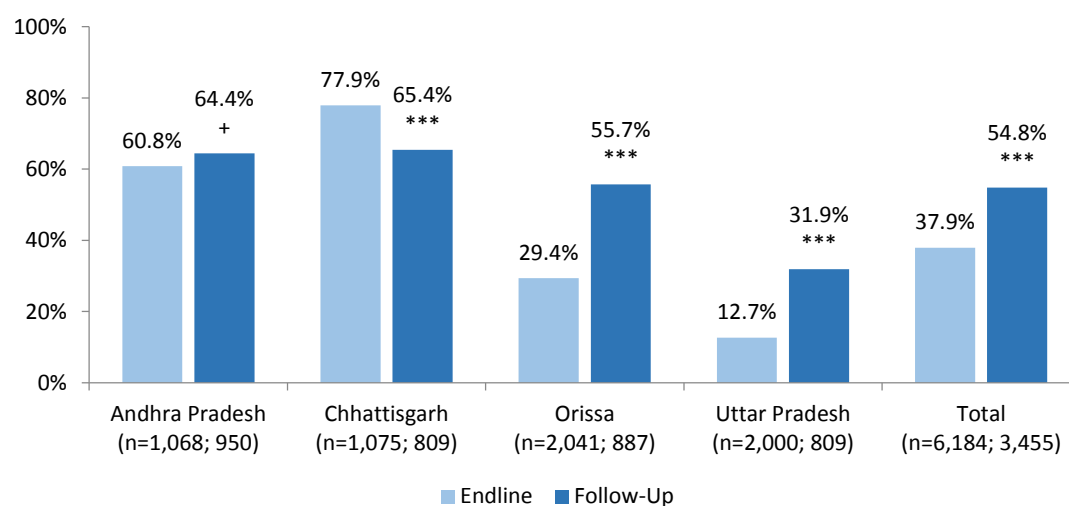
Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, * $p < 0.05$, *** $p < 0.001$.

Nutrition and Health Days

Monthly Nutrition and Health Days were central to the INHP strategy. At these events, AWWs, ANMs, and ASHAs were to attend and coordinate services; health workers conducted growth monitoring and gave immunizations; and mothers received take-home rations. The percent of mothers who reported that Nutrition and Health Days took place in their villages post-project was generally sustained or improved, except in Chhattisgarh, which experienced a significant (and unexplained) decline in these events, but still had a higher frequency of Nutrition and Health Days than the other states in the sample (**Figure 5.11**).

Figure 5.11. Percentage of Mothers with Children 6–23 Months of Age Reporting Being Aware That Nutrition and Health Days Occur in Their Village



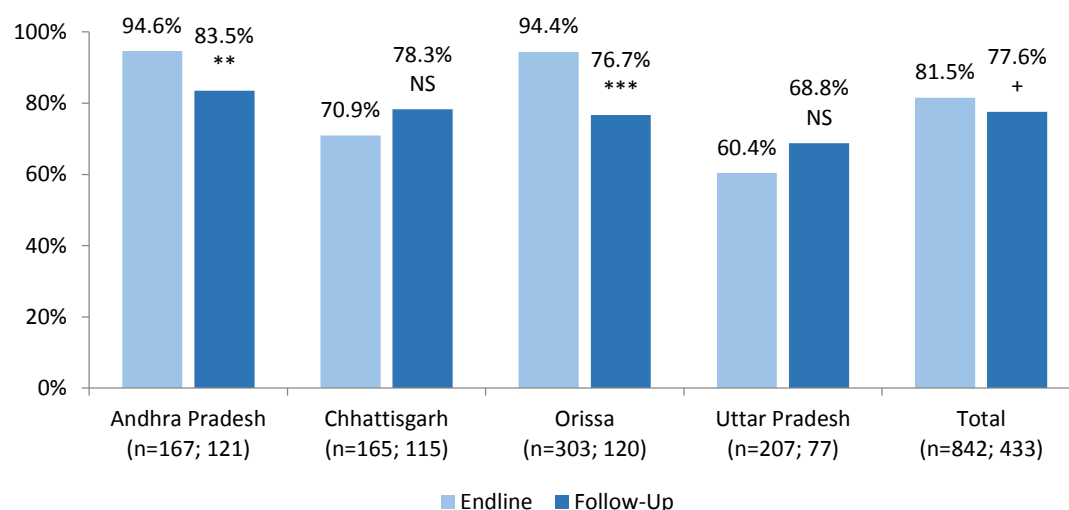
Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; + $p \leq 0.1$, *** $p < 0.001$.

To determine whether health workers attended the Nutrition and Health Days, the study team asked companion health workers about the attendance of their colleagues: AWWs were asked whether ANMs attended regularly (three times in the past 3 months) and also whether ASHAs attended regularly; ANMs were asked whether AWWs attended regularly. Based on these responses, it appears that attendance by ANMs at these events fell significantly in Andhra Pradesh and Orissa and showed non-significant increases in Chhattisgarh and Uttar Pradesh. Overall, at endline, attendance at Nutrition and Health Days by ANMs (as reported by AWWs) was about 78 percent. ASHA attendance fell slightly from 76 percent to 70 percent among the four states, with declines in two states and no significant change in two others, but in no state at follow-up were attendance rates below 60 percent. (Recall that ASHAs are paid for each child fully immunized, and immunization occurs at Nutrition and Health Days.) AWWs' attendance at Nutrition and Health Days was generally sustained at more than 85 percent; only in Uttar Pradesh did attendance fall significantly, for unknown reasons, from more than 85 percent at endline to just under 70 percent at follow-up. These results are shown in **Figures 5.12, 5.13, and 5.14**.

These results demonstrate that, according to a fairly stringent criterion of attendance at all three of the past monthly Nutrition and Health Days, attendance by all three categories of frontline health workers was well maintained. However, these results also show that information aggregated over the four states in the study sample masks some substantial state-by-state differences. These differences are unexplained by the qualitative interviews with frontline health workers, as the individual opinions expressed in these interviews did not show any consistent differences by state, but rather reflected personal experiences and attitudes.

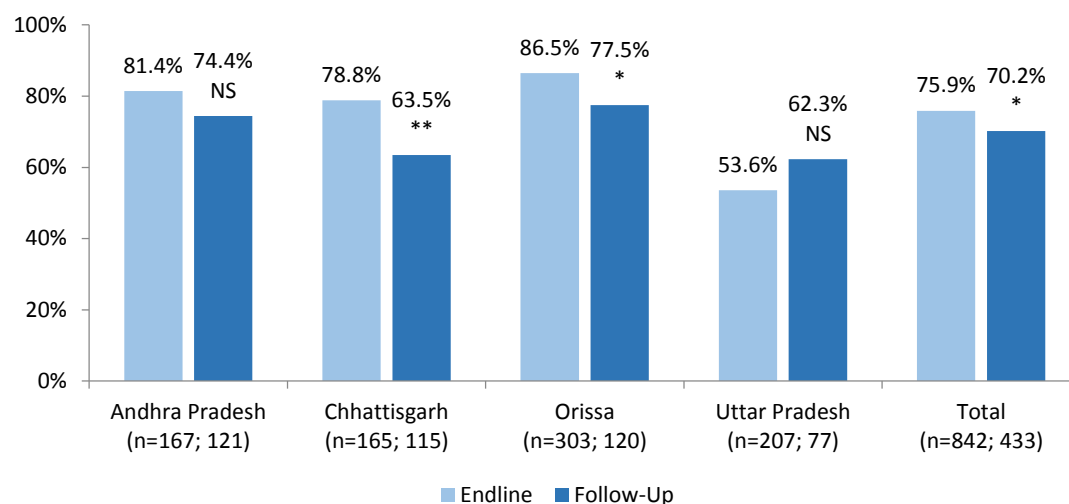
Figure 5.12. Percentage of AWWs Reporting That Their ANMs Attended Nutrition and Health Days All Three Times in the Past 3 Months



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, + $p \leq 0.1$, ** $p < 0.01$, *** $p < 0.001$.

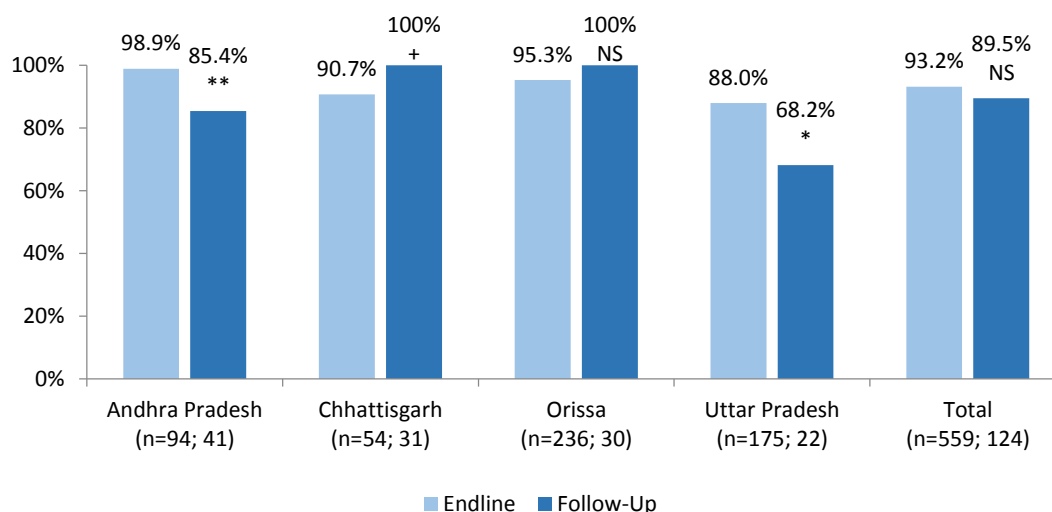
Figure 5.13. Percentage of AWWs Reporting That ASHAs Attended Nutrition and Health Days All Three Times in the Past 3 Months



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, * $p < 0.05$, ** $p < 0.01$.

Figure 5.14. Percentage of ANMs Who Said That the AWW Attended Nutrition and Health Days All Three Times in Past 3 Months



Sources: 2009 and 2011 CARE endline and follow-up surveys.

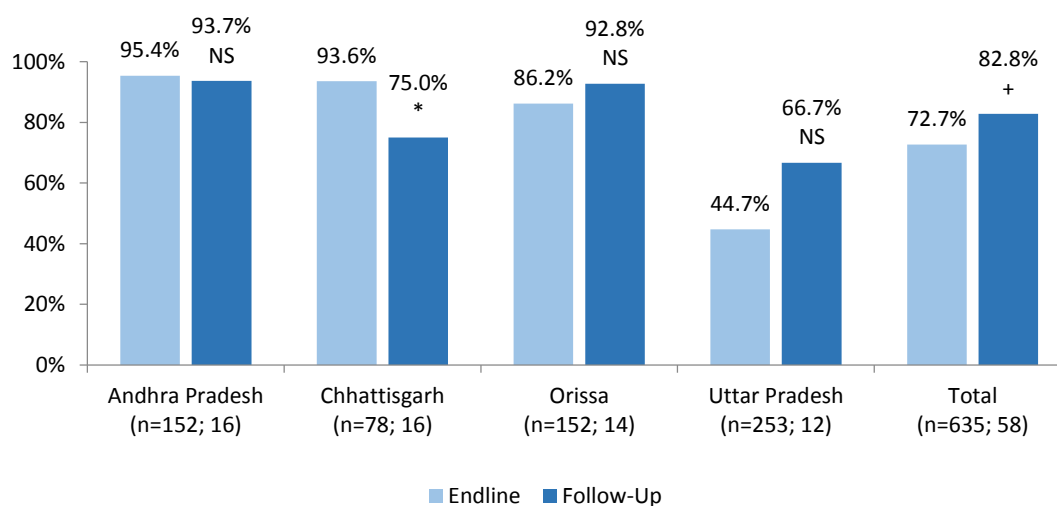
Note: Significance based on two sample z-tests; NS=not significant, + $p \leq 0.1$, * $p < 0.05$, ** $p < 0.01$.

Provision of Supplementary Food

Supplementary food, supported by FFP, was provided through take-home rations distributed at Nutrition and Health Days and through cooked food provided to preschool children attending the AWCs. United States-provided food was phased out in 2007, and the GOI took over food provision in compliance with its Right to Food Supreme Court ruling. During the POP, CARE worked to ensure the reliable delivery of supplementary food by institutionalizing supply chain management systems for monitoring and accountability. **Figure 5.15** shows that a high proportion of AWCs continued to receive uninterrupted

food supplies between endline and follow-up, with a marginally significant improvement ($p \leq 0.1$) overall. The availability of take-home rations at Nutrition and Health Days was somewhat less well maintained overall, in that the regular provision of take-home rations fell from about 73 percent at endline to 60 percent at follow-up (**Figure 5.16**), but this decline largely reflects a dramatic drop in take-home ration distribution in only one state, Orissa, where such distributions fell from 68 percent to just over 20 percent between endline and follow-up. In the other three states, take-home ration provision was sustained or declined only slightly.

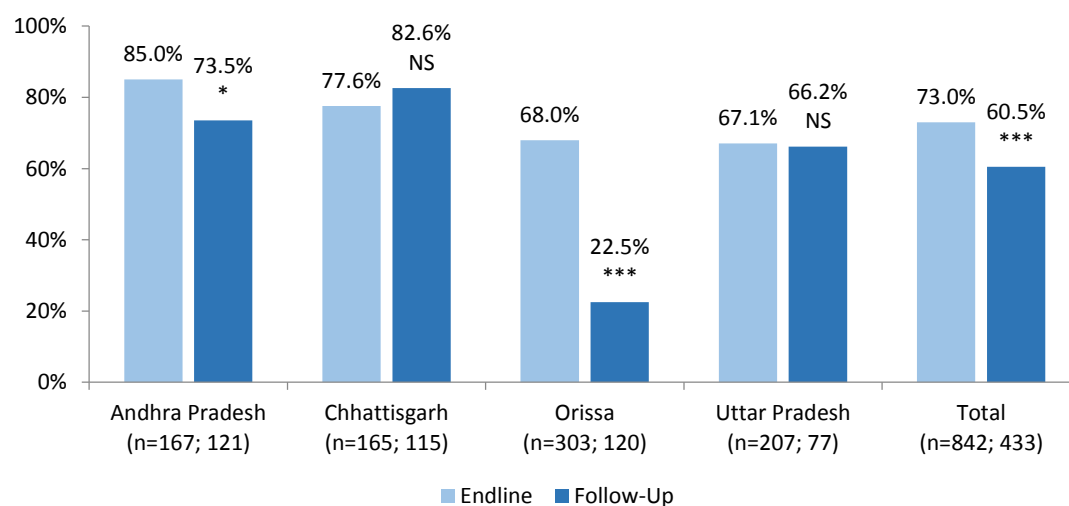
Figure 5.15. Percentage of Supervisors Reporting That All AWCs in Their Respective Areas Had an Uninterrupted Food Supply for the Previous 6 Months



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, + $p \leq 0.1$, * $p < 0.05$.

Figure 5.16. Percentage of AWWs Reporting That Take-Home Rations Were Provided at Each of the Past Three Nutrition and Health Days



Sources: 2009 and 2011 CARE baseline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, * $p < 0.05$, *** $p < 0.001$.

Qualitative investigation found that the content of supplemental food rations varied from one location to another. The ration was not standardized, and, though the GOI gives guidelines, the food supplements available at AWCs and the take-home ration provided at Nutrition and Health Days sometimes varied widely between and within states. For example, according to an AWW in Andhra Pradesh, cooked meals and snacks served at the AWCs might include boiled lentils, eggs, or porridge, which might be made with micronutrient powder.²¹ Take-home rations, composed of cereals sometimes including rice, were dispensed in quantities and at intervals that also varied from location to location. Beneficiaries with children under 3 years of age in Andhra Pradesh received one packet of take-home fortified blended flour²² twice a month from their AWW to be cooked daily as a porridge for their young children. Pregnant beneficiaries and those with children 3–6 years of age received 3 kg of rice. Beneficiaries reported no delays or problems in receiving their rations in Andhra Pradesh.

In Orissa, beneficiaries participating in FGDs explained that they were entitled to 4 kg of take-home rations if their child was under 6 months of age and 2 kg if their child was over 6 months of age; pregnant women were entitled to 4 kg of take-home rations. Timeliness issues were reported in FGDs with beneficiaries in Orissa. This is consistent with the decline in reported receipt of take-home rations in that state. Beneficiaries in qualitative interviews in Orissa reported that they received a take-home ration “once or sometimes twice in a month, but the supply was not regular. Sometimes we received this for two times in a year.” They reported that when they asked the AWW about the irregularity of ration delivery they were told that the GOI stopped supplying it, although government policy is to provide the supplementary food universally.

The quality of the food rations was also reported to be variable, and several respondents in qualitative interviews reported that ration quality had declined since the CARE project’s exit. Some beneficiaries in Chhattisgarh complained in qualitative discussions about deteriorating quality of the wheat flour distributed, with some even reporting that they gave the food to their animals. An AWW in Uttar Pradesh said, “[It] is [the] community[’s] perception that the quality of [the] ration was good 2–3 years back [when CARE distributions were still under way], but now it has degraded. But still most of the mothers are coming just for the sake of [the] ration.” A beneficiary in Uttar Pradesh explained, “I do not consume [the ration]. Earlier the quality was good, but now [its quality] has degraded.” In response to their complaints, Uttar Pradesh beneficiaries reported that they were told by the AWW and Supervisor that “we cannot do anything, as it is being supplied by the government.”

While the level of service delivery and its evolution from endline to follow-up vary from state to state, there is no consistent pattern in these state-wise differences. The factors underlying these differences in service delivery are not obvious because there were no apparent differences among states in the key supervisory activity of sector meetings. A summary of 12 key indicators (**Table 5.3**) also demonstrated no consistent pattern from one state to another. By indicator, there was also no consistent pattern: all the indicators showed inconsistent patterns, with some states showing increases and others showing decreases. No one state consistently sustained or improved between endline and follow-up in all indicators, and no indicator showed increases or decreases consistently across all states. Furthermore, the level of the indicators at endline varied widely.

²¹ The study team learned that a feeding trial involving micronutrient powders was under way in Andhra Pradesh at the time of the follow-up survey.

²² The take-home ration included a “micronutrient-fortified food and/or energy-dense food,” typically a packaged fortified blended flour (Press Information Bureau, Ministry of Women and Child Development, GOI, Feb 2014). Take-home rations can also take the form of raw food commodities, such as rice and pulses, oil, sugar, and other foods.

Table 5.3. Sustainability of Selected Indicators of Service Delivery, CARE Endline to Follow-up

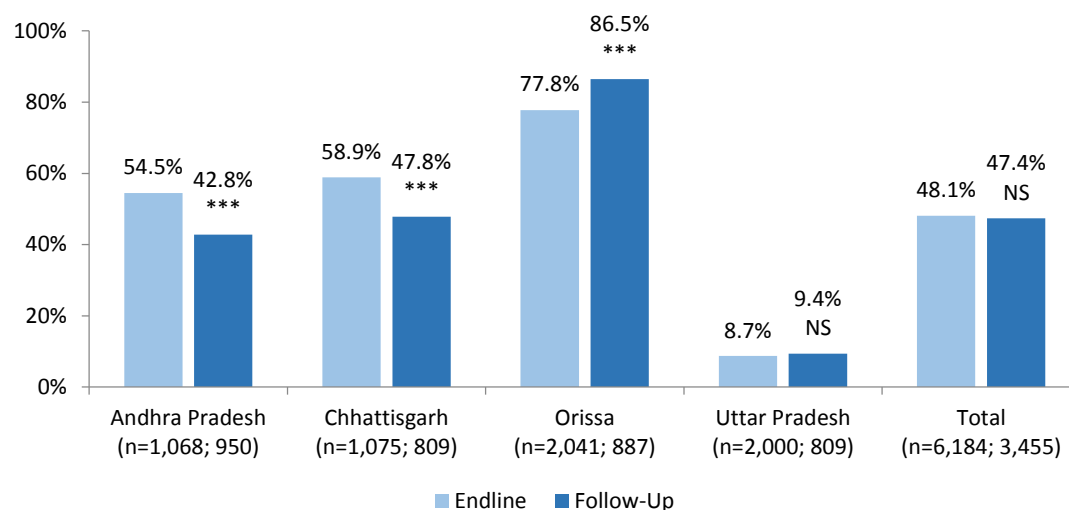
Indicator	Andhra Pradesh			Chhattisgarh			Orissa			Uttar Pradesh		
	2009	2011	↑↓	2009	2011	↑↓	2009	2011	↑↓	2009	2011	↑↓
AWW reports sector meetings occur	99.4	95.0	↓	98.2	98.3	NS	99.7	97.5	↓	98.5	93.5	↓
ANM attends sector meetings	19.0	63.6	↑	21.8	12.2	↓	61.1	42.5	↓	42.5	7.7	↓
Supervisor attends sector meetings	86.2	78.5	↓	84.8	84.3	NS	92.1	93.3	NS	87.4	77.9	↓
ANM visits AWW monthly	66.5	52.1	↓	69.1	76.5	↑	59.4	81.7	↑	44.0	54.5	NS
AWW visited beneficiary household past month	43.3	54.7	↑	17.4	31.1	↑	35.0	37.9	NS	10.3	40.2	↑
ANM visited beneficiary household past month	33.6	53.9	↑	8.0	11.1	↑	15.8	19.5	↑	4.8	24.6	↑
Nutrition and Health Days happen regularly	60.8	64.4	↑	77.9	65.4	↓	29.4	55.7	↑	12.7	31.9	↑
ANM attends Nutrition and Health Days	94.6	83.5	↓	70.9	78.3	NS	94.4	76.7	↓	60.4	68.8	NS
ASHA attends Nutrition and Health Days	81.4	74.4	NS	78.8	63.5	↓	86.5	77.5	↓	53.6	62.3	NS
AWW attends Nutrition and Health Days	98.9	85.4	↓	90.7	100.	↑	95.3	100	NS	88.0	65.2	↓
AWC has uninterrupted food supply	95.4	93.7	NS	93.6	75.0	↓	86.2	92.8	↑	44.7	66.7	↑
Take-home ration available at Nutrition and Health Days	85.0	73.5	↓	77.6	82.6	NS	68.0	22.5	↓	67.1	66.2	NS

Sources: CARE 2009 and 2011 surveys. Up and down arrows indicate significant changes; NS=not significant.

5.3.2 Sustainability of Maternal and Child Health and Nutrition Service Use

Growth Monitoring

Along with the health services provided, the rations given out at Nutrition and Health Days were intended to serve as an incentive for attendance and participation in growth monitoring sessions. **Figure 5.17** shows that attendance at growth monitoring sessions was sustained overall, but this aggregate figure masks substantial differences among the states. Attendance declined significantly in Andhra Pradesh and Chhattisgarh at follow-up (to 42.8 percent and 47.8 percent, respectively), but increased significantly in Orissa to 86.5 percent. In Uttar Pradesh, participation in growth monitoring was unchanged from endline to follow-up, but remained at exceedingly low levels, with fewer than 10 percent of mothers reporting that they had taken their children to growth monitoring in the past month. These results were somewhat better when the question referred to taking their children to growth monitoring at least once in the past 3 months rather than the past month, but the overall pattern of responses was unchanged (data not shown).

Figure 5.17. Percentage of Mothers with Children 6–23 Months of Age Reporting Taking Their Child to Growth Monitoring in the Past Month

Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, *** $p < 0.001$.

Weight was to be measured at growth monitoring sessions during Nutrition and Health Days. However, qualitative data from visits to Nutrition and Health Days, as well as AWCs across the four states, and interviews with AWWs found widespread problems with the availability of functioning weighing scales. Scales were often broken or not observable. In addition, some locations visited during the study had only adult weighing scales. One AWW in Uttar Pradesh reported that its child weighing scales were broken but had not yet been replaced despite requests to the block level; another in Andhra Pradesh said that the child weighing scale at the AWC was broken, but the ANM usually brought a child weighing scale to use during Nutrition and Health Days.²³

Efforts to measure height regularly were even more variable. One FGD of beneficiaries in Chhattisgarh reported child height was not collected; the associated AWW confirmed that she collected weight but not height. Beneficiaries in Orissa said that their AWC facility did not have a place to measure length or height. In contrast, the Uttar Pradesh District Program Officer reported that both weight and height were collected regularly, but, as shown in Figure 5.17, Uttar Pradesh had the lowest rate of participation in growth monitoring at both endline and follow-up. The GOI reports weight-for-age as its key indicator of nutritional status among children, and child weighing (but not measuring length) is part of the Nutrition and Health Days protocol, so it may be that weight measurement is given higher priority than height measurement at these events.

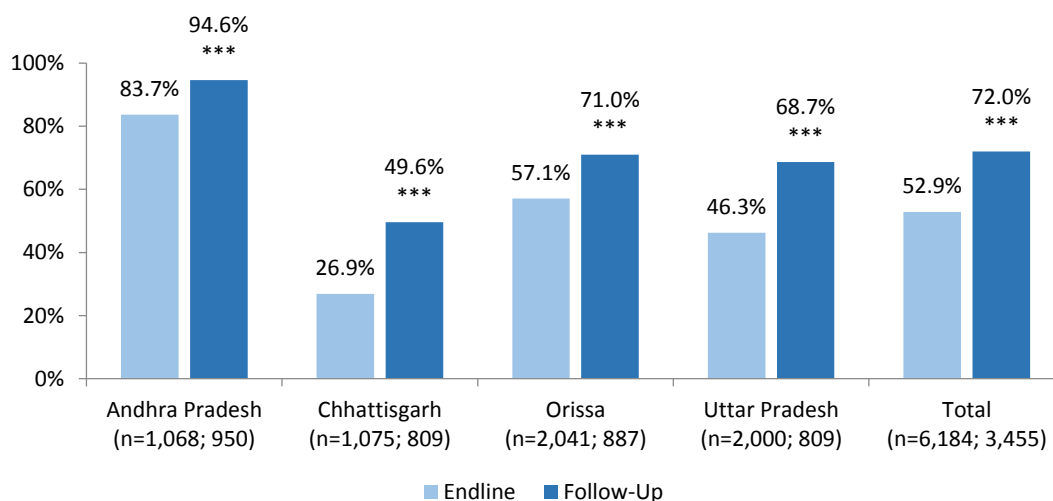
Institutional Deliveries and Immunization

Results show a generally increasing trend in the rate of institutional infant deliveries and immunizations from endline to follow-up. Both hospital deliveries and complete immunization of children are the responsibility of the ASHA under the NRHM. While AWWs receive a salary that covers their activities, ASHAs are paid a financial incentive for each hospital or health center delivery and for each child with completed immunizations. From endline to follow-up, the rate of institutional deliveries increased significantly in all four states, reaching almost 95 percent at follow-up in Andhra Pradesh, approximately

²³ Typically, children were weighed using a Salter-type suspended scale with canvas pants to suspend the baby.

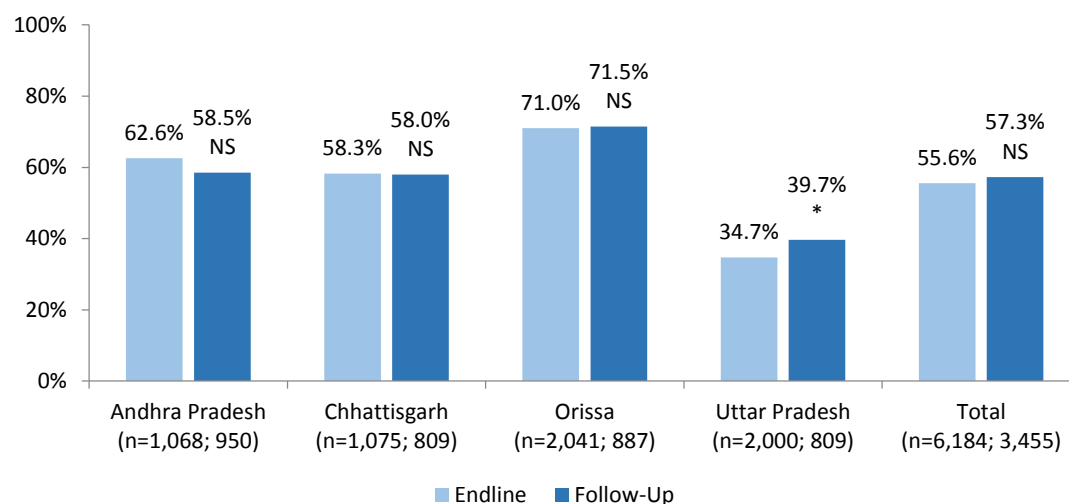
70 percent in Orissa and Uttar Pradesh, but only 50 percent in Chhattisgarh (**Figure 5.18**). Complete diphtheria/pertussis/typhoid (DPT) vaccination rates increased significantly in three states and were maintained in Andhra Pradesh at more than 80 percent in both time periods (data not shown). Measles vaccination rates were statistically unchanged from endline to follow-up in three states and increased in Uttar Pradesh from 34.7 percent to 39.7 percent (**Figure 5.19**). As with other indicators, there is substantial variation across states in these results. At follow-up, Orissa had the highest rates of immunization, and Andhra Pradesh had the highest rates of institutional deliveries, but Chhattisgarh had the lowest rate of institutional deliveries at endline, while Uttar Pradesh had the lowest rates of DPT and measles vaccination.

Figure 5.18. Percentage of Mothers with Children 6–23 Months of Age Reporting Institutional Delivery of Their Children



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; *** p<0.001.

Figure 5.19. Percentage of Mothers with Children 6–23 Months of Age Reporting Their Child Was Vaccinated against Measles

Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, * p<0.05.

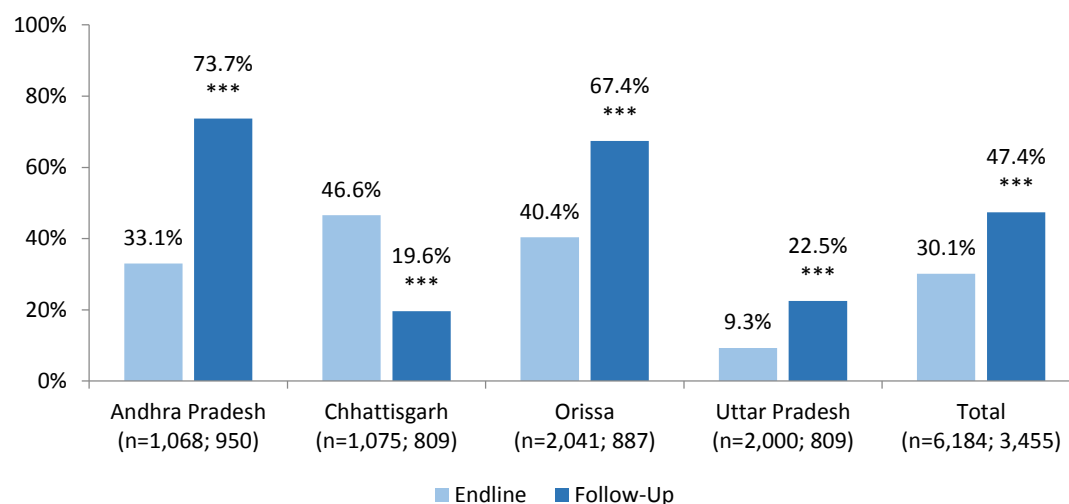
5.3.3 Sustainability of Recommended Maternal and Child Health and Nutrition Practices

The goal of health worker home visits and health education and counseling at Nutrition and Health Days was to promote beneficial child care practices to improve the nutritional status of beneficiary children. Among the best-sustained practices was exclusive breastfeeding to the age of 6 months,²⁴ which increased in the aggregate and in three of the four states studied (**Figure 5.20**). Substantial and significant increases in the practice of exclusive breastfeeding were seen in Andhra Pradesh, Orissa, and Uttar Pradesh, though at follow-up Uttar Pradesh and Chhattisgarh were at about the same level (rates of exclusive breastfeeding having increased in Uttar Pradesh and decreased in Chhattisgarh). At follow-up, the highest rates of exclusive breastfeeding reached about 73 percent in Andhra Pradesh, and, over the four states, fewer than 50 percent of mothers reported exclusively breastfeeding their children to 6 months of age. Timely introduction of complementary feeding was also largely sustained or improved (with the exception of Andhra Pradesh), but still, fewer than 50 percent of mothers reported introduction of complementary feeding when their children reached 7–8 months of age, the age recommended in the INHP (**Figure 5.21**).²⁵

²⁴ Mothers of children 6–23 months of age were asked the age at which they first introduced any food other than breast milk to their children. This was the question used in the endline survey and therefore was used for comparison at follow-up. The WHO recommendation for measuring exclusive breastfeeding is to ask mothers of children 6 months of age and younger what they fed the child on the previous day and to consider it exclusive if only breast milk was given (WHO et al. 2010a).

²⁵ WHO recommends the introduction of complementary food at 6–8 months of age (ibid.).

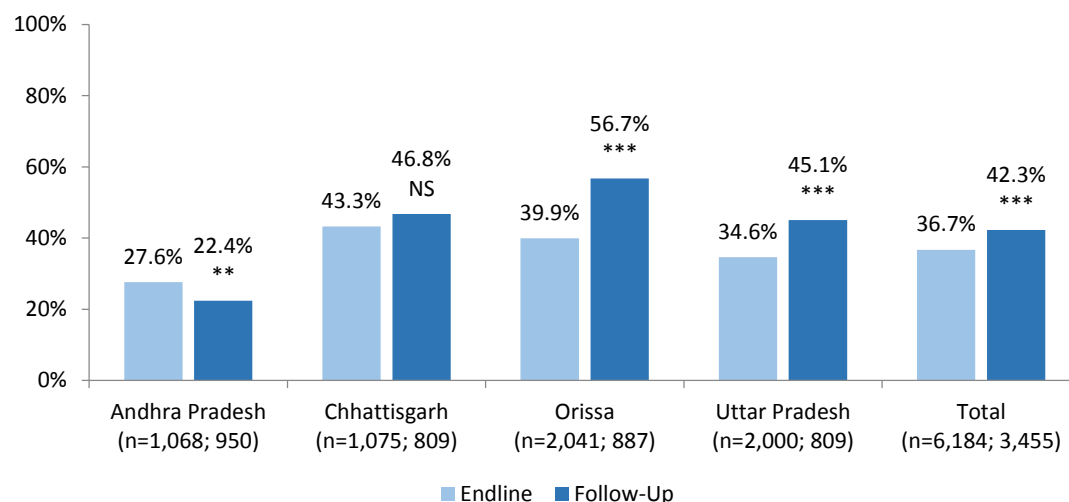
Figure 5.20. Percentage of Mothers with Children 6–23 Months of Age Reporting Exclusively Breastfeeding Their Child to 6 Months of Age



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; *** p<0.001.

Figure 5.21. Percentage of Mothers with Children 6–23 Months of Age Reporting Starting Complementary Feeding When Their Child Reached 7–8 Months of Age



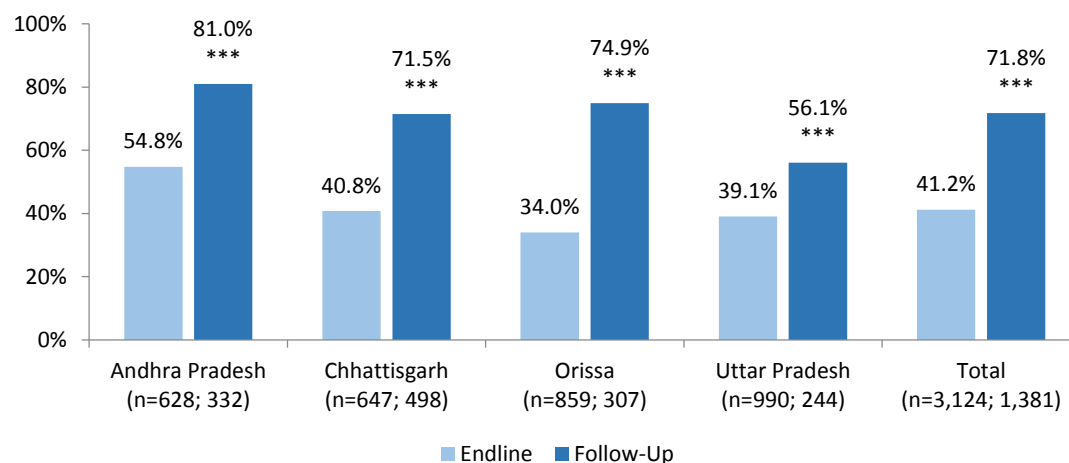
Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, ** p<0.01, *** p<0.001.

Another important caring practice promoted by health workers was to maintain or increase feeding of children during illness. In both the endline and follow-up surveys, mothers whose children had experienced an illness in the 2 weeks prior to the survey reported whether they had maintained or increased the amount fed to the child. This practice showed consistent improvement between endline and follow-up, with an aggregate increase from just over 40 percent to more than 70 percent of mothers reporting that they did not reduce feeding (fed the child the same amount or more) when the child was ill (**Figure 5.22**). The recommended practice of *increasing* (as opposed to merely “maintaining”) feeding of children during illness was reported by a smaller fraction of mothers. While this practice was also

sustained or increased from endline to follow-up in all states, only about 16 percent of mothers overall reported that they increased feeding during illness (data not shown). Results were similar for promoted handwashing behaviors. The POP promoted handwashing at three critical times: before eating, before preparing food, and after defecation. Overall, the practice of appropriate handwashing improved from endline to follow-up. Specifically, this practice declined in Andhra Pradesh and improved in the three other surveyed states. Nonetheless, at endline, the overall rate of handwashing was only 56.1 percent, and in three of the four surveyed states, the rate was close to or below 50 percent, as shown in **Figure 5.23**.

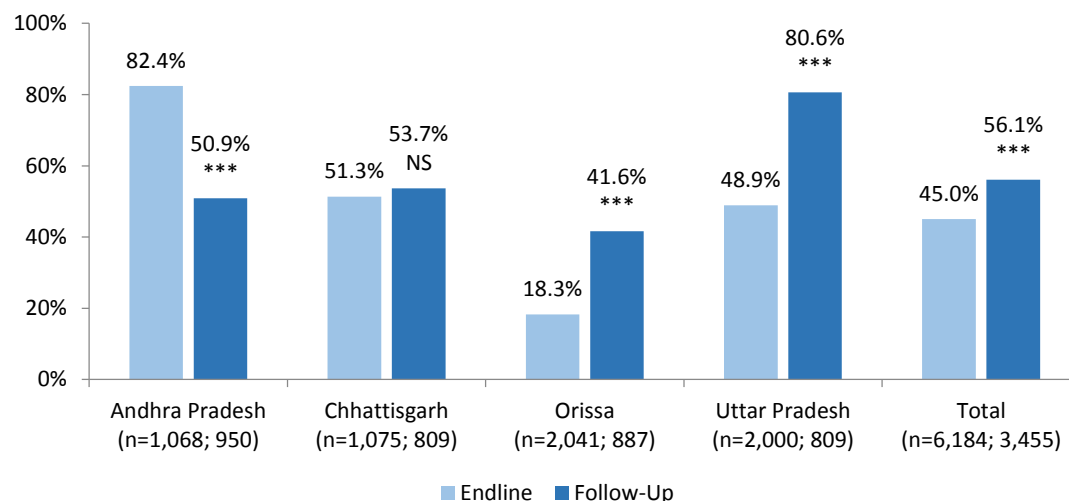
Figure 5.22. Percentage of Mothers with Children 6–23 Months of Age Reporting Feeding the Same as Usual or More During an Illness Episode in the 2 Weeks Prior to the Survey



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; *** p<0.001.

Figure 5.23. Percentage of Mothers with Children 6–23 Months of Age Reporting Handwashing before Eating, before Cooking, and after Defecation

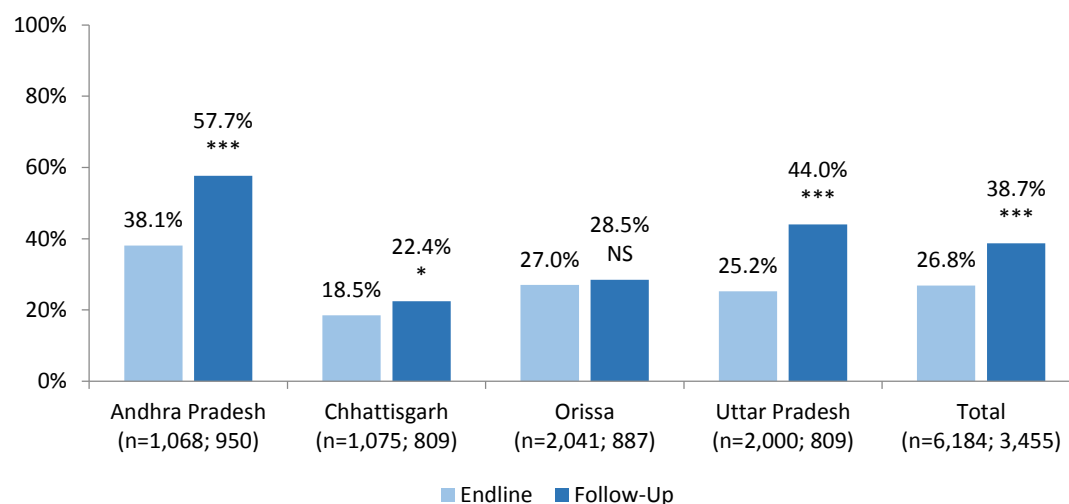


Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, *** p<0.001.

Minimally adequate dietary diversity was defined by CARE as feeding the child foods from at least five food groups on at least 2 days in the previous week.²⁶ The percent of mothers who reported feeding their child a diverse diet by this criterion was sustained or increased in all four assessed states, with the highest rate (about 58 percent) in Andhra Pradesh, though overall rates were quite low: under 40 percent overall and below 30 percent in Chhattisgarh and Orissa (**Figure 5.24**).

Figure 5.24. Percentage of Mothers Reporting Providing Their Child Minimally Adequate Diet Diversity (as Defined by CARE)



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, * $p<0.05$, *** $p<0.001$.

The results show a generally positive picture of sustained beneficiary child care practices, but still demonstrate that differences among the states often greatly exceed the aggregate difference between endline and follow-up, and once again demonstrate inconsistency in which practices were best sustained in which states. At follow-up, exclusive breastfeeding was lowest in Chhattisgarh and Uttar Pradesh; timely complementary feeding was lowest in Andhra Pradesh, continued feeding during illness was lowest in Uttar Pradesh, and appropriate handwashing was lowest in Orissa, despite significant improvement in that last state between endline and follow-up. Providing children with a minimally diverse diet was lowest in Chhattisgarh and Orissa at follow-up, almost half the rate of that in Andhra Pradesh.

In qualitative interviews with health staff, home visits by the AWW were credited as an important tool for promoting good caring practices and increasing the use of government-provided health services. One CDPO in Uttar Pradesh observed that “the only thing that has led to the change [in maternal care practices] ... is frequent home visits made by frontline workers.” This official cited CARE’s role in both promoting home visits and providing tools to make it easier for the workers to perform them. Because home visits are a key strategy for promoting good practices, the study team ran logistic regressions to test the relationship between home visits and maternal practices. **Table 5.4** shows the degree of association between a mother having been visited by an AWW and her implementation of the recommended caring practices. At follow-up, receipt of a home visit was significantly associated with the practices of exclusive breastfeeding in Orissa, Uttar Pradesh, and overall; with attendance at growth monitoring sessions in all

²⁶ Note that this definition differs from WHO’s definition of “minimum dietary diversity” for children 6–23 months of age. WHO defines “minimum dietary diversity” as consuming foods from at least four food groups in the past day (WHO et al. 2010a).

states; with timely introduction of complementary feeding in Uttar Pradesh; with feeding the same or more food to a child during illness in Andhra Pradesh and Orissa and overall; and with appropriate handwashing behavior in Chhattisgarh, Orissa, and (marginally, $p < .08$) overall.

These measures of association do not conclusively demonstrate that CARE's POP was responsible for the observed behavioral improvements. While the ICDS and the NRHM are the main sources of community-based health advice, there may have been other sources in some areas (e.g., clinic health workers or community organizations). But these associations support the logic behind CARE's approach to sustainability: if frontline health workers fulfill their roles in making home visits and providing advice, beneficiaries are more likely to adopt the practices being taught. Not surprisingly, the most consistent association, significant in all states and overall, is between AWW visits and attendance at Nutrition and Health Days (where growth monitoring occurs). Indeed, the most common message that beneficiaries reported receiving at AWW home visits was about being encouraged to attend Nutrition and Health Days for growth monitoring and immunizations.

In qualitative interviews, beneficiary mothers reported receiving helpful advice from the AWWs during their visits, but some cited resource constraints (lack of money or home production) that prevented them from following AWW advice on such things as feeding children green vegetables and fruit or taking more rest (advice commonly given to pregnant women).

The inconsistency of results in the preceding sections suggests that there is considerable individual variation in the factors—resources, capacity, motivation, and linkages—that promote the sustainability of service delivery and service use. Even with systems in place at the national and state levels, the actual provision and use of services is by definition a local phenomenon that depends on the individuals involved, and the factors for sustainability must be present at that local level, as well as at the levels above it.

Table 5.4. Association of AWW Home Visits with Beneficiary Mothers' Caring Practices

	Andhra Pradesh		Chhattisgarh		Orissa		Uttar Pradesh		All	
Practice	Endline	Follow-Up	Endline	Follow-Up	Endline	Follow-Up	Endline	Follow-Up	Endline	Follow-Up
Exclusive breastfeeding:										
Odds ratio	.935	1.355	1.010	0.682	0.698	1.079	2.676	1.970	1.136	1.538
p <	.636	.080	.960	.122	.006	.654	.0005	.003	.127	.0005
N of cases	(1,050)	(892)	(892)	(773)	(1,850)	(873)	(1,986)	(708)	(5,778)	(3,155)
Growth monitoring:										
Odds ratio	1.916	2.908	1.580	1.815	2.496	4.880	5.868	1.956	3.525	1.964
p <	.0005	.0005	.022	.001	.0005	.0005	.0005	.038	.0005	.0005
N of cases	(1,050)	(801)	(892)	(773)	(1,850)	(873)	(1,986)	(708)	(5,778)	(3,155)
Handwashing:										
Odds ratio	1.519	0.905	1.291	1.984	1.684	1.804	2.505	1.036	1.520	1.194
p <	.012	.705	.175	.0005	.0005	.001	.0005	.867	.0005	.080
N of cases	(1,050)	(801)	(892)	(773)	(1,850)	(873)	(1,986)	(708)	(5,778)	(3,155)
Dietary diversity:										
Odds ratio	1.610	1.074	1.788	1.980	1.465	1.142	1.586	0.958	1.742	1.329
p <	.0005	.732	.013	.002	.001	.353	.008	.952	.0005	.008
N of cases	(1,050)	(801)	(892)	(773)	(1,850)	(873)	(1,986)	(708)	(5,778)	(3,155)

	Andhra Pradesh		Chhattisgarh		Orissa		Uttar Pradesh		All	
Practice	Endline	Follow-Up	Endline	Follow-Up	Endline	Follow-Up	Endline	Follow-Up	Endline	Follow-Up
Timely complementary feeding:										
Odds ratio	1.014	0.934	1.040	0.785	1.055	1.104	1.438	1.698	1.007	0.942
p <	.929	.751	.841	.158	.640	.537	.023	.002	.921	.557
N of cases	(1,050)	(801)	(892)	(773)	(1,850)	(873)	(1,986)	(708)	(5,778)	(3,155)
Feeding same/more in illness:										
Odds ratio	0.906	0.386	1.232	2.380	1.845	1.234	0.960	1.382	1.280	1.359
p <	.585	.018	.371	.0005	.0005	.491	.858	.354	.008	.021
N of cases	(608)	(289)	(532)	(478)	(793)	(304)	(984)	(219)	(2,931)	(1,290)

Odds ratios derived from logistic regression adjusted for caste/tribe, urban location, mother's employment, and socioeconomic status indicators: *pucca* (solidly built, high-quality) house, availability of latrine, and availability of water inside the house. Odds ratios significant at $p < .05$ are shown in bold.

5.3.4 Sustainability of Maternal and Child Health and Nutrition Impacts

Anthropometric Status

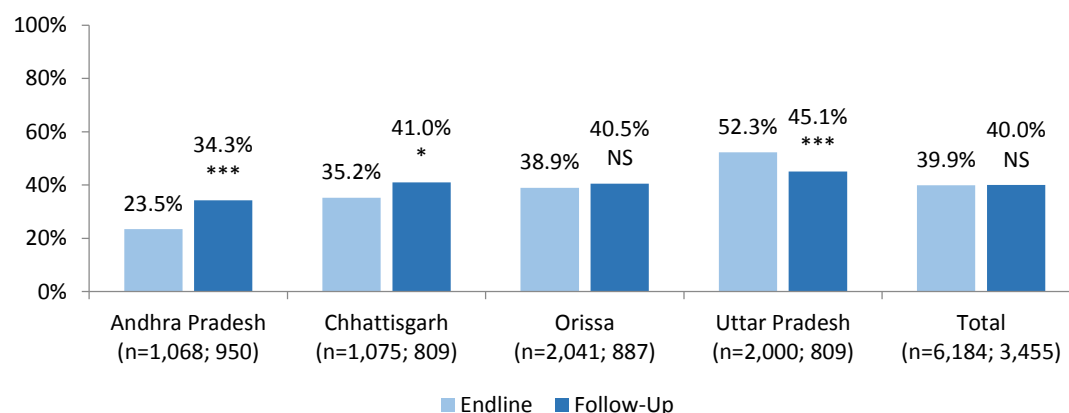
The primary indicators of impact for FFP-funded, MCHN-focused development project interventions are reductions in stunting and underweight, as indicated by $HAZ < -2$ and $WAZ < -2$, respectively. In CARE's FFP development project in India, the anthropometric impact indicator was underweight (weight-for-age). However, this indicator is less informative than indicators of stunting and wasting because it represents a composite of both: a child may be low weight-for-age due to either stunting (commonly interpreted as chronic malnutrition) or wasting (commonly interpreted as acute malnutrition). Therefore, the study team measured height-for-age, weight-for-height, and weight-for-age at endline and follow-up through Sambodhi Pvt. Ltd. **Figure 5.25** shows that, based on the measurements taken by the study team between endline and follow-up, stunting prevalence increased in two states and remained unchanged in one. In Uttar Pradesh, where the prevalence of stunting showed a significant decline, the rate at follow-up was still the highest among the four states, at 45 percent. In the aggregate, no change in stunting prevalence was seen between endline and follow-up. Stunting remained disturbingly high, at 40 percent.

Figure 5.26 shows the prevalence of wasting at endline and follow-up. The prevalence of wasting declined slightly between endline and follow-up in Orissa and remained unchanged in the other three states, which saw slight but statistically non-significant declines. In the aggregate, there was a small but significant decline in wasting prevalence among all four states from 28 percent to 25 percent at follow-up, a level still high enough to be a cause for concern.

Based on CARE documentation, rates of malnutrition, as measured by WAZ, increased from the baseline of the POP (only WAZ was measured at baseline). **Figure 5.27** shows how the prevalence of this indicator ($WAZ < -2$) changed from baseline through endline and follow-up. These results demonstrate the persistently high prevalence of undernutrition in India, which has been noted in numerous other studies.²⁷

²⁷ See, for example, Spears (2013) and Deaton and Dreze (2009).

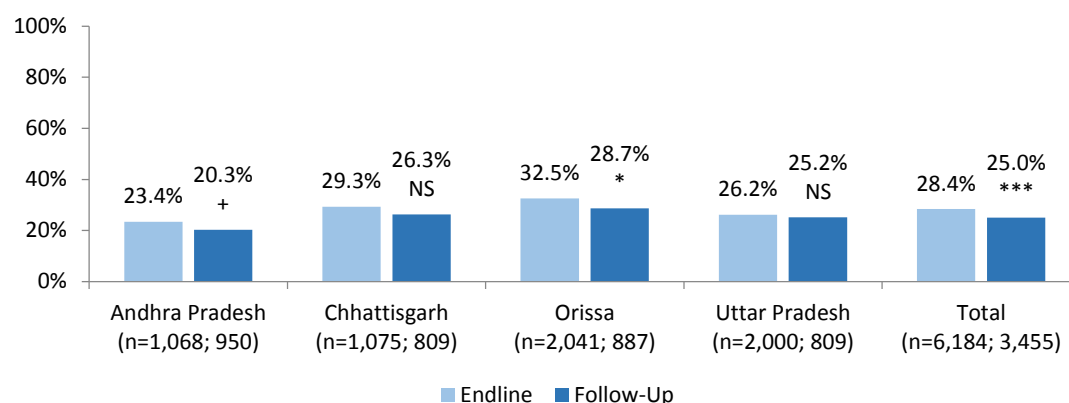
Figure 5.25. Percentage of Children 6–23 Months of Age Who Were Stunted (HAZ <−2)



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, * $p<0.05$, *** $p<0.001$.

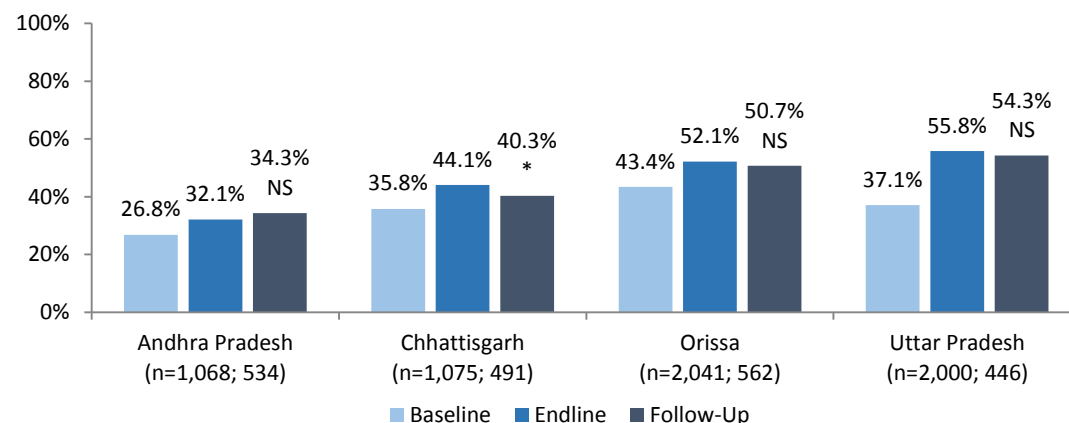
Figure 5.26. Percentage of Children 6–23 Months of Age Who Were Wasted (WHZ <−2)



Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; NS=not significant, + $p\leq 0.1$, * $p<0.05$, *** $p<0.001$.

Figure 5.27. Trend in Underweight (WAZ <−2)



Sources: 2006 Final Evaluation DAP II (POP Baseline) Survey Report, 2009 POP Endline Survey, and 2011 Follow-Up Survey.

Note: Significance based on two sample z-tests; NS=not significant, * $p<0.05$.

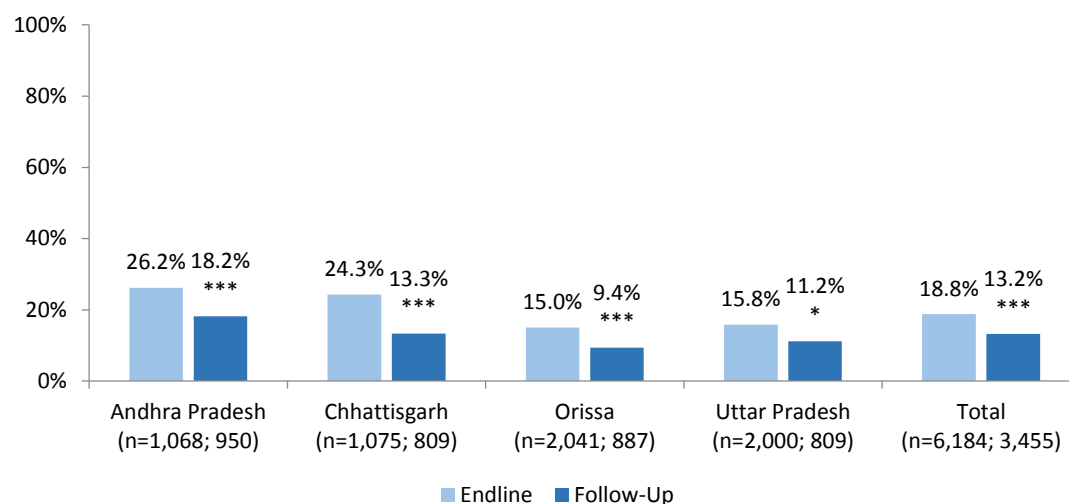
In 2011, at the time of the follow-up study, an evaluation of malnutrition prevalence was done in selected Indian states and reported in the *HUNGaMA Survey Report 2011* (Citizens' Alliance against Malnutrition 2011). Two of the states included in this study—Orissa and Uttar Pradesh—were also featured in the HUNGaMA report. In Orissa, the HUNGaMA survey found a 58 percent prevalence of stunting statewide, compared to 40.5 percent in the areas served by CARE's FFP project. The HUNGaMA survey reported an 11 percent statewide prevalence of wasting in Orissa, which was lower than the 28.7 percent detected in the POP assessment. In Uttar Pradesh, stunting prevalence was 62 percent statewide according to the HUNGaMA survey, compared with 45 percent in CARE's FFP project areas. Wasting prevalence was about 9 percent across Uttar Pradesh according to the HUNGaMA survey, compared to 25 percent in the CARE assessment areas. By any measure, the prevalence of these indicators of undernutrition calls for attention and demonstrate that the approach of CARE's FFP development project—an approach now adopted by the GOI—did not achieve one of its central goals.

The strategy embedded across the phases of CARE's FFP development project in India was to use the GOI's health system (the ICDS and then the NRHM) to encourage the use of health services and to promote good child care and feeding practices to contribute to a reduction in child undernutrition (measured in terms of height-for-age and weight-for-age).²⁸ A number of key practices were sustained (and in many cases improved) between endline and follow-up. To test the association between these practices and the key outcome indicator, stunting, the study team conducted multivariate logistic regressions predicting stunting as a function of receiving supplementary food, participating in growth monitoring, exclusively breastfeeding children to 6 months of age, introducing complementary feeding in a timely manner, feeding the same amount or more to children during illness, feeding a diverse diet, and practicing appropriate handwashing behaviors. These regressions were run for both endline and follow-up data. Results were adjusted for caste/tribal status, distance from the nearest AWC (measured in the questionnaire as ≤ 30 minutes on foot or > 30 minutes on foot), and select indicators of socioeconomic status: *pucca* (solidly built, high-quality) house, available latrine, and water inside the house. The results were striking: there was no consistent relationship between any of the practices and the stunting outcome, with the exception of exclusive breastfeeding, which was associated with a reduced likelihood of stunting (odds ratio=.669, $p<.0005$) in the overall sample of four states at follow-up. The lesson for sustainability is that the theory of change underlying the project may not have been fully assessed and validated at project design and/or reassessed during project implementation, so the expectation that continued service provision, service use, and practices would result in sustained impact may not have been justified.

Diarrhea

Incidence of diarrhea was another impact indicator of CARE's FFP-funded development project, which the project worked to improve by encouraging mothers to use good handwashing and hygiene practices. Prevalence of diarrhea fell significantly in all four states. In the aggregate, it fell from 18.8 percent to 13.2 percent between endline and follow-up (**Figure 5.28**). These improvements did not appear to differ in states with better handwashing practices (data not shown).

²⁸ The GOI uses weight-for-age as its key indicator of undernutrition, though some states also report height-for-age.

Figure 5.28. Percentage of Mothers Reporting That Their Children Had an Episode of Diarrhea in the 2 Weeks Prior to the Survey

Sources: 2009 and 2011 CARE endline and follow-up surveys.

Note: Significance based on two sample z-tests; * $p < 0.05$, *** $p < 0.001$.

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

Several characteristics contributed to the sustainability of many of the activities implemented under the various phases of CARE's FFP development project. Among them, the 13-year time horizon and close collaboration with the GOI's health systems throughout that period allowed for training, supervision, and management systems to become institutionalized, as had been planned. Examples of sustained change include the following.

- The national government committed to replicating the CARE process—including administrative structures, training and supervision functions, field tools, and supply chain management systems—in blocks and districts not included in the FFP development project.
- The national government adopted the management information systems and training curricula that CARE developed.
- At the state level, the ICDS adopted the tools, systems, planning methods, management information systems, and training curricula as well, and required their use throughout the states.
- The ICDS adopted CARE's commodity management system, which facilitated continuation of food distributions.
- Some of the approaches to MCHN service provision, including Nutrition and Health Days, take-home rations as an incentive, and the introduction of ASHAs who were paid for performance, are now an integral part of the ongoing ICDS and NRHM systems.

Nonetheless, there were substantial inconsistencies in the sustainability of service delivery and other outcomes among the states selected for this study, including in frontline worker training; AWW home visits; occurrences of Nutrition and Health Days; take-home ration receipt; and engagement of mothers in care practices, such as exclusive breastfeeding, handwashing, and attendance at growth monitoring sessions. For many of the indicators observed, there were substantial differences among the four states, both at endline and follow-up and in the degree to which the indicators improved or declined across that

time frame. It was not unusual to see bigger differences between states (at both endline and follow-up) than between endline and follow-up within states. In many cases, state-wise differences persisted between endline and follow-up, whether the particular indicator showed a decline or an improvement, suggesting that conditions within the area often trumped the influence of the project itself. In addition, though services were provided as part of the national health system, service delivery and use played out at the local level. Individual variation in the key factors of capacity and motivation existed at the local level, and there was also variation in the effectiveness of linkages to the larger health system. These variations affected the quality and reliability of service delivery and therefore service use. Even when improvements were seen, implementation of services, service use, and practices remained quite low overall. The systems adopted by the GOI and by the state ICDS systems were similar in concept and structure, but how well they functioned depended on their implementation in particular state and local settings. The shift from a community-based to a more top-down approach, as was done in CARE's POP, created some distance between the project and the resources, capacity, and motivation at the most local levels. A system, no matter how well designed, depends on effective application and implementation, and on continued systematic monitoring and supervision down to the level at which frontline workers interact with beneficiaries.

Box 5.2 summarizes the key findings related to sustainability in the INHP.

Box 5.2. CARE FFP Development Project Sustainability: Key Findings

WHAT WORKED

- Systems started under the project have become institutionalized in the Indian health system. These systems include Nutrition and Health Days, which provide growth monitoring and take-home rations; the use of ASHAs to promote hospital deliveries and immunization; and the use of home visits from various frontline workers to promote good care practices and use of health services.
- The multi-phased cycle of the project (over 13 years)—including the last one, which focused entirely on phase-over to GOI services—allowed time for systems and services to be adopted by the GOI and the states.
- GOI commitment to service provision and the allocation of GOI budgetary resources to support it through the ICDS and then the NRHM were critical to sustaining the activities implemented under CARE’s FFP development project.
- State ICDSs adopted CARE’s management information systems, supervisory structures, and commodity management systems, ensuring their continued use.
- CARE-instituted supervisory structures were well maintained: sector meetings were held regularly and AWWs and ASHAs reported receiving training from their supervisors.
- Indicators of frontline worker performance were better among those who had access to regular sector meetings.
- Uninterrupted food supplies at AWCs were maintained or increased, which was a goal of the supply chain management systems implemented under the CARE project and adopted by the ICDS.
- Rates of hospital deliveries and completed immunizations were high and sustained or increased from endline to follow-up. ASHAs were paid based on the number of hospital deliveries and completed immunizations they achieved.
- Most beneficiary practices were sustained or improved from endline to follow-up, and this improvement was associated with home visits by AWWs, though rates of adoption of these practices were inconsistent by state and not consistently high.

WHAT DID NOT WORK

- Few activities, outcomes, or impacts were consistently sustained across all four states studied. Differences among states were often substantial at both endline and follow-up, and changes from endline to follow-up typically did not alter those state-wise differences. Systems implemented under CARE’s FFP development project appeared unable to overcome contextual factors specific to the states.
- Systems implemented at higher levels appeared not to consistently reach frontline workers, as indicated by the variable provision of some services.
- While supplementary food supplies were generally maintained at AWCs, availability of take-home rations declined substantially in Orissa. Qualitative data identified possible problems with the timeliness of these rations, as well as with their quality in some states, with respondents in Uttar Pradesh and Chhattisgarh noting quality issues.
- Field tools intended to improve the effectiveness of frontline workers were not widely adopted.
- The services and behaviors promoted under the CARE project did not succeed in reducing the prevalence of stunting. Rates of wasting and underweight fell only slightly and inconsistently from endline to follow-up. In the case of underweight, measured reductions did not compensate for overall increases in these measures of undernutrition from the start of the POP to endline.

The results of CARE's FFP development project in India demonstrate the importance of the key factors of resources, capacity, and motivation that are the basis of the conceptual framework for sustainability asserted in this study. The GOI committed to the universal availability of the ICDS, the implementation of Nutrition and Health Days throughout the country, the provision of supplementary food, and the provision of primary health care (immunizations, growth monitoring, hospital deliveries) and behavior change communication through Nutrition and Health Days and home visits. This commitment provided both resources (since all of these activities are backed by government budgetary allocations) and a source of motivation. At the level of frontline workers, motivation came from salaries (AWWs, ANMs) and pay-for-performance schemes (ASHAs). The study team observed that the rate of completed immunizations and hospital deliveries by ASHAs was high and rising in all states studied, while the rate of home visits among ASHAs was low, possibly reflecting the ASHAs' different incentive structure (ASHAs were paid for completed immunizations but not directly for home visits).

Training, supervision, and refresher training to ensure continued capacity were also built into the ICDS system, with sector meetings and supervisory visits as part of the responsibilities of health officials at more-senior levels. CARE worked with district-level and higher health officials during the POP to inculcate the practice of holding regular meetings (sector and block), conducting regular supervision using monitoring tools that CARE developed, and encouraging the use of tools developed to improve the effectiveness and efficiency of frontline workers. While sector meetings were consistently maintained, other forms of refresher training and supervision were less so, again reflecting the variability in individual compliance with the norms established as part of the CARE project (and adopted by the GOI). Receipt of supervision by frontline workers was inconsistent, but multivariate analysis showed that such supervision was associated with compliance with duties, such as home visits (which in turn did affect beneficiary behaviors). This suggests an important lesson: comprehensive systems for top-down management still need to ensure that resources, capacity, and motivation reach the communities and beneficiaries whom the program is meant to serve.

The assumptions underlying CARE's FFP project (and the ICDS and the NRHM, now that the project has ended) were that, as services were offered and used and as beneficial practices were adopted, improvements in children's nutritional status would be achieved. The results of this study indicate that this assumption was not borne out. Rates of undernutrition as measured by WAZ rose from the baseline to the endline of the POP and continued at high levels through follow-up.²⁹ According to the data analyzed in this study, rates of stunting were unchanged from endline to follow-up, and rates of wasting fell slightly but significantly during the same time frame. The intractable nature of the malnutrition problem in this setting has been noted in multiple studies. Despite improvements in some health care indicators, the core assumption that improvements in service delivery, service use, and care practices would substantially reduce the prevalence of undernutrition was not supported by the study results. As mentioned earlier, sustainability of activities and outcomes can result in sustained impacts only if the underlying theory of change is justified. There is no question that the three phases of CARE's FFP development project in India showed substantial and important accomplishments, but a key goal among them—reduction of malnutrition over the entire life of the project—appears not to have been achieved.

²⁹ As only weight, and not height, was measured at POP baseline (DAP II endline), underweight is used here.

6. Catholic Relief Services: Maternal and Child Health and Nutrition Sector

6.1 Maternal and Child Health and Nutrition Sector Intervention Description

CRS's MCHN-focused interventions in India were known as Safe Motherhood and Child Survival (SMCS). The objectives of the SMCS were to reduce the prevalence of malnutrition (measured by weight-for-age among children under 3 years of age); reduce the incidence of diarrhea; increase the use of health services; and improve beneficiary mothers' child care practices, including exclusive breastfeeding to 6 months of age, introduction of complementary foods between 6 and 9 months of age, and continued or increased feeding during episodes of diarrhea.

As part of its effort to fulfill these objectives, CRS, through its cooperating and operating partners, selected and trained VHWs to provide services in their communities through the organization of mothers' groups. These services included monthly child growth monitoring sessions, which included providing supplementary food to pregnant and lactating women and children 6–23 months of age, as well as disseminating educational messages, identifying growth faltering and associated referrals to existing health services, training mothers in healthy pregnancy and child wellness (e.g., care and feeding) practices, and encouraging attendance at health clinics for pre- and postnatal care and immunizations. VHWs were also responsible for making home visits to monitor the health of babies and pregnant women. In addition, they worked to identify local and private health delivery systems to ensure that SMCS services complemented the services of other health providers and encouraged women to participate in self-help groups to promote mutual reinforcement of good care practices. The VHWs reported to CRS's operating partners, though both CRS's cooperating partners and CRS itself were involved in VHW selection and training.

6.2 Maternal and Child Health and Nutrition Sector Sustainability Plans and Exit Strategies

The focus of CRS's POP was to transition the activities and functions of the VHWs—growth monitoring, education (including home visits by the AWWs), and the distribution of take-home rations—to the ICDS. Because these were activities that the ICDS was already performing, CRS worked to raise awareness of ICDS services among its beneficiaries so that they would take advantage of them. In addition, the NRHM was established at about the time the FFP development projects in India were ending. This gave CRS the opportunity to work to transition responsibility for promoting the use of health services, particularly hospital deliveries and child immunizations (but also prenatal and postnatal care) from the VHW to the ASHA working in the community, again by raising the communities' awareness of the services to which they were entitled. Activities to promote phase-over included sensitization and mobilization of communities and partners about the ICDS program, advocacy for establishment of new AWCs in target communities and/or improvement of existing centers, and monitoring of the quality of AWC service delivery. CRS also planned to work with its cooperating and operating partners to strengthen linkages with local governmental and private service providers.

Although all VHW activities were to be transitioned to government health programs, CRS's local cooperating and operating partners in many cases continued to be active in the community, and the VHWs, being local, continued to reside in the community. In fact, at the start of CRS's POP, CRS made a

commitment to continue providing support to communities through the activities of its operating partners in areas where the government services under the ICDS and the NRHM were not yet available. In contrast to CARE, the CRS exit strategy did not involve capacity building at higher levels within the government health system, but emphasized community awareness of available services and empowerment to seek them out. **Box 6.1** summarizes the sustainability strategies of CRS's POP and the key assumptions (either explicit or inferred) underlying these strategies.

Box 6.1. CRS MCHN Sustainability Strategies and Key Assumptions

SUSTAINABILITY STRATEGIES	KEY ASSUMPTIONS
<ul style="list-style-type: none"> Phase over growth monitoring, health education sessions, and home visits formerly undertaken by VHWs at mothers group meetings to AWWs (ICDS) and ASHAs (NRHM) and to services provided at Nutrition and Health Days. 	<ul style="list-style-type: none"> Nutrition and Health Days will occur regularly in the community. Child weighing and measuring will be conducted at Nutrition and Health Days. Health education sessions will be conducted at Nutrition and Health Days. AWWs, ANMs, and ASHAs will conduct home visits to promote good care practices.
<ul style="list-style-type: none"> Have VHWs work to raise awareness and increase demand for health services among beneficiary mothers. 	<ul style="list-style-type: none"> Beneficiary mothers will remain motivated to make use of health services AWWs and ANMs will make regular home visits to promote service use.
<ul style="list-style-type: none"> Have AWWs (ICDS) and ASHAs (NRHM) promote the use of health services, including immunizations; micronutrient supplementation (iron/folic acid tablets); institutional deliveries; and prenatal, postnatal, and well-baby care. 	<ul style="list-style-type: none"> ASHAs will make regular home visits to promote institutional deliveries and complete immunizations. AWWs and ASHAs will encourage attendance at Nutrition and Health Days. The services promoted by frontline health workers (AWWs, ANMs, and ASHAs) will be available to beneficiaries.
<ul style="list-style-type: none"> Transition the provision of food to pregnant and lactating women and children up to 3 years of age to distribution at Nutrition and Health Days, with food reliably provided by the Food Corporation of India. 	<ul style="list-style-type: none"> Take-home rations will be reliably available at Nutrition and Health Days. Take-home rations will be of satisfactory quality to encourage their use and to incentivize Nutrition and Health Days participation.
<ul style="list-style-type: none"> Ensure that children continue to receive cooked food at AWCs; replace VHW encouragement with AWW and ASHA encouragement to send children to AWCs. 	<ul style="list-style-type: none"> Frontline health workers will encourage mothers to send their children to AWCs. Cooked food will be reliably available at AWCs.
<ul style="list-style-type: none"> Continue women's involvement in self-help groups without promotion by the VHW or other CRS operating partner staff. 	<ul style="list-style-type: none"> Women's self-help groups will be sufficiently useful that women will be motivated to continue participating in them without external encouragement.

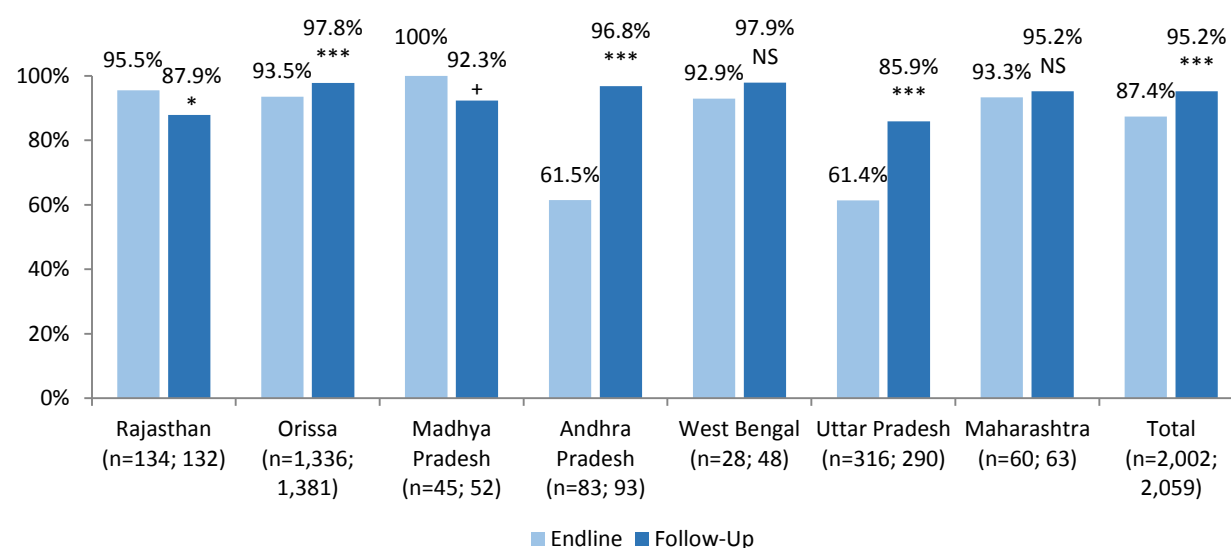
6.3 Maternal and Child Health and Nutrition Sector Results

6.3.1 Sustainability of Maternal and Child Health and Nutrition Service Delivery

Prenatal and Postnatal Care

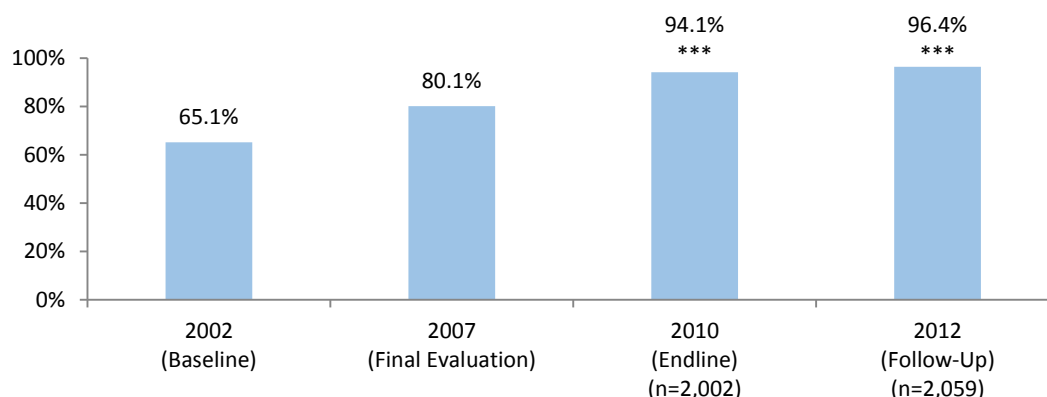
Across the seven states included in the study of CRS's MCHN activities, receipt of prenatal home visits was variably maintained, showing an overall decline from 49 percent at endline to 40 percent at follow-up, and a range from under 13.5 percent at follow-up in Madhya Pradesh to 63.4 percent at follow-up in Andhra Pradesh (data not shown). However, prenatal visits to health centers or hospitals increased significantly or were sustained in all but two states (Rajasthan, where the decline was from about 96 percent to about 88 percent, and Madhya Pradesh, where the decline was from 100 percent to 92 percent), and at follow-up more than 85 percent of women in every state (and 95 percent overall) reported receiving prenatal care in health centers or hospitals (**Figure 6.1**). The positive change in receipt of facilities-based prenatal care between endline and follow-up continued the trend that had been seen in this metric during CRS's previous FFP development project cycles. **Figure 6.2** shows the trend in receipt of prenatal care from 2002 through this study's follow-up in 2012. Receipt of postnatal health checks within 2 days of delivery also showed a significant improvement in all states (though with wide variation among the states) from the CRS POP's endline to follow-up (**Figure 6.3**).

Figure 6.1. Percentage of Mothers Receiving Prenatal Care at Health Centers or Hospitals



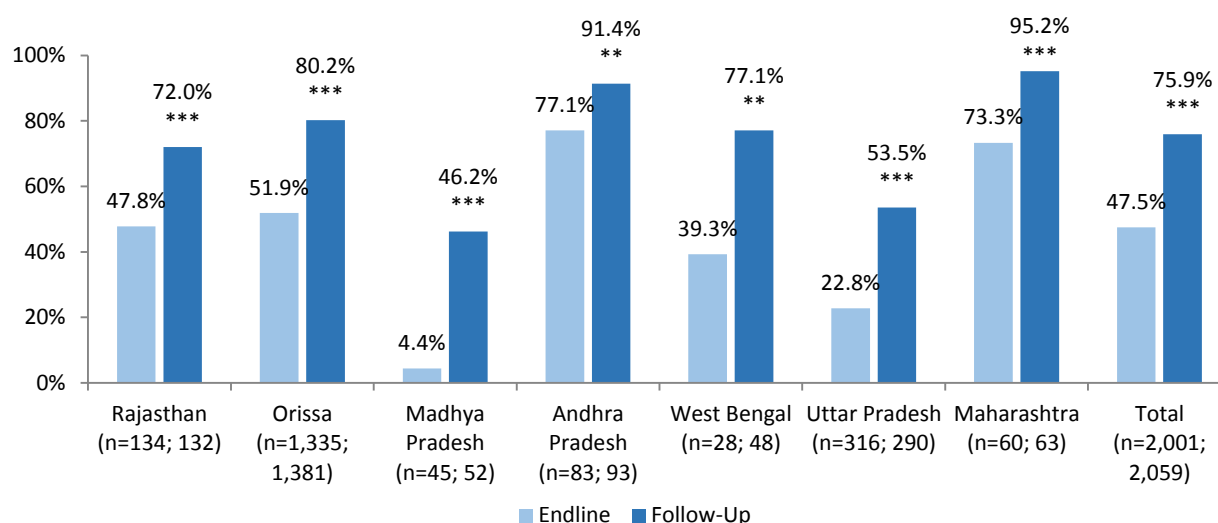
Sources: CRS 2010 and 2012 SMCS Surveys.

Note: Significance based on two sample z-tests; NS=not significant, + $p \leq 0.1$, * $p < 0.05$, *** $p < 0.001$.

Figure 6.2. Trend in Percentage of Mothers Receiving Prenatal Care at Home Visits or Centers/Hospitals, Baseline (2002) to Follow-Up

Sources: 2002 Baseline SMCS Survey (DAP II), 2006–2007 SMCS Final Evaluation Survey (DAP II)/POP SMCS baseline, 2010 POP SMCS Endline Survey, and 2012 SMCS Follow-up Survey.

Note: Significances are between the 2007 DAP II final evaluation bar and the 2010 POP endline bar and between the 2010 POP endline bar and the 2012 follow-up survey bar. Significance based on two sample z-tests; *** p<0.001.

Figure 6.3. Percentage of Mothers Receiving Postnatal Health Checks within 2 Days of Delivery

Sources: CRS 2010 and 2012 SMCS Surveys.

Note: Significance based on two sample z-tests; ** p<0.01, *** p<0.001.

This sustained increase in prenatal and postnatal care is consistent with the fact that the rates of pregnancy and postnatal complications fell significantly between endline and follow-up, with declines especially pronounced in states where rates of complications had been relatively higher at endline.³⁰ For example, the rate of pregnancy complications fell from almost 45 percent at endline to about 18 percent at follow-up in Orissa and the rate of postnatal complications fell from more than 46 percent at endline to about 4 percent at follow-up in West Bengal (data not shown). Overall, the rate of pregnancy complications fell

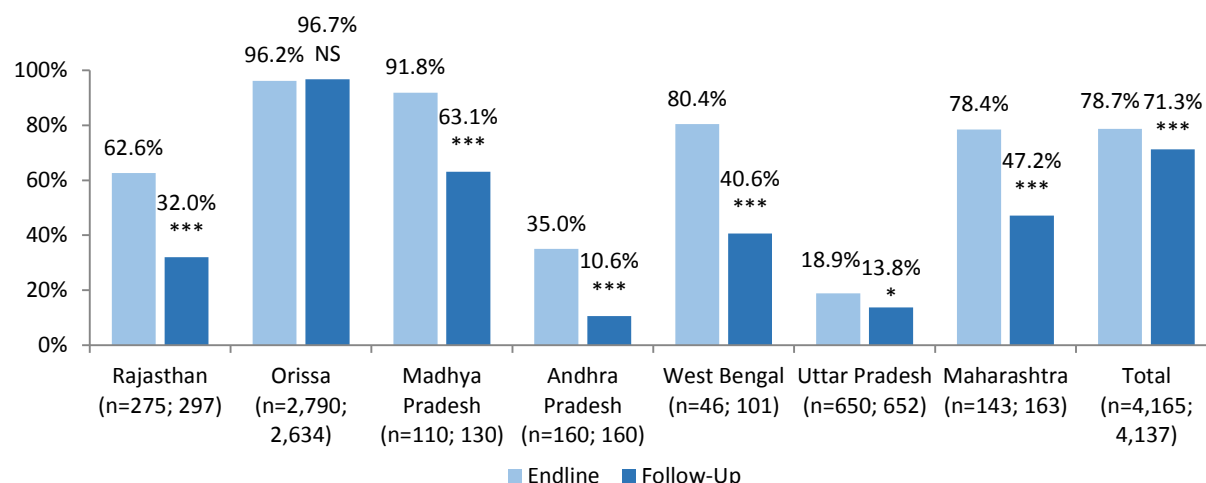
³⁰ For pregnancy complications, the endline and follow-up surveys asked mothers, “When you were pregnant with [the child], did you experience any problems/complications?” without specifying the type of complication. For postnatal complications, mothers were asked about the following complications at birth: low birth weight, difficulty breathing, convulsions, yellowness or blueness, foul-smelling umbilicus, fever, hypothermia, eye discharge, and “other.”

from 40 percent at endline to about 18 percent at follow-up, and the rate of postnatal complications fell from about 18 percent to under 5 percent during that same time period. Between endline and follow-up, there was also a significant increase among women receiving prenatal care who reported receiving specific advice on self-care and the danger signs of pregnancy complications, among other things, during those check-ups (data not shown).

Supplementary Food

Receipt of supplementary food was not as well maintained following CRS's FFP project closure. Overall, the percent of mothers who reported receiving supplementary food from either their VHW (at Nutrition and Health Days) or their AWW (at the AWC) declined significantly in six of the seven states studied (**Figure 6.4**). These percentages varied widely across the states studied, from more than 96 percent of mothers in Orissa receiving the supplement at follow-up to only 11 percent of mothers in Andhra Pradesh and 14 percent in Uttar Pradesh receiving it in this same time frame. Recall that, in contrast to CARE's emphasis on working with the health system on supply chain management, the CRS project focused on creating demand at the community level, and the communities in which they worked were largely in relatively remote, underserved areas. Changes from endline to follow-up did not greatly alter the relative positions of the states with respect to the provision of supplementary food. That is, with some exceptions, those states where a higher percent of beneficiaries received supplementary food at endline continued to have relatively higher percent of beneficiaries receiving food at follow-up, and vice versa, although a few relative positions did shift.

Figure 6.4. Percentage of Mothers Reporting That They Currently Receive Supplementary Food



Sources: CRS 2010 and 2012 SMCS Surveys.

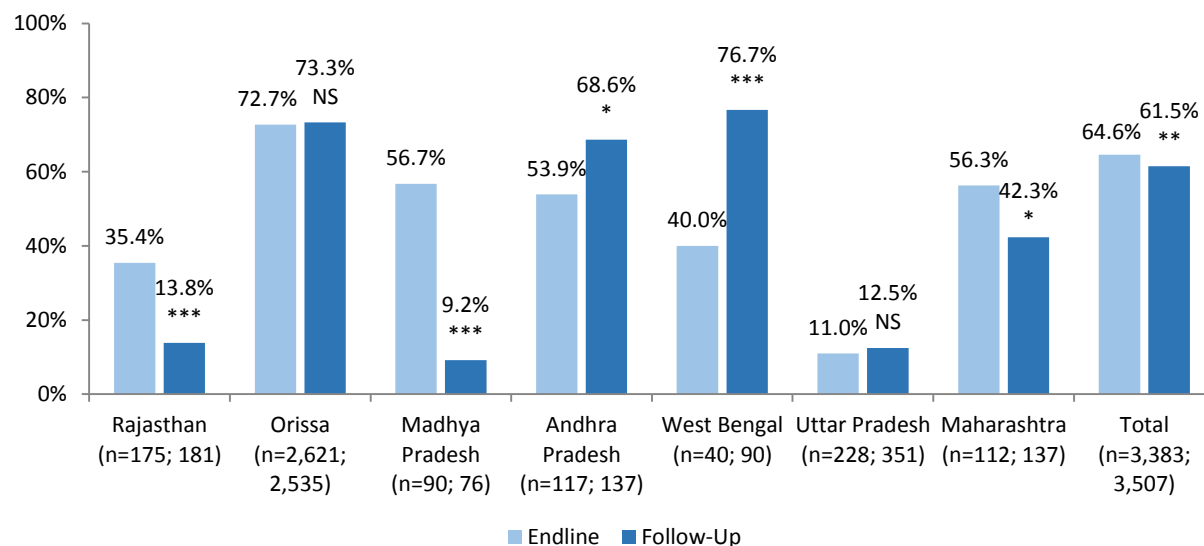
Note: Significance based on two sample z-tests; NS=not significant, * $p < 0.05$, *** $p < 0.001$.

6.3.2 Sustainability of Maternal and Child Health and Nutrition Service Use

Women's participation in growth monitoring (child weighing) was inconsistently maintained. Overall, the percent of mothers whose child was weighed in the past month declined from almost 65 percent at endline to 62 percent at follow-up, but this relatively small difference masks dramatic differences among states (**Figure 6.5**). Not only does participation in growth monitoring among the states assessed in this study differ widely, but some states with relatively lower participation at endline improved significantly at follow-up, while others with relatively high participation at endline saw substantial declines in participation by follow-up. However, the results are much more positive when the question referred to

growth monitoring in the past 3 months, instead of the past month: at follow-up, between 86 percent and 100 percent of mothers in all states reported their children being weighed at least once in the past 3 months (data not shown).

Figure 6.5. Percentage of Mothers Reporting Taking Their Children to Be Weighed in the Past Month



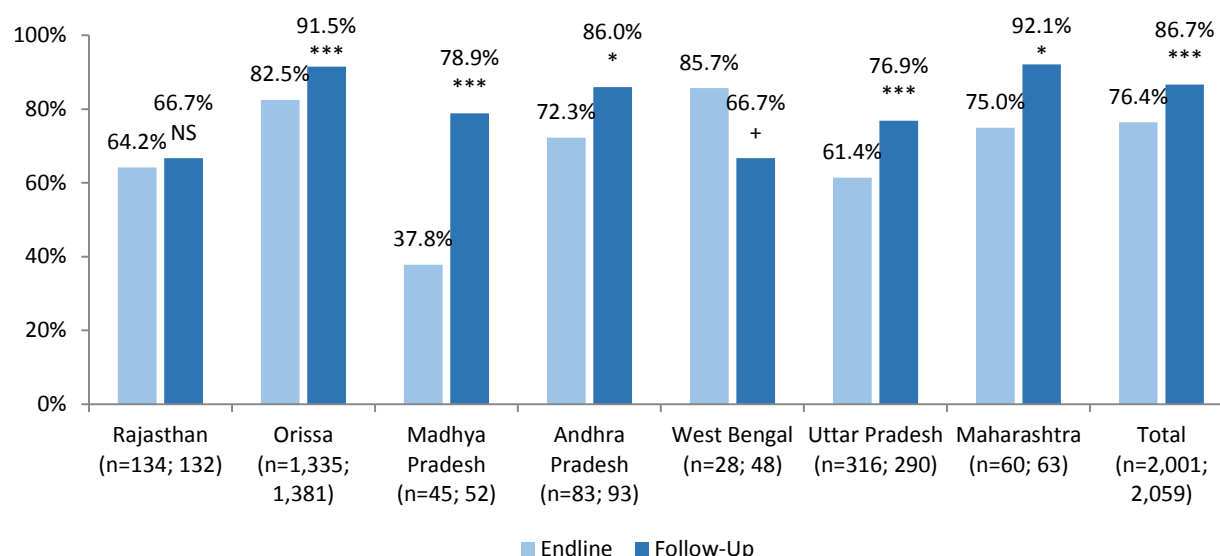
Sources: 2010 and 2012 SMCS Surveys.

Note: Significance based on two sample z-tests; NS=not significant, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Similarly, mothers' participation in mothers' groups, which were organized by the VHW, showed significant and substantial declines in two states, but significant (though smaller) increases in two other states. Overall, mothers' group participation was unchanged at about 20 percent between endline and follow-up (data not shown). Multivariate logistic regression adjusting for tribal and caste status and select measures of socioeconomic status found that receipt of home visits by a frontline health worker was strongly and significantly associated with participation in growth monitoring (odds ratios of 1.91 at endline and 2.64 at follow-up, both $p < .001$), but participation in mothers' groups showed no association with participation in growth monitoring.

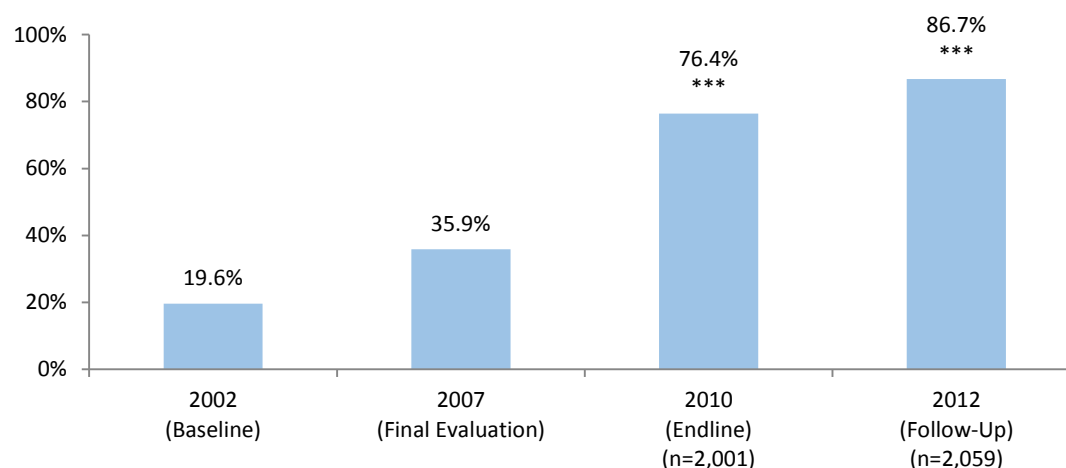
Institutional Deliveries

Institutional deliveries, in contrast, showed a significant increase from endline (76 percent) to follow-up, reaching more than 86 percent among the seven states included in this study at follow-up (**Figure 6.6**). The increase continues the dramatic rise in institutional deliveries from the baseline of the first such set of CRS interventions (in 2002, when fewer than 20 percent of deliveries were in institutions) (**Figure 6.7**) and coincides with the introduction of the NRHM (in 2005), whose community health workers (ASHAs) are paid based in part on the number of women who deliver at health institutions.

Figure 6.6. Percentage of Mothers Delivering at Hospitals or Health Centers

Sources: CRS 2010 and 2012 SMCS Surveys.

Note: Significance based on two sample z-tests; NS=not significant, + $p \leq 0.1$, * $p < 0.05$, *** $p < 0.001$.

Figure 6.7. Trend in Percentage of Mothers Delivering at Hospitals or Health Centers, Baseline (2002) to Follow-Up

Sources: Sambodhi CRS SMCS report for baseline (2002); SMCS final evaluation (2007); POP SMCS endline evaluation (2010), representing all states in which SMCS was implemented; CRS follow-up health SMCS for 2012 representing the seven states included in the study.

Note: Significances are between the 2007 DAP II final evaluation bar and the 2010 POP endline bar and between the 2010 POP endline bar and the 2012 follow-up survey bar. Data were not available for baseline, so significance tests could not be performed. Significance based on two sample z-tests; *** $p < 0.001$.

Immunizations

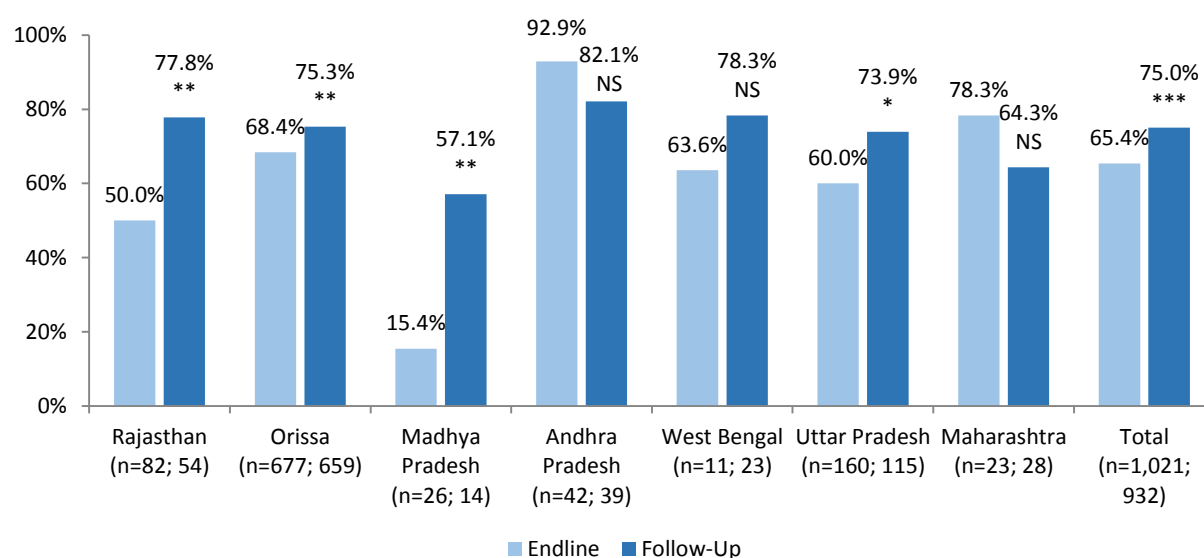
Immunization rates were generally sustained between endline and follow-up. Across all states studied, the percent of children receiving the Bacille Calmette-Guérin (more commonly known as BCG) vaccine increased slightly but significantly to 97 percent at follow-up; for polio, the rate was sustained at more than 85 percent at follow-up; for DPT, the follow-up rate was sustained at 83 percent; and for measles, the

rate was sustained at about 81 percent at follow-up. None of the individual states studied showed a decline in these indicators, and coverage of both DPT and polio vaccine increased significantly between endline and follow-up in Andhra Pradesh and Maharashtra. Provision of vitamin A supplements to children under 3 years of age was less well maintained, showing a significant decline overall, but mothers of children under 3 years of age reported that more than 80 percent of children still received vitamin A supplements at follow-up (data not shown).

6.3.3 Sustainability of Recommended Maternal and Child Health and Nutrition Practices

Responsibility for promoting good breastfeeding practices was phased over from the VHWs to the AWWs, ANMs, and ASHAs across CRS's POP. **Figure 6.8** shows that the practice of exclusive breastfeeding³¹ generally increased from endline to follow-up, with an overall rate of 75 percent at follow-up. The promotion of early breastfeeding initiation also showed a consistent improvement despite substantial differences among states in the POP endline and follow-up rates (**Figure 6.9**). The pattern of early initiation of breastfeeding improved tremendously during the entire project period: at the CRS FFP development project's baseline (2002), only 11 percent of mothers initiated breastfeeding within 1 hour of birth, while at follow-up (2012) the figure was 57 percent (**Figure 6.10**).

Figure 6.8. Percentage of Mothers of Children under 6 Months of Age Reporting Exclusively Breastfeeding

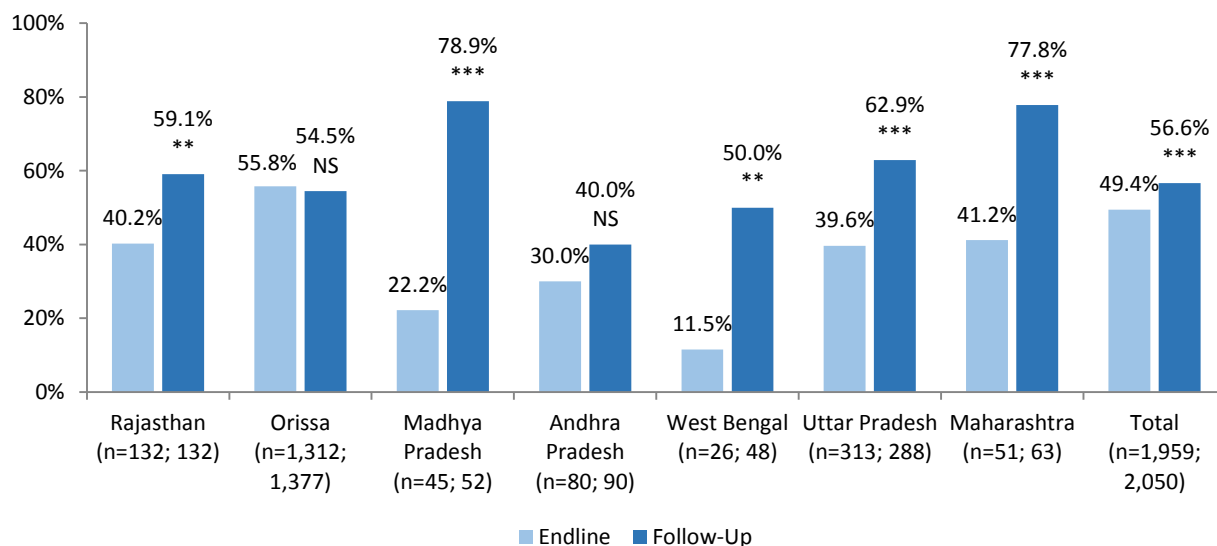


Sources: CRS 2010 and 2012 SMCS Surveys.

Note: Significance based on two sample z-tests; NS=not significant, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

³¹ Mothers of children 6–23 months of age were asked the age at which they first introduced any complementary food or drink to their children. Respondents were defined as exclusively breastfeeding to 6 months if they responded “6 months or more.” This was the question used in the endline survey and therefore was also used for comparison at follow-up. The WHO recommendation for measuring exclusive breastfeeding is to ask mothers of children 6 months of age and younger what they fed the child on the previous day, and consider it exclusive breastfeeding if only breast milk was given (WHO et al. 2010a).

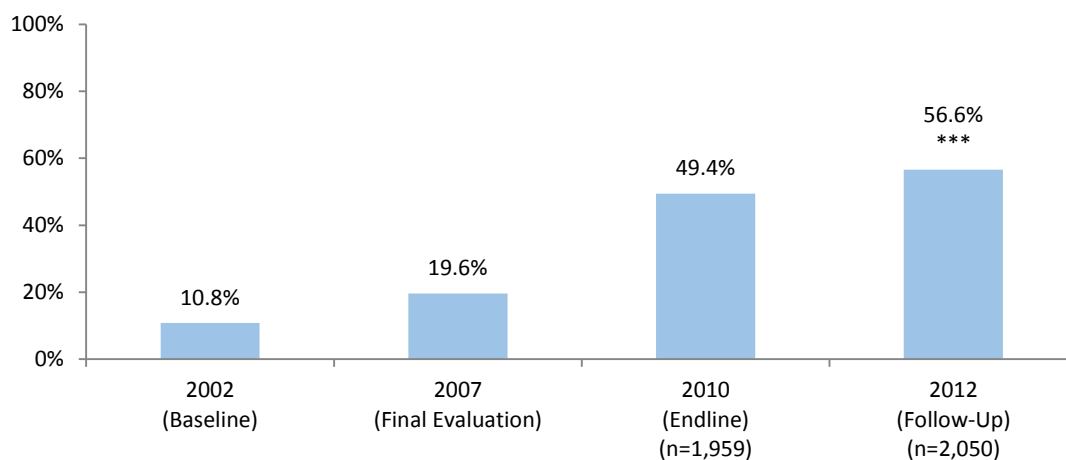
Figure 6.9. Percentage of Mothers of Children under 6 Months of Age Reporting Initiating Breastfeeding within 1 Hour of Birth



Sources: CRS 2010 and 2012 SMCS Surveys.

Note: Significance based on two sample z-tests; NS=not significant, * p<0.05, ** p<0.01, *** p<0.001.

Figure 6.10. Trend in Percentage of Mothers Initiating Breastfeeding within 1 Hour of Birth, Baseline (2002) to Follow-Up (2012)

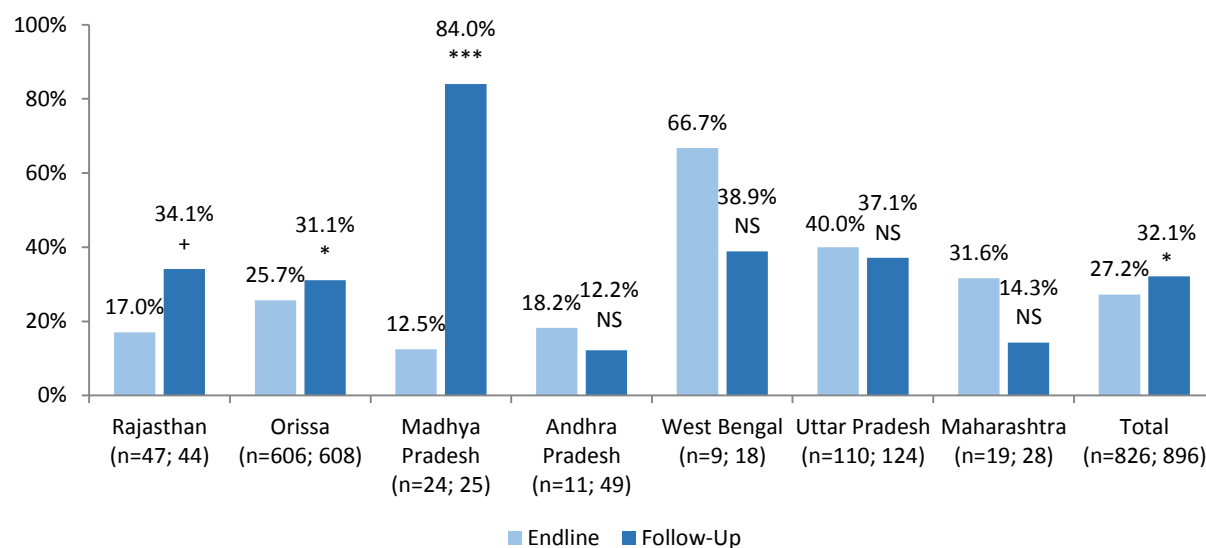


Sources: CRS SMCS baseline (2002) and final evaluation (2007) reports; CRS 2010 and 2012 SMCS Surveys.

Note: Significance is between the 2010 POP endline bar and the 2012 follow-up survey bar. Data from baseline and endline evaluations were not available for analysis, so significance tests are not possible. Significance based on two sample z-tests; *** p<0.001.

The introduction of complementary foods between 7 and 9 months of age was another practice promoted by CRS's FFP development project. **Figure 6.11** shows that, overall, there was a significant increase in the introduction of complementary foods among children between 7 and 9 months of age, but this varied by state: there were significant increases at the state level only in Orissa and Madhya Pradesh. More striking is the generally low level of adoption of this practice at both endline and (with the exception of Madhya Pradesh) follow-up. The introduction of complementary food between 7 and 9 months of age in fact declined consistently from baseline (2002) through the POP endline (2010), from about 73 percent to 27 percent, and rose to 32 percent, considerably lower than baseline, by the time of follow-up (data not shown).

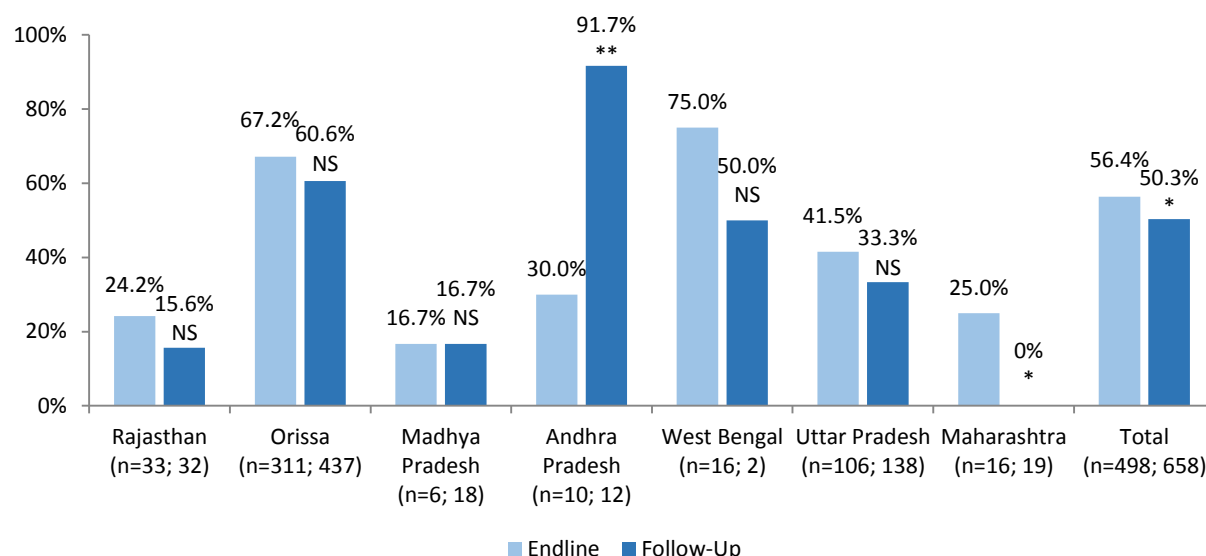
Figure 6.11. Percentage of Mothers Reporting Introduction of Complementary Foods between 7 and 9 Months of Age



Sources: CRS 2010 and 2012 SMCS Surveys; mothers of children 6–23 months of age.

Note: Significance based on two sample z-tests; NS=not significant, + $p \leq 0.1$, * $p < 0.05$, *** $p < 0.001$.

Under CRS's POP, VHWs promoted the practice of continuing to feed children either breast milk or other fluids when they are sick with diarrhea. ICDS and NRHM frontline workers were to assume responsibility for continuing to promote this practice after the POP ended. **Figure 6.12** shows that the percent of mothers providing continued or additional fluids during illness was not sustained from endline to follow-up; the pattern for breastfeeding during illness was similar, and was similarly inconsistent across states. The trend in continuation of breastfeeding during illness from baseline (2002) through follow-up (2012) shows a consistent decline: 73 percent of mothers reported this practice at baseline, and the percentage declined steadily over time to 48 percent at follow-up (data not shown).

Figure 6.12. Percentage of Mothers Reporting Feeding Their Child the Same Amount of or More Fluids during Illness with Diarrhea

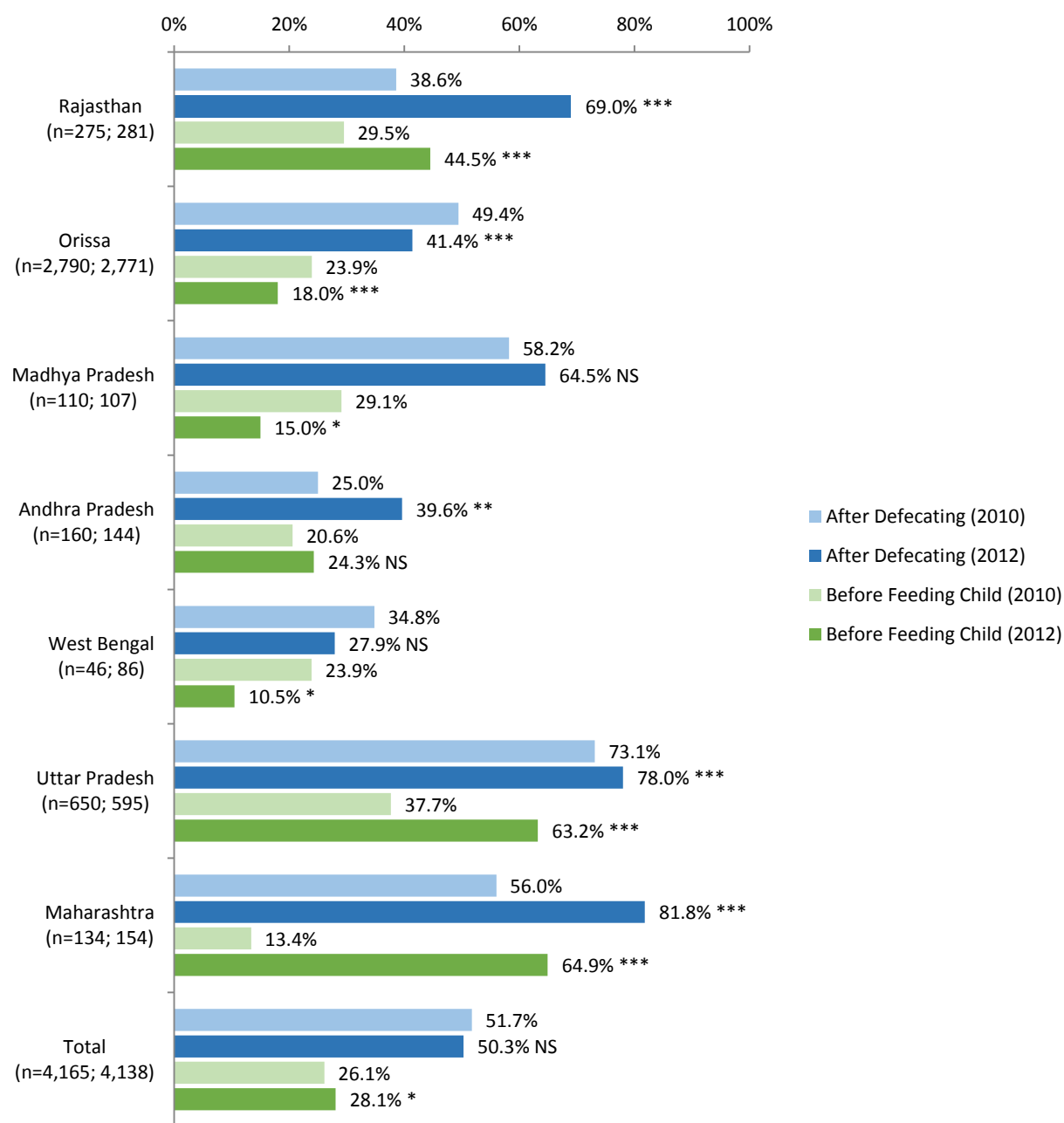
Sources: CRS 2010 and 2012 SMCS Surveys; mothers of children 6–23 months of age.

Note: Asked only of mothers whose children reported illness in the past 2 weeks. Significance based on two sample z-tests; NS=not significant, * $p<0.05$, ** $p<0.01$.

Two handwashing behaviors were measured in the POP endline and follow-up surveys: mothers' self-report of washing hands after defecation and before feeding the child. As shown in **Figure 6.13**, both behaviors showed significant increases between endline and follow-up in some states and decreases in others, while overall there was no change in washing after defecation and only a small (significant) increase in washing before feeding. Both practices showed significant increases in Rajasthan, Uttar Pradesh, and Maharashtra and (not significant for washing after defecation) Madhya Pradesh, while both practices declined in Orissa and (not significant for washing after defecation) West Bengal. As has been observed with other outcomes, differences across states are as notable as differences from endline to follow-up. For example, at follow-up, the practice of handwashing after defecation ranged from 27.9 percent in West Bengal to 81.8 percent in Maharashtra, while the practice of handwashing before feeding a child ranged from 18.0 percent in Orissa to 64.9 percent in Maharashtra (the latter of which increased from 13.4 percent at endline).

Multivariate logistic regression adjusting for tribal or caste status and select measures of household socioeconomic status found that participation in growth monitoring did not affect the adoption of good child care practices (exclusive breastfeeding, introduction of complementary feeding between 7 and 9 months of age, not reducing feeding during diarrhea, appropriate handwashing), but home visits by a frontline health worker were strongly and significantly associated with the practice of not reducing feeding (breastfeeding or provision of other fluids) during illness at both endline and follow-up (odds ratios for breastfeeding were 2.13 at endline and 15.5 at follow-up; for feeding of fluids, odds ratios were 2.02 at endline and 4.80 at follow-up, all significant at $p<.05$ or better).

Figure 6.13. Percentage of Mothers Reporting That They Washed Their Hands with Soap



Sources: CRS 2010 and 2012 SMCS Surveys; mothers of children 6–23 months of age.

Note: Significance based on two sample z-tests; NS=not significant, * p<0.05, ** p<0.01, *** p<0.001.

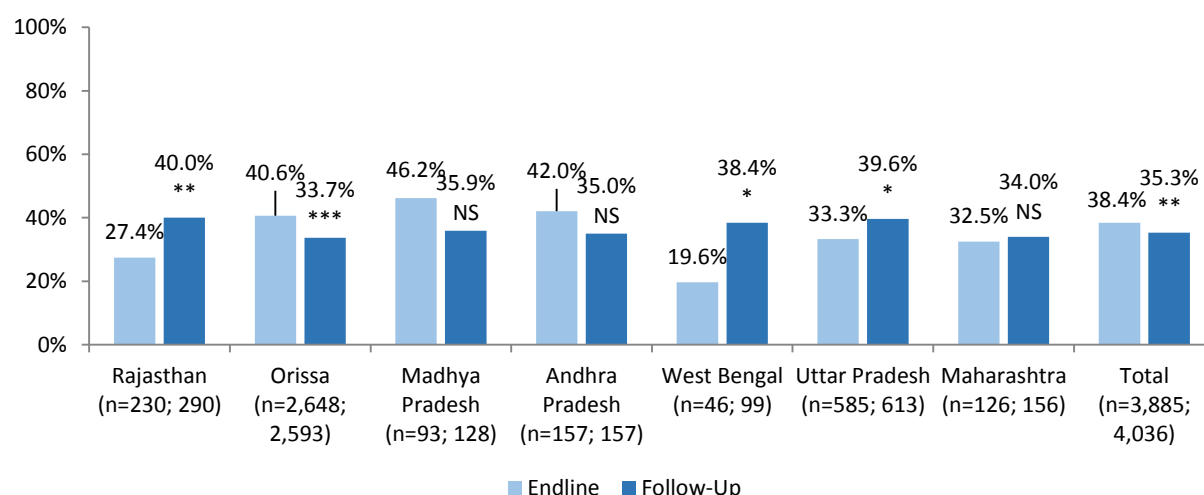
N=2010 sample size; 2012 sample size.

6.3.4 Sustainability of Maternal and Child Health and Nutrition Impacts

The primary objective of the CRS POP's MCHN interventions was to reduce the prevalence of stunting, wasting, and underweight (weight-for-age) through the provision of food and health services and the promotion of good child care and feeding practices. **Figure 6.14** shows that overall rates of stunting did decline between endline and follow-up among the states studied. However, three states experienced a significant increase in stunting, one a non-significant increase, and three experienced declines (one significant). That said, the prevalence of stunting at follow-up remained disturbingly high, at more than 35 percent. The pattern for wasting was similar: across the seven states studied, the prevalence of wasting fell from 25 percent to 22 percent, with three states experiencing significant declines and one experiencing a significant increase (**Figure 6.15**). The only anthropometric indicator measured at baseline (2002) was underweight (WAZ <-2). There was a slight decline in this indicator from 37 percent to 34 percent between the POP baseline (2007) and endline (2010), and there was no significant change at follow-up in 2012, with an overall prevalence that remained quite high, at 35 percent.

The assumption underlying the CRS FFP-funded development project's MCHN interventions in India and the health services that took responsibility for these activities when CRS exited was that improving maternal caring practices would ultimately contribute to reduced rates of malnutrition. Multivariate logistic regression adjusting for tribal and caste status, select measures of household socioeconomic status, and the age and sex of the child found, however, that maternal care practices, including participation in growth monitoring, not reducing feeding (continuing to breastfeed or provide other fluids) during illness, and compliance with appropriate breastfeeding practices (exclusive breastfeeding practices to 6 months of age and introduction of complementary feeding from 7 to 9 months of age) showed no significant effect on the probability of a child being stunted. These results are similar to those for CARE areas, where no relationship was seen between key child care practices and rates of stunting (except that in CARE areas, exclusive breastfeeding showed an association with reduced stunting). In both the CARE and CRS projects, there were mixed results with respect to the sustainability and level of adoption of key practices. While there are surely important variables missing (unavailable) from these regression results, they do not provide strong support for the relationship between these practices and the key impact indicator of child undernutrition.

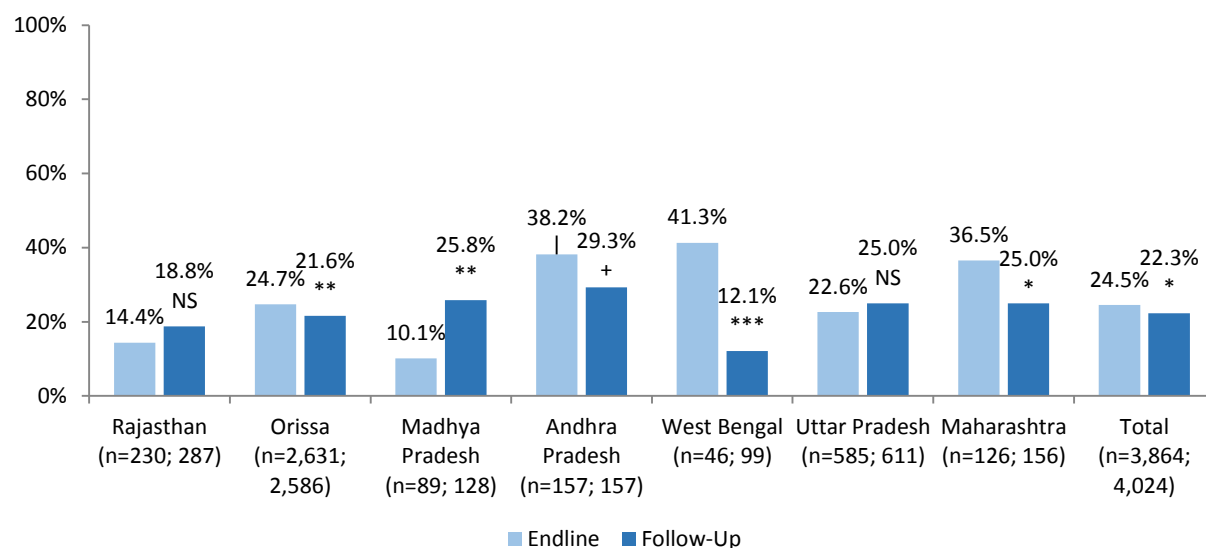
Figure 6.14. Percentage of Children 6–23 Months of Age Who Were Stunted (HAZ <-2)



Sources: CRS 2010 and 2012 SMCS Surveys.

Note: Significance based on two sample z-tests; NS=not significant, * p<0.05, ** p<0.01, *** p<0.001.

Figure 6.15. Percentage of Children 6–23 Months of Age Who Were Wasted (WHZ <−2)



Sources: CRS 2010 and 2012 SMCS Surveys.

Note: Significance based on two sample z-tests; NS=not significant, + $p \leq 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

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

The study results indicate that MCHN service delivery and service use were largely sustained and, in many cases, expanded following CRS's FFP development project in India. The percent of women accessing prenatal care in health centers has continued to increase (an increase that started at baseline), and the same is true of postnatal care. Rates of pregnancy complications and postnatal complications have also continued to decline. The percent of institutional deliveries, which rose from 20 percent to 76 percent between baseline in 2002 and the end of CRS's POP in 2010, continued to increase, to 87 percent at follow-up in 2012. Rates of immunization were also well maintained or improved overall, with the biggest improvements in coverage in the states that had the lowest coverage at endline. These positive results suggest that the transition from reliance on VHWs to reliance on services provided through government health centers and clinics has worked well. In particular, there were improvements in institutional deliveries and immunizations, which are outcomes for which ASHAs are paid.

The responsibility for providing supplementary food was phased over to the GOI before the POP. Supplementary food had served as an incentive for mothers to attend growth monitoring and health education sessions conducted by VHWs and as a nutritional supplement. Delivery of supplementary food at the AWCs was not well sustained in the CRS areas studied, with significant declines in the percent of mothers reporting consistently receiving supplementary food from the AWCs in all but one of the seven study states. Provision of supplementary food through the AWC is a responsibility of the ICDS, which procures food through the Food Corporation of India. It appears that the systems for supply chain management were not reliable in the former CRS areas. This is a contrast to the CARE areas, where supply chain management was an explicit focus of its POP and where food availability was fairly well maintained. Note that in contrast to the CARE project, CRS concentrated its efforts on relatively remote and inaccessible areas, posing challenges for the ICDS to maintain a reliable supply. Growth monitoring participation (defined as attending a growth monitoring session in the past month) fell overall, but state-by-state comparisons show no relationship between states where food availability declined and those where growth monitoring participation fell. What is more, growth monitoring participation over the prior 3 months was well maintained at high levels (at or above 85 percent) in all states. Growth monitoring is no longer organized in the community by the VHW; instead it is done at the Nutrition and Health Days held at AWCs.

The critical factors of resources, capacity, and motivation converged in the phase-over of many of CRS's MCHN activities to government departments. The GOI has the resources to back its commitment to providing health services through its clinics and hospitals and to provide training to frontline workers. However, while the government had the resources and commitment (motivation) to provide food, they did not demonstrate the capacity to manage the supply chain to ensure reliable delivery to the relatively remote areas formerly served by CRS's FFP development project. **Box 6.2** summarizes the elements of the CRS sustainability plan that did and did not work as planned.

Box 6.2. MCHN Sector Sustainability: Key Findings

WHAT WORKED

- Efforts to promote beneficiaries' awareness and use of available health services were successful.
- Use of government health services for prenatal and postnatal care was sustained or increased.
- Increased use of prenatal and postnatal services was associated with a decrease in pregnancy and postnatal complications.
- The percent of women giving birth at hospitals and health centers (rather than at home) continued to improve; this improvement coincided with the introduction of ASHAs who worked in a pay-for-performance model that rewarded them for each institutional delivery.
- Rates of child immunization increased or were sustained at high levels; immunizations were another outcome included in the pay-for-performance model for ASHAs.
- Home visits by frontline health workers improved compliance with good caring practices, such as maintaining (or increasing) feeding during illness.
- Caring practices related to breastfeeding (exclusive breastfeeding, early initiation) continued to improve from endline to follow-up, as they had from the CRS POP's baseline to endline.

WHAT DID NOT WORK

- Reliable delivery of supplementary food through AWCs and Nutrition and Health Days was not well sustained.
- From endline to follow-up, the prevalence of both stunting and wasting declined slightly; the prevalence of underweight remained unchanged.
- Improved use of health services and improved caring practices were not associated with reductions in the prevalence of child malnutrition, indicating that the health and care interventions as implemented were not sufficient to affect child undernutrition.

7. Catholic Relief Services: Agriculture Sector

7.1 Agriculture Sector Intervention Description

CRS's agriculture sector interventions focused on watershed development and the promotion of irrigation in farming communities. Areas selected for intervention were chosen based on having less than 10 percent of cultivated land under irrigation, at least 75 percent of households being dependent on agriculture for their livelihood, and greater than 70 percent of landholdings being under 2 hectares (4.94 acres). CRS works primarily in areas with high concentrations of scheduled tribes and castes, and the agriculture sector interventions focused on areas where at least 80 percent of the population belonged to these vulnerable groups. To ensure the motivation of farmers, CRS also selected areas where at least 80 percent of the land was privately owned (by cultivators).³²

Agriculture activities during CRS's POP focused on completion of soil and water conservation and irrigation activities initiated under the previous FFP development projects. This included finishing construction of all planned watershed infrastructure, as well as consolidating efforts to build capacity and raise awareness among community organizations about accessing associated government-provided services. WDCs and associated users' groups and self-help groups were also formed to complete and sustain the benefits of the agriculture interventions. Agricultural extension officers employed by CRS's operating partners worked with farmers to promote improved agricultural practices, including the use of irrigation. The project's approach also focused on increasing farmer knowledge of appropriate crop varieties, seed selection, pest management, the importance of soil testing, different types of fertilizers, and improved cultivation practices. Watershed activities were implemented through community public works, for which community members received food in return for their labor (food for work). Women and other socially and economically deprived groups were to be represented in the various committees and groups active in the watershed.

In the agriculture sector, training followed a top-down "cascade" approach. CRS focused on building the capacity of cooperating partner staff, who then trained agricultural extension workers (farmers drawn from the communities).³³ During qualitative data collection, one cooperating partner staff member also mentioned receiving financial training. CRS sometimes also directly trained agricultural extension workers, who then trained other farmers in their communities. Agricultural extension workers confirmed in qualitative interviews that they received training in agricultural activities (such as soil conservation and harvesting) and watershed infrastructure construction and maintenance (such as construction of check dams and gully plugs) and passed this training on to farmers in their communities. Respondents did not report receiving complementary training in management, commercialization, or marketing.

³² Agricultural interventions were implemented in nine states, of which five also had MCHN interventions. There was some overlap among districts having both interventions, but the two were not necessarily coordinated. This study collected data from four of the states with agriculture interventions.

³³ Agricultural extension workers were local farmers trained by CRS either directly or through its operating partners to provide training to other farmers in their communities. There is also a government system of agricultural extension that employs agricultural extension officers to provide training to farmers.

7.2 Agriculture Sector Sustainability Plans and Exit Strategies

CRS, through its operating partners, gradually phased out services over the period of its POP. By the POP endline, about 70 percent of respondents in all states except Orissa said that they were aware that the CRS project would be ending. However, because the organizations CRS worked with were largely indigenous, these entities remained active in CRS's former implementation areas after FFP funding ended.

In preparation for its FFP development project's exit, CRS organized or strengthened WDCs, whose responsibility was to maintain the watershed infrastructure created by the project. CRS intended that from the start of the project, the WDCs would charge a fee for the use of water for irrigation, and the fees were meant to cover the cost of the materials and labor needed for repairs and maintenance (the latter of which had been supported by food for work during the project). However, as noted below, at follow-up it was clear that fees were not consistently charged, and repairs and maintenance were funded on an ad hoc basis when needed.

In addition, CRS identified NREGA, the guaranteed employment scheme, and NABARD, the government agricultural credit program, as two other promising options to assist in the phase-over of this project component to government programs. CRS expected NREGA to be a source of employment in the communities, as well as a source of labor for repairs and maintenance of watershed infrastructure. Securing grant funding from NABARD to support mobilized communities to work on the project-developed watershed infrastructure was another option. Consistent with its "bottom-up" approach, the CRS strategy was to strengthen the capacity of local organizations to access NREGA and NABARD services, rather than to work with NREGA and NABARD officials directly. CRS also planned to work with its operating partners to strengthen linkages to government agricultural extension support for improved project sustainability.

During the life of these agricultural interventions, CRS worked to build the capacity of community-based organizations, such as WDCs and self-help groups, by providing technical training in watershed management and working with WDCs to ensure that they knew how to develop proposals and formally request services from NREGA and NABARD. CRS's operating partners also encouraged WDCs and self-help groups to continue the project's work on their own during the POP, with the idea that they would be empowered to access the services of government programs to which they were entitled. **Box 7.1** summarizes CRS's sustainability strategies and the key assumptions (explicit or inferred) that underpin them.

Box 7.1. CRS Watershed Development Sustainability Strategies and Key Assumptions

SUSTAINABILITY STRATEGIES	KEY ASSUMPTIONS
<ul style="list-style-type: none"> Have WDCs monitor and maintain watershed infrastructure with community labor. 	<ul style="list-style-type: none"> Community members will be motivated by the benefits of irrigation to devote their labor to infrastructure monitoring and maintenance.
<ul style="list-style-type: none"> Have WDCs charge for the use of water for irrigation, and have the charged fees cover the costs of maintenance and repairs. 	<ul style="list-style-type: none"> Community members will be willing to pay for water, motivated by the benefit of irrigation.
<ul style="list-style-type: none"> Have local organizations, including PRIs and WDCs, obtain credit or grants from NABARD to pay for labor and materials for watershed maintenance and repairs. 	<ul style="list-style-type: none"> Local organizations will have the capacity to prepare the necessary paperwork to apply for support from NABARD. Maintenance and repairs will require external funding. NABARD will have the resources to provide loans or grants to communities.
<ul style="list-style-type: none"> Have local organizations apply for support from NREGA to pay for labor to maintain and repair watershed infrastructure and perform other agriculture-related work. 	<ul style="list-style-type: none"> Local organizations will have the capacity to prepare NREGA applications correctly. Local organizations will be able to supervise the work to ensure that labor paid by NREGA is completed as planned.
<ul style="list-style-type: none"> Have community members obtain NREGA cards that entitle them to work and be paid under the NREGA scheme. 	<ul style="list-style-type: none"> NREGA will register community members and make contracts to employ them as planned.
<ul style="list-style-type: none"> Have community members work on maintenance and repair of watershed infrastructure with wages from NREGA. 	<ul style="list-style-type: none"> NREGA will have resources to support community labor. NREGA wages will adequately substitute for project-provided food for work.
<ul style="list-style-type: none"> Have CRS's operating partners and project-trained agricultural extension officers reach out to government agricultural extension workers to provide continued training to farmers. 	<ul style="list-style-type: none"> Local farmer groups' capacity will be maintained through government agricultural extension worker trainings. Government extension workers will have the resources, capacity, and motivation to assist farmers in former CRS communities.
<ul style="list-style-type: none"> Make sure that CRS-trained local community groups are aware of their entitlements to government services and will seek them out. 	<ul style="list-style-type: none"> GOI services will be available.

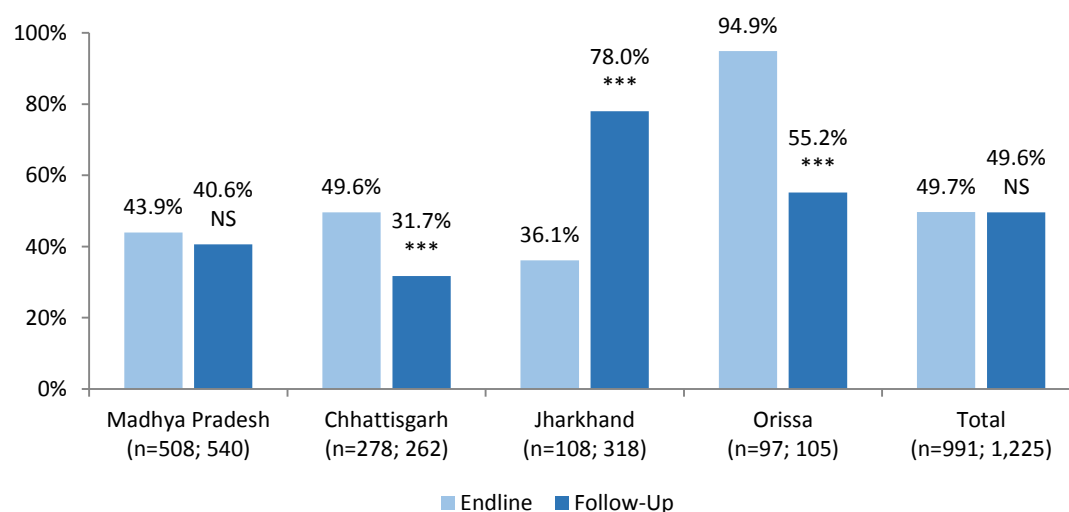
7.3 Agriculture Sector Results

7.3.1 Sustainability of Agriculture Service Delivery

As mentioned above, CRS and its operating partners maintained their presence in many of the former FFP development project-funded communities after the withdrawal of FFP support. About half of those technicians working through the NREGA scheme at follow-up reported that they had received help from the project in finding work (presumably from local operating partners whose presence continued even after the FFP project had ended), about the same percent as at the end of the POP. In Jharkhand, the percent of technicians who reported getting help from CRS significantly increased from endline to follow-up—consistent with the continued presence of the operating partners. However, this indicator fell significantly in Orissa (to about 55 percent at follow-up) and Chhattisgarh (to about 32 percent at follow-up) (**Figure 7.1**).

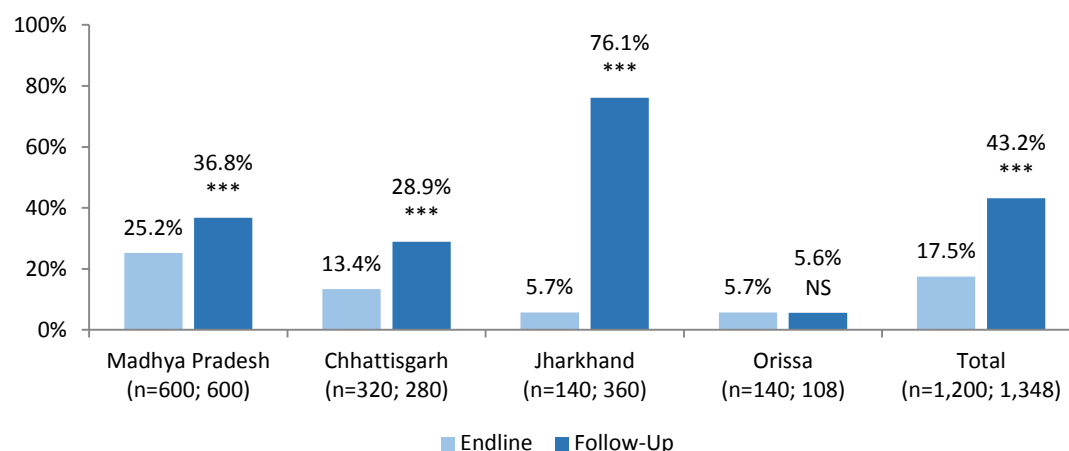
The project was also relatively successful in linking communities to alternative sources of support. **Figure 7.2** shows that the percent of respondents who reported that CRS activities were financially supported through other sources increased significantly from endline to follow-up in all states but one, and increased to more than 40 percent across the four states studied. Qualitative interviews indicated that alternative sources of support included state government programs more than national programs, in addition to support from CRS projects supported by donors other than FFP. The continued presence of CRS and its partners appears to have contributed continued support to participating communities.

Figure 7.1. Percentage of NREGA Workers Reporting Receiving Help from CRS Project Staff to Obtain Work Post-Project



Sources: CRS 2010 and 2012 Agriculture Surveys.

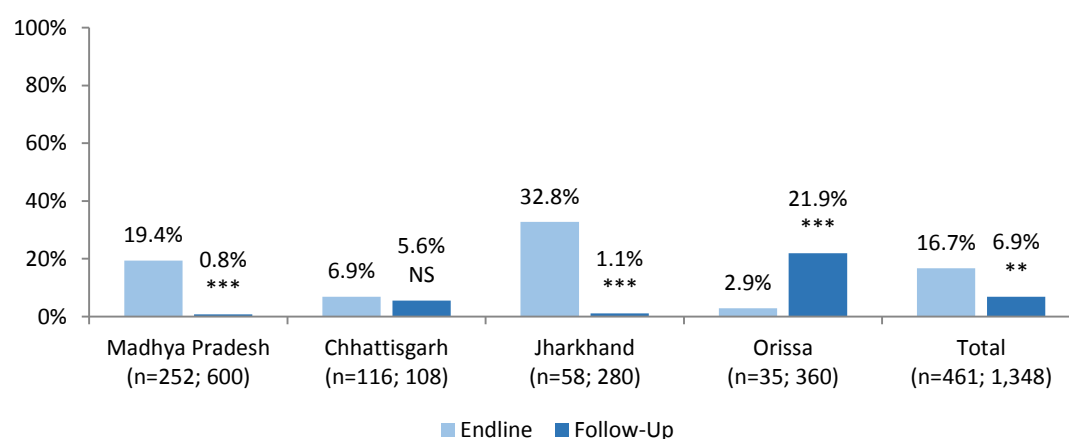
Note: Significance based on two sample z-tests; NS=not significant, *** p<0.001.

Figure 7.2. Percentage of Respondents Reporting CRS's FFP-Funded Project Activities Continued through Support from Other Sources

Sources: CRS 2010 and 2012 Agriculture Surveys.

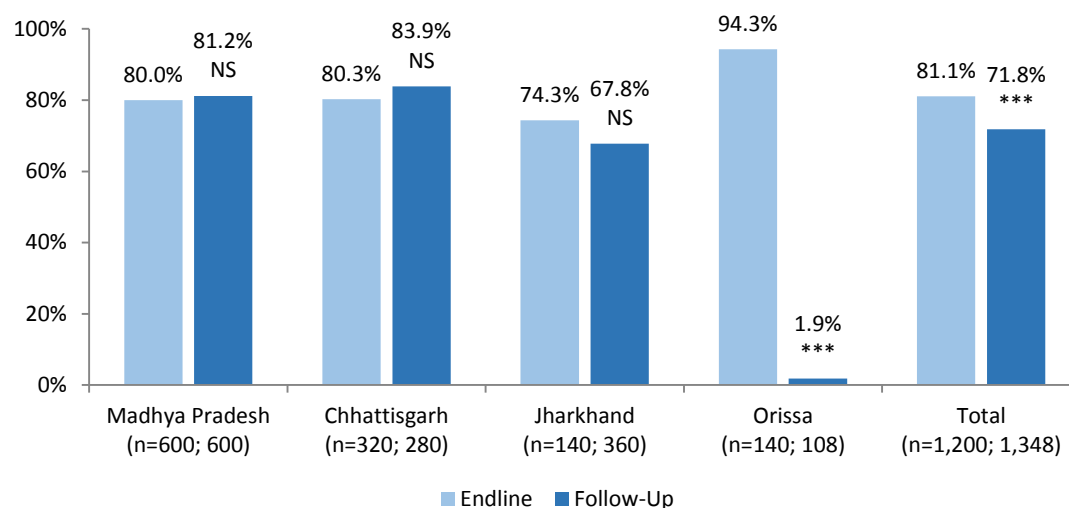
Note: Significance based on two sample z-tests; NS=not significant, *** p<0.001.

The number of communities with functioning WDCs fell overall, from under 17 percent at endline to just under 7 percent at follow-up. This figure also dropped in three of the four states studied, rising only in Orissa (**Figure 7.3**). The percent of farmers reporting that they or another member of their household participated in a WDC fell slightly from 39 percent at endline to 33 percent at follow-up, but rose in Orissa from 59 percent to 77 percent (data not shown). However, participation in watershed maintenance activities fell only slightly overall (from 81.1 percent to 71.8 percent), and this drop was driven by a dramatic decrease in Orissa (from 94.3 percent to 1.9 percent). In the other three states, the percent of respondents who reported working on watershed maintenance did not change significantly, and ranged from 68 percent to 84 percent at follow-up (**Figure 7.4**). Notably, the average number of days worked for those who did work increased significantly from 46 to 82 days, though this number reached more than 100 days only in Madhya Pradesh (recall that NREGA guarantees 100 days of employment) (data not shown).

Figure 7.3. Percentage of Respondents Reporting a Functioning WDC in Their Community

Sources: CRS 2010 and 2012 Agriculture Surveys.

Note: Significance based on two sample z-tests; NS=not significant, ** p<0.01, *** p<0.001.

Figure 7.4. Percentage of Respondents Reporting Working on Watershed Maintenance in the Past Year

Sources: CRS 2010 and 2012 Agriculture Surveys.

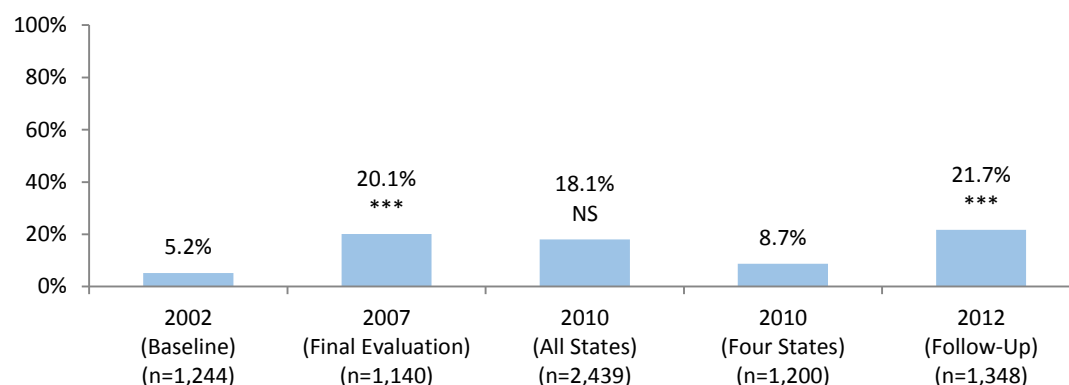
Note: Significance based on two sample z-tests; NS=not significant, *** $p < 0.001$.

In qualitative interviews and FGDs, respondents generally reported that while there were fewer formal WDCs at follow-up than there had been during the life of the project, groups formed on an ad hoc basis when repairs were needed. If groups form only when repairs are needed, there is a risk that preventive maintenance will be given less attention, as the need for repair triggers the formation of work groups. An exception to the ad hoc repair groups was seen in Orissa, where members of one WDC interviewed during the qualitative follow-up investigation reported maintaining a fund to which water users contributed. Other committees, though, turned to NREGA or to the former CRS project's operating partners to support work on repairs. Several WDCs mentioned that it was difficult to charge for water because many farmers viewed this as a natural resource that should be free. In addition, some of the qualitative interviews with operating partner staff and WDC members raised concerns about access to government programs like NREGA. As one CRS functionary in Jharkhand pointed out, "Government schemes are really good. They are made for the people, but the problem is how these schemes reach the people." Members of a WDC focus group in Jharkhand lamented that they could not get support from NREGA. As one respondent put it (with general agreement), "Our committee tried to get work from [a] government scheme like NREGA. We have the NREGA cards. NREGA cards were made, but they are not helping anyone. We got the signatures, but no work under NREGA has started in our village." However, this may have been part of a sensitization process in which committees learned how to obtain support, as members of one PRI in a FGD recounted that the first time they negotiated with NREGA to provide labor for watershed infrastructure maintenance, the labor was unreliable and the work was not satisfactorily completed. However, the PRI noted that a former CRS operating partner gave them guidance on how to write contracts that were enforceable, and that, since then, they have worked successfully with NREGA when repairs or maintenance was needed.

One of the goals of the FFP-funded CRS project was to increase the total amount of land under irrigation. This goal was achieved by endline, and land under irrigation further increased between endline and follow-up. At the baseline of the first FFP development project in 2002, only about 5 percent of agricultural land was irrigated. By the POP baseline 5 years later, the percent of land under irrigation had increased to 20 percent. At the POP endline in 2010, the percent of land under irrigation had declined

slightly to 18 percent. Among the four states included in this study specifically, only about 9 percent of agricultural land was under irrigation at endline. Remarkably, this had increased to 22 percent at follow-up (Figure 7.5).

Figure 7.5. Percentage of Land under Irrigation over the Life of the FFP-Funded CRS Development Project



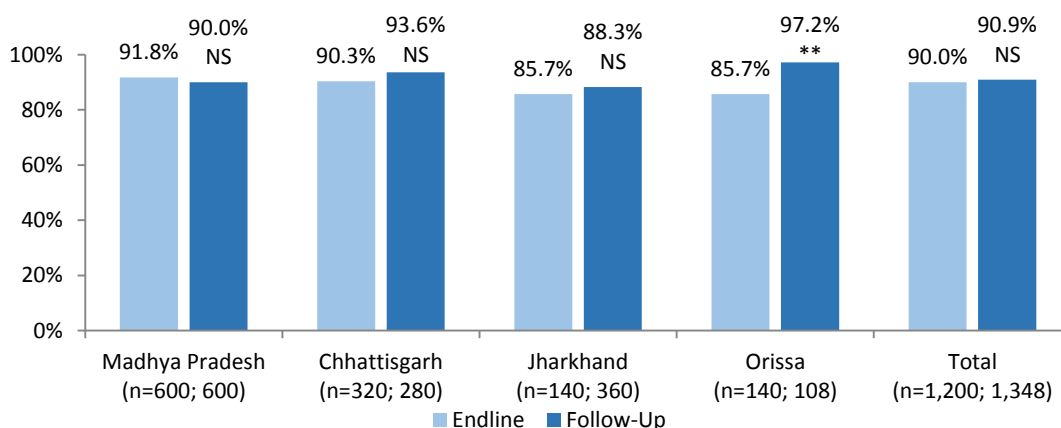
Sources: CRS baseline report (2002); CRS Agriculture Final Evaluation (2007); CRS POP endline (2010) and follow-up Agriculture Surveys. “All states” refers to all states included in CRS agricultural projects; “four states” refers to the states included in follow-up survey.

Note: Significance based on two sample z-tests; NS=not significant, *** $p < 0.001$.

7.3.2 Sustainability of Agriculture Service Use

More than 90 percent of farmers interviewed for this study reported that they had a NREGA card entitling them to 100 days of paid work (Figure 7.6). This indicator was unchanged from endline to follow-up in all but one of the states studied. Of those farmers with a card, the percent actually working declined slightly (but significantly) from almost 92 percent to just under 90 percent. Despite some comments among farmers in qualitative interviews that NREGA officials asked for payments in return for giving out jobs, the high number of people working under NREGA suggests that the NREGA scheme was effectively substituting for the loss of food for work-supported activities in watershed maintenance.

Figure 7.6. Percentage of Farm Households with at least One NREGA Card



Sources: CRS 2010 and 2012 Agriculture Surveys.

Note: Significance based on two sample z-tests; NS=not significant, ** $p < 0.01$.

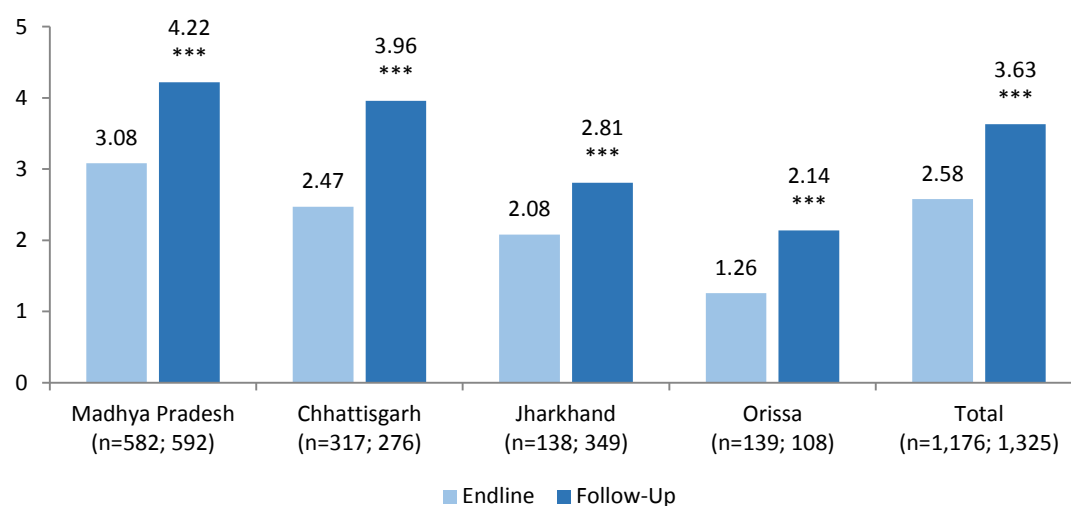
In contrast, many fewer farmers made use of agricultural credit through NABARD. Just over 3 percent of farmers studied reported taking an agricultural loan at follow-up, representing no significant change from endline (data not shown). Farmers' use of credit was highest at the time of the POP baseline (2007), when 16 percent of farmers took loans for crops and 8 percent took loans for livestock (from all loan sources). By the POP endline, those numbers had fallen to under 3 percent for either type of loan in the four states included in this study (data not shown). Qualitative information did not suggest that farmers attempted to access credit through NABARD and were unsuccessful, but rather that farmers were not seeking credit from NABARD or from any other source.

Consistent with the strategy of encouraging farmers to make use of government services after the project ended, there was a significant increase in the percent of farmers seeking and obtaining support from GOI agricultural extension agents: overall, 13 percent of farmers obtained help from these government workers at endline and 17 percent did so at follow-up. However, this follow-up level of use was lower than it had been at the POP baseline, when 23 percent of farmers made use of government agricultural extension agent services (data not shown).

7.3.3 Sustainability of Recommended Agriculture Practices

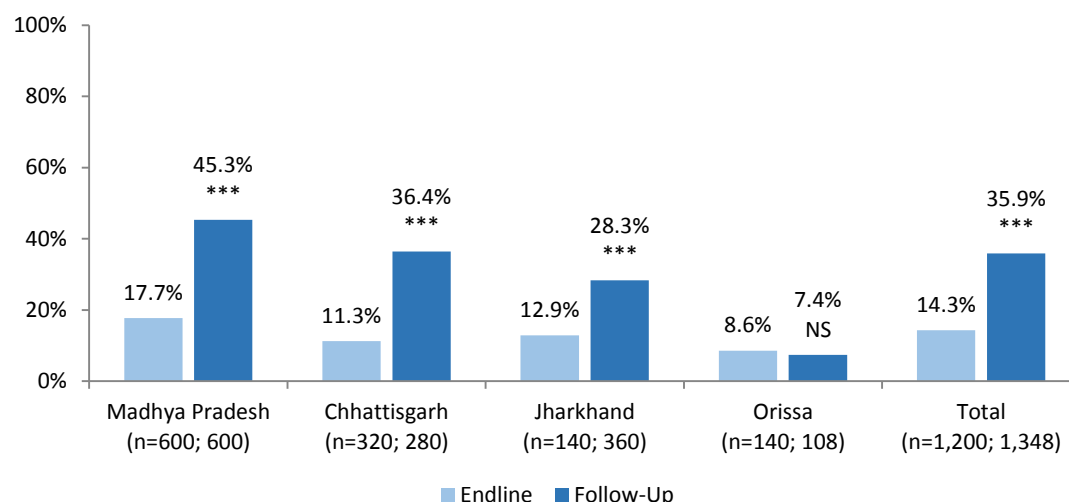
Another goal of CRS's agriculture sector interventions was to expand the amount of cultivated and double-cropped land to increase the possibility of farmers producing an agricultural surplus for sale and to provide better forage for livestock. Between endline and follow-up, the amount of land cultivated per farmer increased in all four of the states studied (**Figure 7.7**). Overall, cultivated area rose significantly, from 2.6 to 3.6 acres per farmer. The choice of crops to be cultivated varied by state (according to local growing and market conditions), but in all four states studied the percent of farmers growing the main staples of rice, maize, and wheat either increased or remained unchanged (data not shown). The percent of farmers irrigating their land also rose significantly in three of the four states studied (this figure did not change in Orissa). Overall, 36 percent of farmers had irrigated land at follow-up, compared with 14 percent at endline (**Figure 7.8**). On average, farmers with access to irrigation irrigated about 60 percent of their total cultivated land, a figure that did not significantly change between endline and follow-up (data not shown).

Figure 7.7. Mean Area Cultivated (acres per farmer)



Sources: CRS 2010 and 2012 Agriculture Surveys.

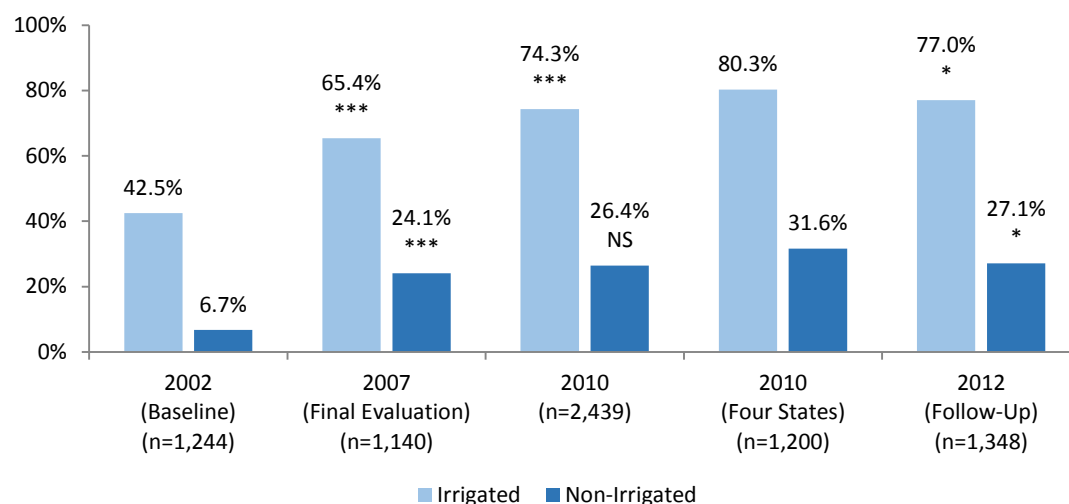
Note: Significance based on two sample z-tests; *** p<0.001.

Figure 7.8. Percentage of Farmers with Irrigated Land

Sources: CRS 2010 and 2012 Agriculture Surveys.

Note: Significance based on two sample z-tests; NS=not significant, *** $p < 0.001$.

The percent of farmers who double cropped fell from endline to follow-up, from almost 50 percent to about 33 percent. This decline was driven by a very steep decline in double cropping in Orissa, as well as a decline in Madhya Pradesh. The percent of farmers who double cropped increased or was sustained in Chhattisgarh and Jharkhand (data not shown). However, the percent of total agricultural land in the watershed catchment area that was double cropped increased significantly, from only about 6 percent in 2002, at the start of the first FFP-funded CRS development project in these areas, to 38 percent at POP follow-up 10 years later, with most of that increase occurring during the first FFP development project cycle. The percent of irrigated land that was double cropped rose significantly from the project's 2002 baseline (43 percent) to the POP endline in 2010 (74 percent). In the four states included in the present study, that figure was 80 percent at POP endline, but showed a slight (but significant) decline to 77 percent by the time of the follow-up in 2012. Double cropping on non-irrigated land also increased from baseline, rising from 7 percent of total cultivated land at the 2002 baseline to 26 percent at the 2010 endline. In the four states included in this study, the figure for double cropping on non-irrigated land at endline was almost 32 percent, but declined significantly to 27 percent at follow-up. These figures suggest that gains in total irrigated land were sustained 2 years after the end of the POP, and that the substantial increases in double cropping on both irrigated and non-irrigated land between baseline and endline were relatively well sustained, dropping slightly, but not nearly to baseline levels at follow-up (**Figure 7.9**). Not surprisingly, use of irrigation was associated with more double cropping, and farmers who had irrigation used double cropping to some degree on both irrigated and non-irrigated land. At the time of follow-up, farmers with no irrigated land did not double crop. Farmers with irrigated land were also more likely to use pesticides and fertilizers, and irrigation was associated with a greater likelihood of agricultural sales (data not shown).

Figure 7.9. Percentage of Irrigated and Non-Irrigated Land Double-Cropped, Baseline to Follow-Up

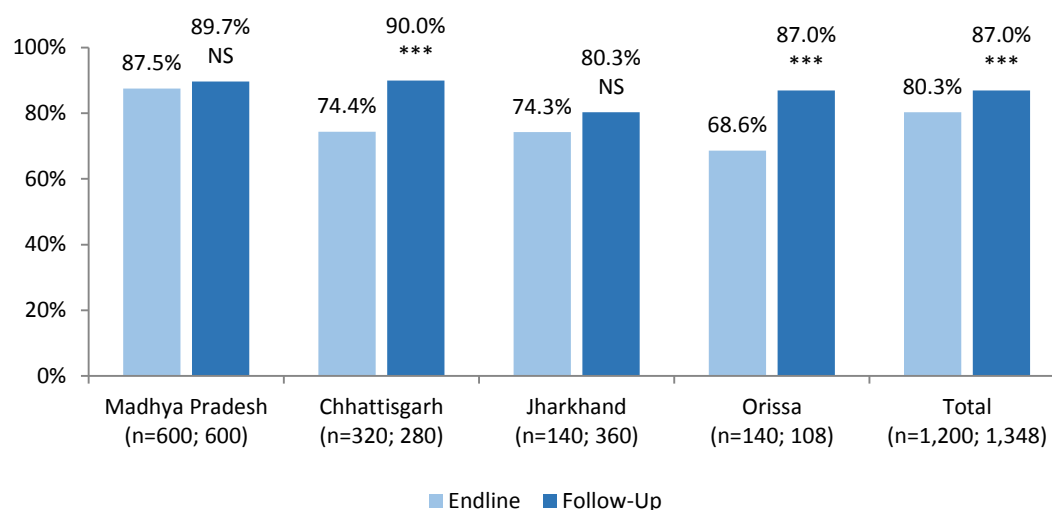
Sources: CRS Baseline and Final Evaluation (POP Baseline) reports; CRS POP Final Evaluation data; follow-up Agriculture Survey data. "All states" refers to all states in which CRS implemented its agriculture projects; "four states" refers to the four states included in the follow-up survey.

Note: Significances are of differences between years for irrigated and non-irrigated land, respectively. Significance based on two sample z-tests; NS=not significant, * $p < 0.05$, *** $p < 0.001$.

Use of inputs promoted by agricultural extension workers during the CRS project increased among all farmers from endline to follow-up, and this increase was consistent across states. At follow-up, more than 88 percent of farmers were using manure or other fertilizer, and 40 percent were using pesticides, both representing significant increases over the percent at endline (55 percent and 20 percent, respectively). This suggests that farmers both recognized the benefit of using these inputs and had the financial resources to do so.

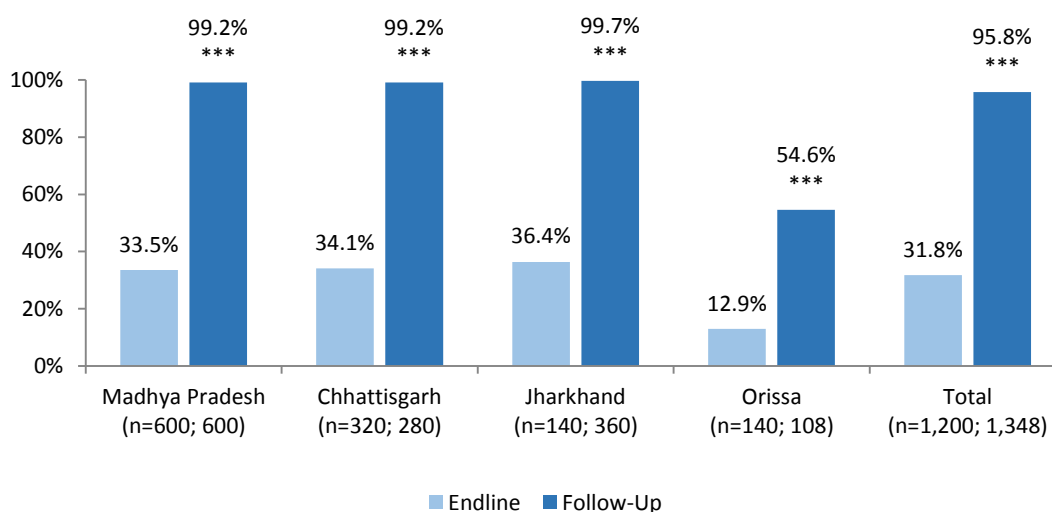
Livestock ownership also increased significantly after the end of the POP. Across the four states studied, 87 percent of farmers owned livestock at follow-up, and in no state studied was the figure lower than 80 percent, representing a significant increase in livestock ownership in two states and overall (**Figure 7.10**). These figures are similar when restricted to grazing animals, including goats, cattle, and buffalo for milking. The benefit of improved grazing land may be seen in the percent of farmers selling milk, which increased significantly in all states but Orissa. There was also a significant increase in all four states in the number of days on which milk was sold (among those engaged in milk sales), rising on average from 113 days at endline to 189 days at follow-up (data not shown).

Consistent with this result, the percent of farmers engaged in the sale of agricultural products (crops, livestock products) increased dramatically from endline to follow-up. In three states at follow-up, nearly 100 percent of farmers were engaged in sales, and the increase in Orissa was particularly substantial, from 13 percent at endline to 55 percent at follow-up (**Figure 7.11**).

Figure 7.10. Percentage of Farmers Reporting Owning Livestock

Sources: CRS 2010 and 2012 Agriculture Surveys.

Note: Significance based on two sample z-tests; NS=not significant, *** p<0.001.

Figure 7.11. Percentage of Farmers Reporting Selling Any Agricultural Product

Sources: CRS 2010 and 2012 Agriculture surveys.

Note: Significance based on two sample z-tests; *** p<0.001.

7.3.4 Sustainability of Agriculture Impacts

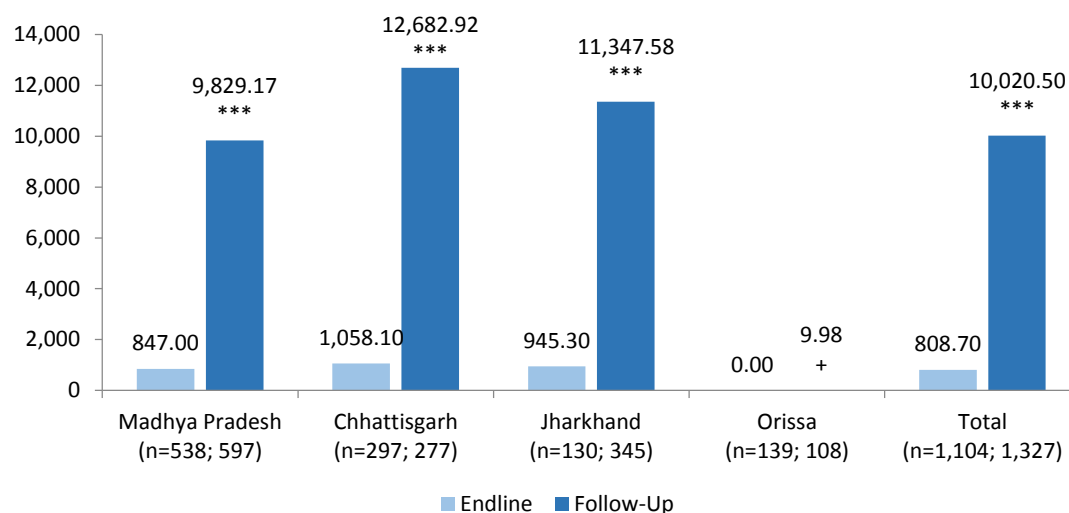
There was a significant increase in average revenue per farmer between endline and follow-up.

Figure 7.12 shows average revenue³⁴ from crop sales adjusted for inflation (reported sales, not adjusted for costs of production) for all farmers interviewed in this study. The dramatic rise in revenue is due largely to the significant and substantial increase in the number of farmers engaging in sales of agricultural products, which rose from 32 percent at endline to 96 percent at follow-up (Figure 7.11). Comparison between farmers with crop sales at endline and those with sales at follow-up (recall these are

³⁴ Revenue is α -truncated to adjust for the rightward skew of the revenue distribution.

different groups of farmers) show much smaller differences: on average for the four states studied here, the increase was only from INR 10,651 (US\$230.54) at endline to INR 10,785 (US\$233.44) at follow-up, in constant 2010 INR.³⁵

Figure 7.12. Mean Agricultural Revenue, All Farmers (constant 2010 INR)



Sources: CRS 2010 and 2012 Agriculture Surveys.

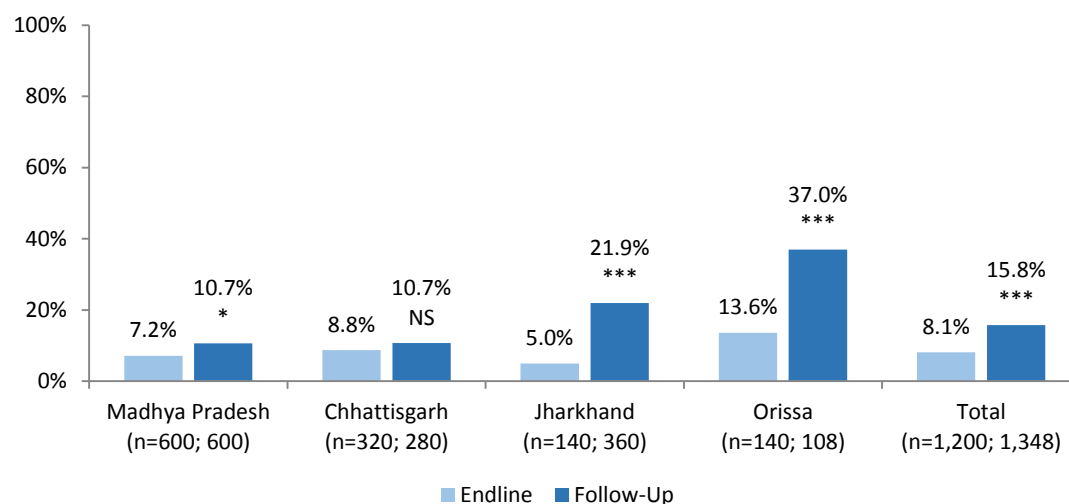
Note: Significance based on two sample z-tests; + $p \leq 0.1$, *** $p < 0.001$.

Despite the increase in agricultural revenue, almost all farmers also reported obtaining some work as laborers in the prior year, and this did not change between endline and follow-up. Rates of migration for work similarly did not change overall from endline to follow-up (rates actually increased in Madhya Pradesh and declined in Jharkhand), and the mean number of days on which farmers migrated for work was also unchanged (data not shown). (Agricultural labor and migration for work were measured in the CRS endline survey as an indicator of whether improved productivity would mean that farmers could derive their livelihoods from their own land, though this was not an explicit goal of the project.)

“Grain sufficiency” was defined as the number of days in which households reported that they used the grain that they produced themselves for their own home consumption and was considered a marker of household food security. Households were defined as “grain sufficient” if they reported using their own home-produced grain throughout the year. The number of households across the four states reporting that they were grain sufficient increased significantly, from 8 percent at endline to 16 percent at follow-up (**Figure 7.13**). The average number of days in which households used the grain that they produced themselves was maintained from endline to follow-up, showing an increase in two states but a decrease in one (**Figure 7.14**). This demonstrates sustainability of the improvements seen during the life of the project: at the baseline of the first FFP-funded development project (in 2002), grain sufficiency was 107 days. By the time of the POP baseline in 2007, grain sufficiency was reported at 192 days. This substantial increase was maintained at endline (186 days) and follow-up (197 days) (data not shown).

³⁵ All figures are reported in 2010 INR and converted to US dollars at 2010 rate (\$1=46.2 INR).

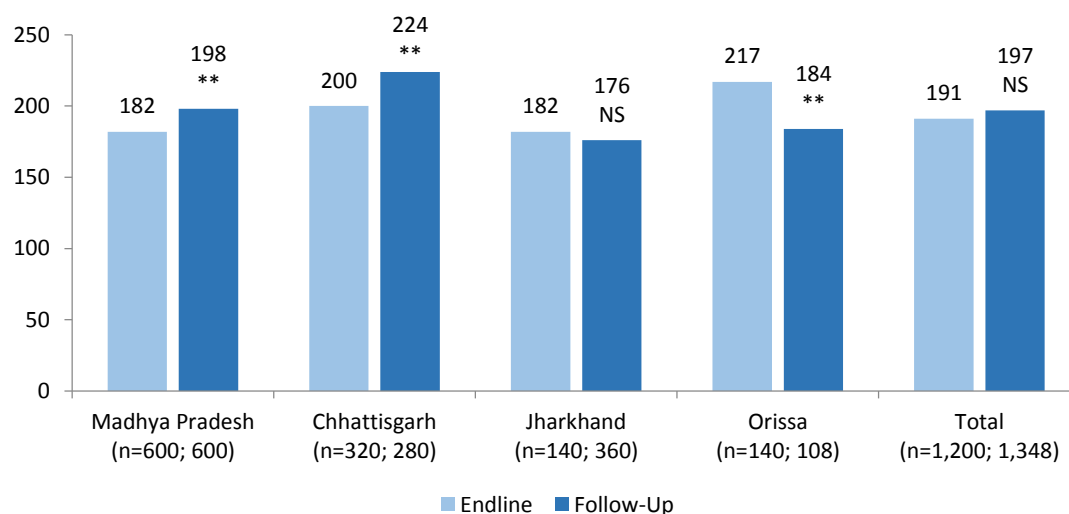
Figure 7.13. Percentage of Farmers Reporting Grain Sufficiency



Sources: CRS 2010 and 2012 Agriculture Surveys.

Note: Significance based on two sample z-tests; NS=not significant, * $p < 0.05$, *** $p < 0.001$.

Figure 7.14. Mean Reported Number of Days That Home-Produced Grain Lasted for Household Use



Sources: CRS 2010 and 2012 Agriculture Surveys.

Note: Significance based on two sample z-tests; NS=not significant, ** $p < 0.01$.

The use of irrigation was associated with higher revenue and higher grain sufficiency at endline and with higher revenue at follow-up (associations tested by two-way chi-square tables for each state and all states combined). However, by the same test, the use of irrigation did not demonstrate an effect on the likelihood of selling labor or migrating for work.

7.4 Agriculture Sector Sustainability: Lessons Learned

The strategy of phasing over CRS agriculture sector activities to government services showed some notable success, and the project's overall theory of change appeared effective. Given the sustained improvements in irrigation, crop sales and revenue, grain sufficiency, and the use of NREGA to support labor in watershed infrastructure maintenance, among other indicators, the evidence supports the causal pathway underlying the project's design, and the success of its sustainability strategy in this sector.

The key factors of resources, capacity, and motivation, as well as linkages, operated on two levels within the project's results. At the level of the government, commitment to providing employment under NREGA for watershed maintenance was backed by the resources allocated to this guaranteed employment scheme. At the level of the farmer, irrigation contributed to an increase in production and agricultural sales and revenue, providing the motivation to participate in watershed maintenance. (The wages provided for this work, of course, provided additional incentive.) In most cases, according to the qualitative data collected, the fee-for-service model for the provision of irrigation water was not effective, because farmers considered water to be a natural resource that should be free to all. But the WDCs found other ways to ensure maintenance of the watershed through NREGA or the organization of ad hoc groups to make needed repairs, making use of linkages (to NREGA), as well as the motivation and capacity of farmers, dependent on the watershed for irrigation. Farmers' use of irrigation facilitated double cropping, though farmers with irrigation also double cropped on non-irrigated land. The resultant increase in agricultural sales from these activities would have contributed to both the resources and motivation to maintain watershed infrastructure, irrigate, and use agricultural inputs such as fertilizers and pesticides.

The importance of gradual phase-over is also supported by these results. The phase-over of the CRS project occurred over a 3-year period, allowing farmers and local organizations time to adapt to CRS's departure. But, because CRS implemented its project through operating partners—many of which, like CRS itself, had a continued presence in the project area following completion of the FFP development project—these partners were able to continue to work in their communities, performing such tasks as linking individual farmers with NREGA for jobs. At the time of follow-up, the study team saw that, in many communities, other organizations, including state governments, private sector NGOs, and CRS's operating partners under the FFP project, were providing support to activities that had been implemented under the FFP-funded watershed development project. **Box 7.2** summarizes what worked and did not work among the sustainability strategies implemented by CRS in its agriculture sector interventions.

Box 7.2. Agriculture Sector Sustainability: Key Findings

WHAT WORKED

- Phase-over from food for work to the NREGA-guaranteed employment scheme to pay labor for watershed infrastructure repair and maintenance was successful: most farmers and their households had NREGA cards at follow-up, and the number of days worked under NREGA almost doubled between endline and follow-up.
- Land under irrigation increased after endline and watershed infrastructure was maintained through a combination of community organizations and ad hoc labor groups.
- The evidence supports the theory of change underlying the sector interventions: household economic and food security would be improved by making irrigation available and promoting its use, making it possible for farmers to engage in agricultural sales and use their income for agricultural inputs and household needs.
- CRS's former project operating partners' continued presence in the communities facilitated linkages with government services; this was positive for many facets of post-project impact, but raises questions about dependency.

WHAT DID NOT WORK

- There were fewer regularly functioning WDCs at follow-up than had been operating at endline (though ad hoc committees were formed when watershed infrastructure repair and maintenance were needed).
- There was no evidence that communities were making use of NABARD for agricultural credit as CRS had planned.
- The model whereby farmers would pay for irrigation water to fund needed infrastructure repairs and maintenance was not effective in the study areas in most cases because farmers believed water should be free.
- Despite increased income and food sufficiency, frequency and duration of migration for work was not reduced; the proportion of households selling labor was also not reduced.

8. Catholic Relief Services: Education Sector

8.1 Education Sector Intervention Description

In the education sector, CRS used FFP development resources to provide food for child feeding in primary and secondary schools, boarding schools, and ECDCs. These school feeding interventions were offered in private schools (largely run by the Catholic Church) that enrolled children 6–14 years of age and offered the government curriculum. Boarding schools were also run by the Catholic Church, with operating costs provided through charitable contributions. ECDCs were preschools serving children 3–5 years of age. In these last settings, the community provided a location, teacher salary, and the labor for preparing the food, while the CRS project provided organizational support and the food itself. As was the case with activities in the other sectors, CRS's education activities were concentrated in relatively remote regions with high populations of scheduled castes and tribes, though not all of these interventions were in rural areas.

CRS has been implementing school feeding programs in India since 1950, but in 1997, with the first FFP-funded development project, it expanded its educational activities to include capacity building and improvement of educational quality. CRS provided teacher training for day schools, boarding schools, and ECDCs. Primary and secondary school teachers attended teacher training institutes intended to improve the quality of the education that they provided. CRS, through its operating partners, trained ECDC teachers in early childhood education and child development. In addition, its operating partners implemented an outreach program to families of children 6–14 years of age to boost school enrollment and attendance and reduce dropout rates. Outreach involved school staff home visits to families with children who were eligible but not attending school. Village education committees were involved in community mobilization for outreach and in follow-up with families. In conjunction with the outreach activity, the project ran a school preparation program called “bridge camp” to prepare children for school; children attended this camp for anywhere from 6 to 18 months before enrolling in school.

8.2 Education Sector Sustainability Plans and Exit Strategies

As in the other sectors, the sustainability plan in the education sector interventions was for CRS to establish linkages and phase over its activities to government services. CRS planned to phase over school feeding to the government's Mid-Day Meals program. The Mid-Day Meals program provided 100 g of food grains per child (through the Food Corporation of India), contingent on the child maintaining an 80 percent school attendance rate. Private schools were not assured of receiving Mid-Day Meals assistance unless they were “government aided” or served a high proportion of minority or disadvantaged students, but CRS planned to submit a formal application for the inclusion of its schools in the Mid-Day Meals program as part of its sustainability plan. The ICDS was identified as the logical entity to which to phase over operation of the ECDCs, since it served the same age group, provided cooked food to children, and by law was universally available to all children.

For maintenance of quality education, CRS relied on the persistence of effective teacher training, trusting that the teachers who had been trained would continue to apply the methods and practices that they had learned. CRS also established horizontal linkages among schools in the same geographic area for teachers to provide mutual support and share experiences and expertise. CRS organized “exposure visits” to promote teacher interactions in the hope that these exchanges would continue after project exit. Similarly, it was expected that CRS's operating partners and the staff of the schools themselves would continue to do outreach to those families in their communities who were not enrolled in school. Part of CRS's long-term strategy was to work with its cooperating and operating partners, whose presence in their targeted

intervention communities was long-standing, so that the activities undertaken during CRS's FFP project would continue. CRS made a point of communicating to its cooperating and operating partners that the project would be ending, and qualitative interviews with these partners' staff confirmed that they had been informed of the project's planned end at the start of the POP. Similarly, many school principals and teachers reported in qualitative interviews at the end of the POP that they had known for at least 2 years that the project would be ending and had had the opportunity to provide input into the phase-over plans. However, it appeared that beneficiaries were less well informed of this transition, as project staff reported having to explain to beneficiaries at the end that the project had not been intended to "continue forever." **Box 8.1** summarizes CRS sustainability strategies in the education sector and the explicit or inferred assumptions underlying these strategies.

Box 8.1. Education Sector Sustainability Strategies and Key Assumptions

SUSTAINABILITY STRATEGIES	KEY ASSUMPTIONS
<ul style="list-style-type: none"> Replace school feeding in primary, secondary, and boarding schools with the Mid-Day Meals program. 	<ul style="list-style-type: none"> Although not obligated to provide Mid-Day Meals assistance to private schools, the GOI will approve primary, secondary, and boarding schools' receipt of the program.
<ul style="list-style-type: none"> Replace the food and activities of the ECDCs with the cooked food and activities of the ICDS at the AWCs. 	<ul style="list-style-type: none"> Due to universalization of the ICDS, children will have access to AWC services and food will be available at these locations.
<ul style="list-style-type: none"> Provide sufficient training of teachers so that they will continue to implement improved educational practices without further CRS-supported training. 	<ul style="list-style-type: none"> Continued application of improved practices will reinforce training. Successful application of training will motivate teachers to continue applying the practices.
<ul style="list-style-type: none"> Establish linkages among staff from schools in the same area to reinforce good educational practices. 	<ul style="list-style-type: none"> Teachers will be motivated continue to meet and share their experiences to reinforce practices that were taught during the project.
<ul style="list-style-type: none"> Have CRS's cooperating and operating partner staff continue to have a presence in the communities, and have operating partners continue to assist schools with linkages to the Mid-Day Meals program and school staff with outreach. 	<ul style="list-style-type: none"> Cooperating and operating partners will continue to operate and will have the resources, capacity, and motivation to support CRS's former FFP activities.

8.3 Education Sector Results

8.3.1 Sustainability of Education Service Delivery

School Feeding

CRS's strategy of linking schools to the Mid-Day Meals program was generally not successful. The norm for Mid-Day Meals funding is that recipient schools receive government funding or that a school demonstrates significant minority representation or a significant number of socioeconomically disadvantaged children. Given the areas in which CRS worked, most schools met the criterion of serving

minority or disadvantaged children. Nonetheless, few primary or secondary schools, and no boarding schools, successfully transitioned to the Mid-Day Meals program by the end of the POP.

An exception was Orissa, where several schools were receiving the Mid-Day Meals program. In one school in that state, teachers reported that the principal of the school and CRS's operating and cooperating partners assisted them in establishing links to the Mid-Day Meals program and that this took place even before the beginning of the POP. Schools in areas with a high tribal population, even if the schools are not government-run, are eligible for the Mid-Day Meals program, as was the case in the areas served by CRS in that state.

In some qualitative interviews in Chhattisgarh, Jharkhand, and Madhya Pradesh, and even in some schools in Orissa, teachers and principals reported that the government officers that they dealt with asked for money in return for authorizing the Mid-Day Meals program. As the operating partners and Catholic Church representatives were unwilling to provide these funds, they reported that they were not able to receive Mid-Day Meals assistance. Several respondents also expressed a perception that their church affiliation might have been a liability in accessing this government program, believing there could be reluctance on the part of the government to support religious institutions. At the time of follow-up, several schools said that they had applied for government recognition as a minority-serving school and were still waiting for approval, but expected that, with approval, they would be eligible to receive Mid-Day Meals assistance.

Throughout the qualitative interviews, teachers and principals reported using two main strategies to provide food when the Mid-Day Meals program was not available: raising school fees to cover the cost of food and requesting that parents donate a certain amount of grain per day to the school. These strategies, particularly food donation, were widely reported to be successful, though several informants noted that among the poorest students, enrollment fell as a result of these requirements. In some schools that had not received food from the Mid-Day Meals program, it was up to individual parents to send their children to school with a meal, and some teachers reported that some children ended up going without food throughout the school day. A number of principals said that they were actively seeking support for school food from other NGOs or from the church while they awaited approval for the Mid-Day Meals program, but not always with success.

The situation with boarding schools differed: all of the school officials interviewed concurred that boarding schools are not eligible for the Mid-Day Meals program. As a result, they relied on donations from other NGOs, from the Catholic Church, and, when possible, from parents (many of the boarding schools served orphans) to provide food to the children. One boarding school in Madhya Pradesh reported linking to a child sponsorship program that provided funds for food; another was able to access funds from a corporate social responsibility program. Informants at all of the boarding schools also reported getting support from the Catholic Church.

Regarding the ECDCs, at the time of follow-up, none was operating in any of the communities visited during the qualitative or quantitative data collection. As such, no follow-up information was available on these entities.

Preparation for phase-out appeared to be inconsistent. In qualitative interviews in Madhya Pradesh and West Bengal, some of the teachers and school officials interviewed said that they were informed about the phase-out, but late in the process, and were told it was up to them to apply for the Mid-Day Meals program. In other cases, the operating partners helped the schools with the paperwork required for the Mid-Day Meals application. The adaptation to the loss of FFP school feeding rations was widely variable, not only from one state to another but from one school to another, and seemed to be based on local

conditions and resources, including the ability of the local church, NGOs, and communities to provide assistance.

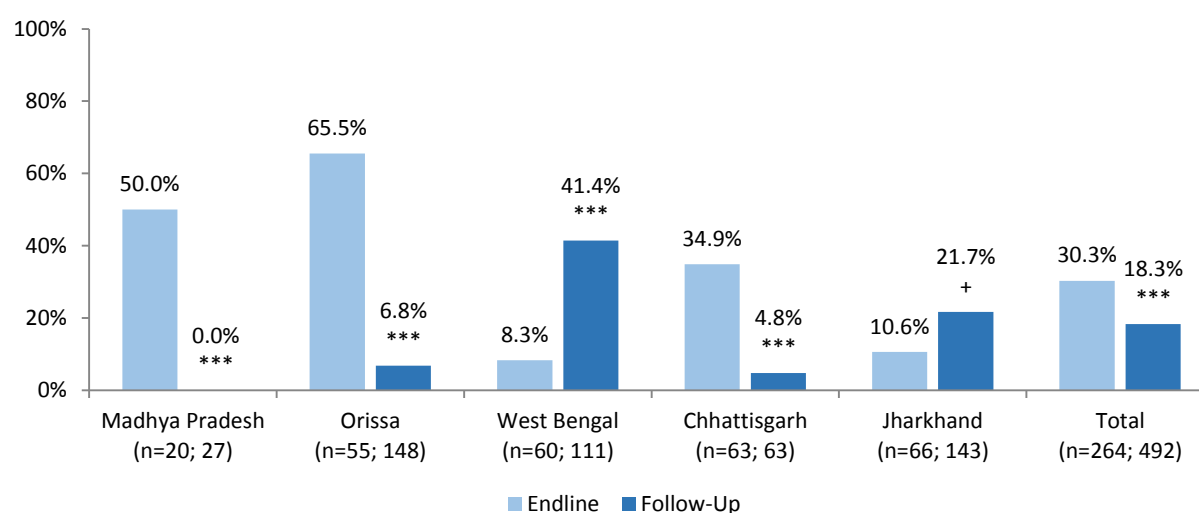
8.3.2 Sustainability of Education Service Use

Receipt of Cooked Food

Children in primary and boarding schools were asked at endline and follow-up whether they received cooked food during the day at their schools. **Figure 8.1** and **Figure 8.2** show how the reported receipt of cooked food had changed since the end of CRS's POP. (Note that the questions about cooked food allowed for comparison with the endline evaluation, but some schools that did not provide a cooked meal did provide a snack, such as a biscuit; these snack-providing schools are not reflected in the figures.) Consumption of cooked food in primary schools fell from endline to follow-up in three states and overall. There was a consistent drop in the number of children reporting that they received cooked food in boarding school.

A very high percent of children reported that they liked the food provided in school, and this percent increased overall (and dramatically in Jharkhand) from endline to follow-up (**Figure 8.3**). In qualitative interviews at follow-up, teachers in schools with the Mid-Day Meals program in different states noted that the food had improved from the CRS project. That is, the Mid-Day Meals program offers full meals with vegetables, while the CRS ration, they noted, contained only bulgur and oil.

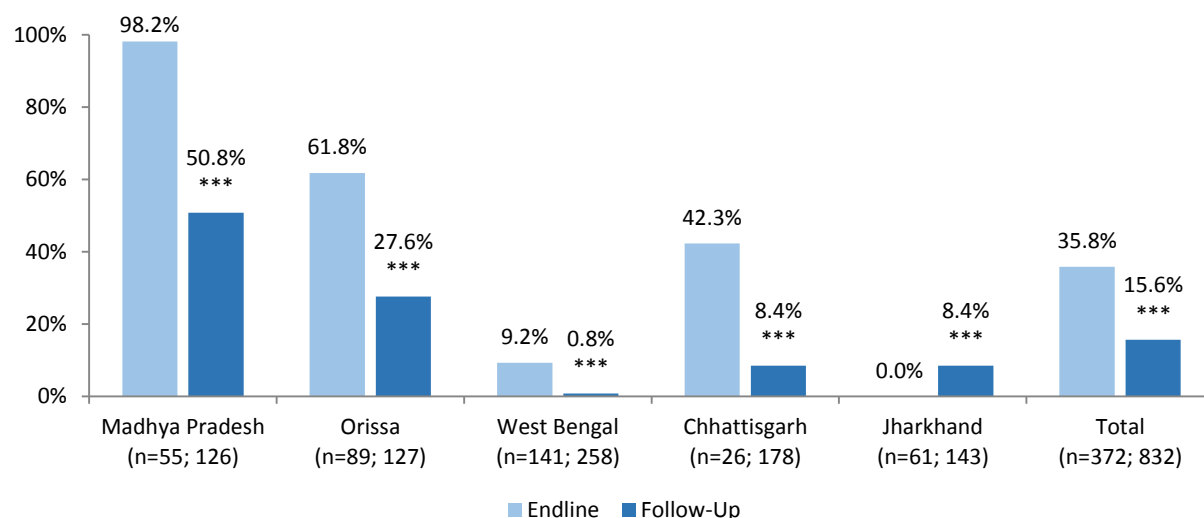
Figure 8.1. Percentage of Students Who Received Cooked Food in Primary Schools, Endline and Follow-Up



Sources: CRS 2010 and 2012 Education/Outreach Surveys.

Note: Significance based on two sample z-tests; + p<0.1, *** p<0.001.

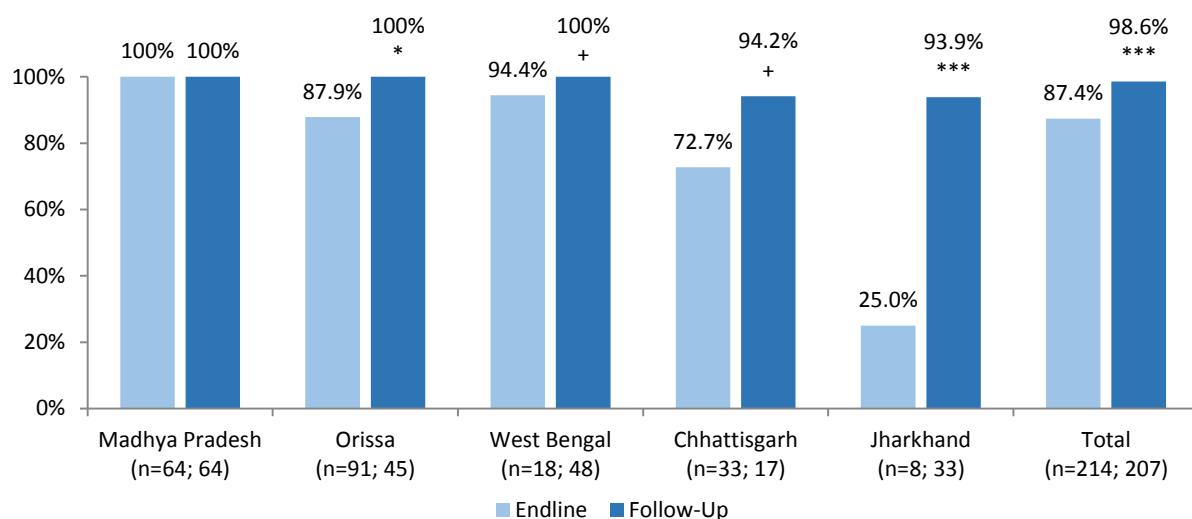
Figure 8.2. Percentage of Students Who Received Cooked Food in Boarding Schools, Endline and Follow-Up



Sources: CRS 2010 and 2012 Education/Outreach Surveys.

Note: Significance based on two sample z-tests; *** p<0.001.

Figure 8.3. Percentage of Students Reporting That They Liked Cooked Food Provided in School



Sources: Surveys of children enrolled in school, endline and follow-up.

Note: Significance based on two sample z-tests; + p≤0.1, * p<0.05, *** p<0.001.

8.3.3 Sustainability of Recommended Education Practices

Educational Quality

There was general agreement among teachers and principals interviewed in the qualitative follow-up investigation that the application of improved teaching methods had continued since exit and that this improvement in quality was recognized by the parents. In fact, some principals reported that students who left to go to government schools when CRS's food was withdrawn returned to the former CRS-supported schools because their parents recognized the superior quality of the education that they were receiving.

One principal from West Bengal interviewed at follow-up confirmed that “there has been no change in our standard of teaching ... We still follow the same methods and the same rigor even after the [CRS] program phased out.” Another principal concurred that the quality of teaching had not fallen, but was concerned that, without ongoing training such as what had been provided by CRS, the quality of teaching would eventually fall and that this could affect enrollment in the future. This felt need for continued training was echoed by other principals as well. Among numerous interviews with principals in all states, there was agreement that the educational methods taught by CRS’s FFP-funded project continued to be used, and many teachers in qualitative interviews mentioned that these methods were more engaging to the students than the standard methods used, but many principals and teachers also expressed concern that teachers’ capacity would erode without continued training.

A few teachers did mention in qualitative interviews that they had interactions with teachers in other schools, sometimes because the other teachers reached out to them to learn their methods and sometimes because they themselves reached out to form linkages with other schools. The teachers mentioned that their school principals encouraged such interactions, but, according to one teacher, this was done without CRS or its operating partners being directly involved in organizing the exchanges.

8.3.4 Sustainability of Education Impact

Enrollment and Retention

In the qualitative interviews conducted at follow-up, there was considerable inconsistency in principals’ reports of whether enrollment had been affected by the loss of school feeding activities. Several principals said that enrollment had been unaffected, but others said that while overall enrollment had not dropped by much, the very poorest children had dropped out because food was no longer available or because their parents could not afford the increased fees or food contributions that sometimes substituted for these rations.

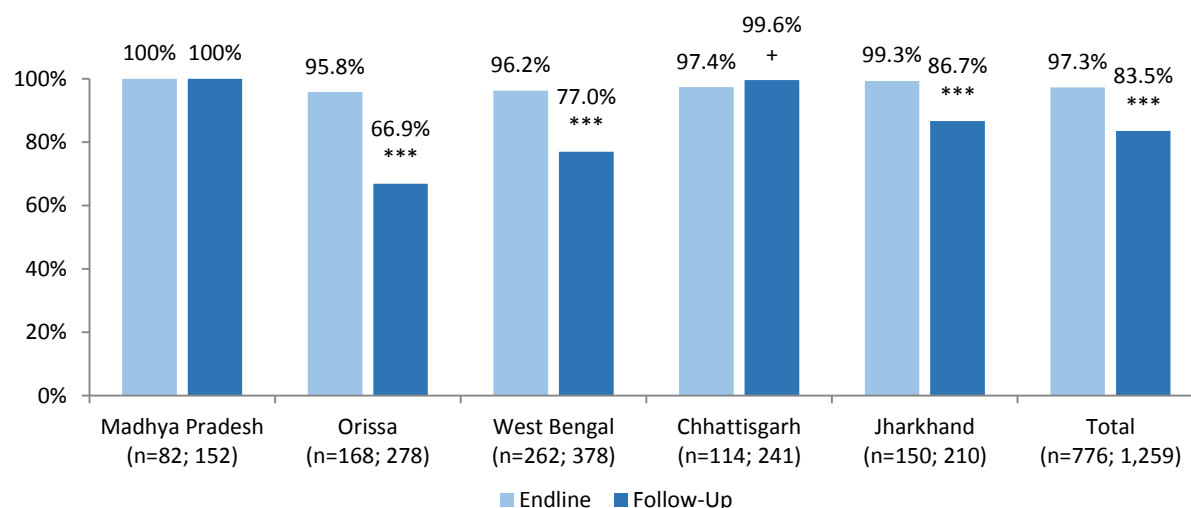
Outreach to ensure that children enrolled in Class I at an appropriate age³⁶ was an important element of the CRS education project. Nonetheless, timely enrollment declined between endline and follow-up. Although the decline in timely enrollment was modest in most states, there was a significant decline in three of the five states studied and a decline overall across the five states. **Figure 8.4** shows the rates at which age-eligible children enrolled in school. (These figures refer to enrollment in any school, not only church-run, CRS-assisted schools.) Each household sampled for the education/outreach survey identified one index child for data collection. Improvement in the net enrollment rate among the study children took place mostly between the previous FFP-funded CRS development project’s baseline (in 2002) and endline (the POP baseline in 2007): net enrollment in 2002 was 72 percent for boys and only 33 percent for girls; by the POP baseline in 2007, those figures had risen to 90 percent and 91 percent, respectively. By the POP endline in 2010, those figures had increased modestly to 92 percent (both sexes), and were 93 percent and 94 percent for boys and girls, respectively, at follow-up in 2012 (**Figure 8.5**). These figures suggest that the substantial gains in enrollment that were achieved during the previous FFP-funded CRS development project, especially for girls, were sustained through the time of the follow-up survey. Parents of index children were asked whether the provision of food was a factor in their decision on where to send their children to school. For those with children attending a government school, 23 percent said that food was a factor, and this percentage was unchanged from endline to follow-up. Among parents sending their children to a church or mission school, only about 3 percent said that it was a factor at follow-up (data not

³⁶ Class I is the equivalent of first grade. Primary schools are divided into “primary” for children 6–10 years of age, covering Classes I–IV, and “upper primary” for children 11–12 years of age, covering classes V–VI. The CRS project aimed to ensure that children enrolled in Class I remained enrolled in Class IV (defined as “survival”).

shown). However, this was a significant increase from endline, as no parent cited food as a factor at the time of that survey.

Another key goal of the CRS education sector interventions was to improve retention rates from Class I to Class IV (whether at the same or a different school). From endline to follow-up, retention rates (derived from school records) were unchanged in all but one school and were consistently at or above 90 percent at follow-up (**Figure 8.6**). This rate of retention follows the pattern from the POP baseline in 2007, with retention rates close to 90 percent and not significantly different at any time point from that baseline through follow-up in 2012.

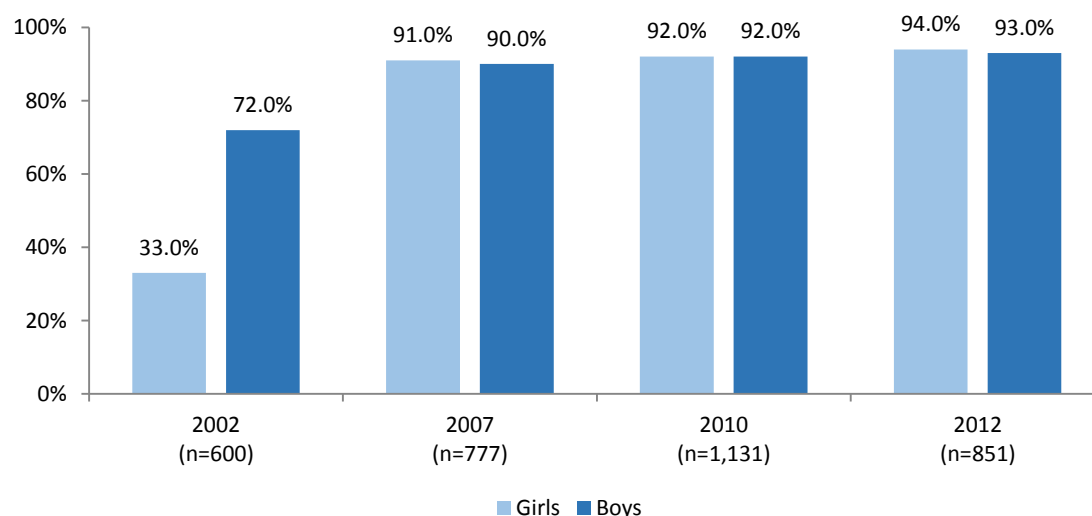
Figure 8.4. Percentage of Children with Timely Enrollment in Class I, Endline to Follow-Up



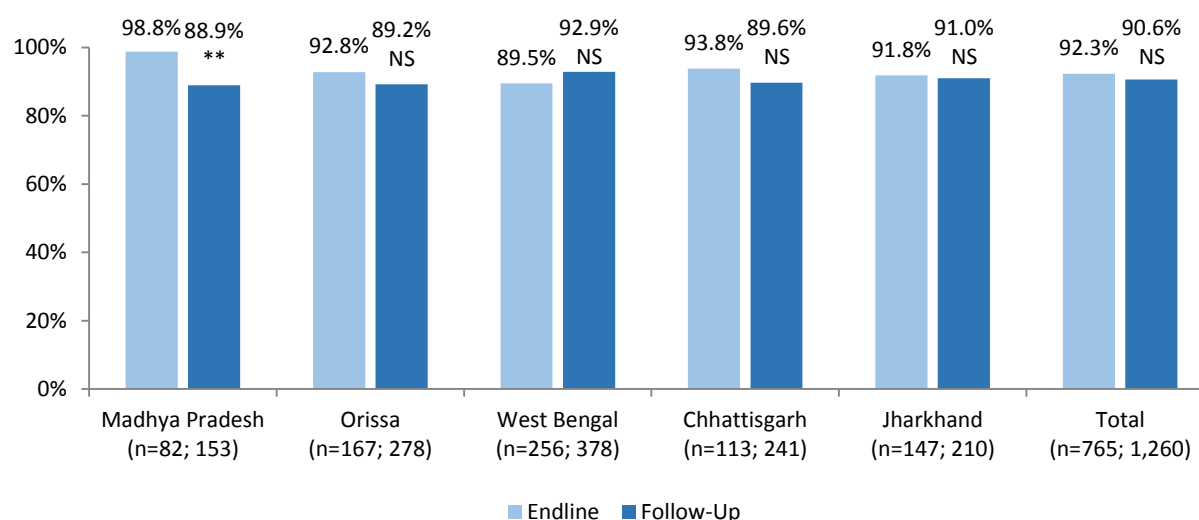
Sources: CRS 2010 and 2012 Education/Outreach Surveys (parent survey).

Note: Significance based on two sample z-tests; + $p \leq 0.1$, *** $p < 0.001$.

Figure 8.5. Percentage of Net Enrollment of Girls and Boys, Baseline (2002) to Follow-up (2012)



Sources: CRS Baseline (2002) and Final Evaluation (2007) reports; 2010 and 2012 Education/Outreach Surveys.

Figure 8.6. Retention Rate, Class I to Class IV, Endline to Follow-Up

Sources: School records reviewed at endline and follow-up.

Note: Significance based on two sample z-tests; NS=not significant, ** $p < 0.01$.

This study also looked at the “survival rate” among index children. The survival rate refers to the likelihood that a child enrolled in an ECDC or primary school at one time point would remain in school (at the appropriate grade) at the next time point. In this case as well, improvements achieved from the POP baseline to endline were sustained between endline and follow-up. Survival rates among ECDC children were 62 percent and 67 percent for boys and girls, respectively, at the time of the POP baseline in 2007. These figures rose to 75 percent and 73 percent for boys and girls, respectively, at endline in 2010, and to 79 percent (for both sexes) at follow-up in 2012. Survival rates among children in primary school (those in primary school at time 1 who had advanced to the appropriate grade at time 2) showed modest but continuous improvement from the POP baseline through follow-up: Survival rates for primary school children were 89 percent for boys and 88 percent for girls at baseline in 2007. These figures increased to 91 percent and 89 percent for boys and girls, respectively, at endline in 2010, and to 93 percent and 89 percent for boys and girls, respectively, at follow-up (data not shown). Both school records and child surveys suggest that improvements in the rate of children advancing in school (rather than dropping out) were sustained after the CRS project’s exit. Data on attendance rates were collected only for Orissa. These data, obtained from school records, show that attendance increased from 88.4 percent at endline to 93.5 percent at follow-up, a statistically significant improvement (data not shown).

8.4 Education Sector Sustainability: Lessons Learned

As in other sectors, the FFP-funded CRS interventions in the education sector in India were implemented in conjunction with operating partners that continued to work in the targeted area after the FFP-supported CRS project ended. These church-affiliated organizations, like CRS itself, had funding sources through the Catholic Church and other donors that would allow them to continue operating once FFP resources were withdrawn. Further, the interventions included in the project—both school feeding and efforts to improve educational quality—were implemented in existing schools that continued to operate after FFP project exit. The long-term presence of both of these institutions (the operating organizations and the schools themselves) is undoubtedly one factor in the successful sustainability of the educational quality interventions. In addition, teachers were motivated to continue using the techniques that they had learned because of the success of their students and positive feedback from parents, as well as encouragement

from principals; teacher capacity was maintained (at least in the short term) through practice; and resources for continued teaching were provided through their salaries and the budgets of the schools. Nonetheless, both principals and teachers were concerned that without continued refresher training, the capacity of the teachers might erode over time, and CRS's project had made no provision for such continued input. CRS's operating partner staff continued education outreach, which they considered part of their mission. Again, a key lesson is that sustainability is enhanced when interventions involve organizations or groups with a commitment (backed by capacity and resources) to long-term involvement in the community.

Another lesson is the importance of articulating and realistically assessing the assumptions underlying the sustainability strategy. Phase-over of school feeding to the government's Mid-Day Meals program was the explicit sustainability plan, but this plan was based on the assumption that the government would be willing to commit to supporting these private, religiously affiliated schools, and that assumption proved not to be consistently accurate. The rationale for expecting that such phase-over would be possible was that the schools in the CRS project areas served minority and underserved populations (tribal, scheduled castes), which is one of the criteria for Mid-Day Meals program eligibility. Despite this, many of the schools whose staff the study team interviewed reported that they had been turned down for incorporation into the program. In addition, because boarding schools are not eligible for the Mid-Day Meals program, the only feasible sustainability strategy for these schools was to depend on other funding sources available through the Catholic Church and its affiliates.

The importance of gradual exit and early preparation for exit is also underscored by these results. A number of school principals said that they had not begun the process of applying for the Mid-Day Meals program until the time of the CRS project's exit, despite the fact that most principals said that they were made aware at the beginning of the POP that the project would be ending. In some cases, principals reported receiving assistance from CRS in completing the application for Mid-Day Meals, but in others, principals said that they were entirely on their own.

This experience, among many others, emphasizes the importance of local implementation of any sustainability plans. The variation in the reported experiences of school officials suggests that successful implementation of the gradual phase-over process depended on the individual relationships of principals with their local operating partners and on the individual commitment and capacity of both. No matter how the system is designed at the central level, effectiveness depends on how the system plays out at the most local level, among the individual stakeholders.

Sustained enrollment and retention give evidence that the motivation of parents to continue sending their children to the private schools that CRS had supported under the FFP project was well maintained. The qualitative information supports this: parents cited better educational quality as their motivation for continuing to use these schools, and few parents cited the availability of school meals as a factor in their decision. Still, in qualitative interviews, many of the principals expressed concern that the poorest children might have dropped out once school meals were no longer available, as schools without the Mid-Day Meals program had to ask parents either to contribute money or food or to send their children to school with a meal. This requirement would be a challenge to parents who, despite motivation to provide their children with a quality education, lacked the necessary resources.

These results are consistent with the core hypotheses of this study relating to factors for sustainability: attention to motivation, capacity, and resources of all the individuals involved; effective linkages with organizations or groups that might provide resources and capacity after project exit; gradual exit with a substantial period of independent operation; and a careful and realistic assessment of the assumptions

underlying an organization's sustainability plans. **Box 8.2** summarizes what worked and did not work in the education sector.

Box 8.2. Education Sector Sustainability: Key Findings

WHAT WORKED

- The goals of increasing enrollment among children in the study that were achieved during previous FFP-funded CRS development projects were sustained or improved at follow-up.
- Retention rates (Class I to IV) were sustained at high levels between endline and follow-up.
- Improved educational methods learned during the project continued to be used at follow-up: teacher capacity was maintained through practice, and teacher motivation was maintained due to the effectiveness of the methods.

WHAT DID NOT WORK

- According to the outreach survey of parents in marginalized communities, rates of timely enrollment in Class I fell in three states and overall from endline to follow-up.
- Principals and teachers expressed concern that the application of improved educational methods would erode over time without plans for continued training.
- Phase-over of school food to the government Mid-Day Meals program was rarely successful among the schools CRS targeted with FFP development project resources. The GOI lacked the commitment to provide food to private (in this case religious) schools or to boarding schools, despite the schools targeting a largely underserved population.
- No consistent provision was made for schools to apply for Mid-Day Meals program authorization early in the POP, complicating the possibility of transitioning to the program before the withdrawal of FFP food.
- Despite the continued presence of CRS operating partners in many of the project-targeted communities following project closure, assistance with the transition to the Mid-Day Meals program was inconsistently provided.
- Availability of cooked meals in school declined for both boarding and primary schools.
- At the time of follow-up, no ECDCs were operating in any of the communities studied.

9. Overall Findings

This section presents the overall findings of the sustainability and exit strategies study in CARE's and CRS's FFP-funded development food assistance projects.

Phase-over to government programs depends on the resources, capacity, and commitment (motivation) of these programs to provide services.

The overarching strategy for sustainability among the FFP development projects in India was to phase over responsibility for project activities to the appropriate government program. The underlying assumption was that the GOI would have the resources to support these activities under the umbrella of its programs and that the existence of such programs represented a commitment (or motivation) to provide the associated services. The capacity of these government programs to deliver the services to which they were committed was an implicit assumption. However, throughout its three FFP-funded development project cycles, CARE was devoted to capacity building—first at the level of the frontline workers, and, in later FFP-funded projects, at the district level and above—to ensure continued service delivery after phasing activities over to government entities. The CRS project was also built on the assumption that government programs represented both resources and motivation, but the focus of CRS capacity building was on increasing community-level service providers', community organizations', and individuals' awareness of the availability of government services and resources to ensure their capacity to obtain them. Thus, the CARE and CRS strategies, while sharing a plan to phase over to government services, contrasted in their approach to capacity building. These contrasting approaches both demonstrated some successes, but also showed the challenges of relying on phase-over to government programs for sustainability.

For example, the success of CRS's agriculture (watershed development) activities can be attributed in part to the strength of one of the government programs on which sustainability was based: NREGA. The NREGA system is national in scope and is an entitlement program backed by government resources. CRS's role (through its operating partners) of ensuring that farmers and community organizations knew how to make use of the system was a critical component of its watershed development work: CRS built the capacity of organizations to apply for funds and of individual farmers to apply for NREGA cards and jobs. The government provided resources and motivation for farmers to participate by paying wages and facilitating the maintenance of watershed structures that benefited the farmers. Again, reliance on a government program backed by the government's resources and commitment was effective in ensuring sustainability.

In contrast, CRS's reliance on the GOI's Mid-Day Meals program was not an effective sustainability strategy, because the government was not committed to supporting private and religious schools through this program. The barrier was not a lack of resources or capacity (the Mid-Day Meals program effectively delivered meals to government schools throughout the country), and qualitative data obtained during the field work for this study showed that CRS had, in many cases, worked with the private and religious schools that they supported to teach them how to apply for Mid-Day Meals program assistance. The barrier, instead, was the unsupported assumption that the Mid-Day Meals program, which serves government-run and government-aided schools, would be able (and willing) to serve the private schools that CRS supported as well. The lesson here is that reliance on government programs is effective only when all the critical factors—resources, capacity, *and* motivation—are in place.

Additionally, there must be demand for continued services on the part of the presumed beneficiaries. The government agricultural credit scheme, NABARD, was apparently available to farmers and farm

communities, but only a very small percent of farmers (a percent that decreased from baseline to follow-up) sought credit from any source, so that there was no evident demand for this component of the CRS sustainability plan.

The delivery of food in the form of take-home rations at Nutrition and Health Days was inconsistently maintained, even though CARE worked to create good supply chain management systems for the food commodities. Qualitative data indicated that not only was ration delivery at these events unreliable, but its quality was questionable as well. From the data collected in this study, these appeared to be state-level issues that would need to be resolved by the relevant state and/or district health officials and the Food Corporation of India. In contrast, food at the AWCs was reliably available, and its reliability improved from endline to follow-up in CARE areas, but not in CRS areas. Recall that CRS implemented its projects in the more remote and underserved locations of the states in which it worked. Also, CRS focused its efforts on empowering communities to demand services to which they are entitled and did not intervene in the ICDS supply chain management process, whereas CARE worked directly with the ICDS to strengthen the supply chain.

Phase-over to a government system is only as reliable, as a guarantor of sustainability, as the resources, technical and managerial capacity, and commitment of the government to deliver. As was the case at the community level, the absence of any one of these factors undermined the effectiveness of phase-over to government programs as a mechanism for sustainability. In the case of the GOI's health system, resources, capacity, and a commitment reinforced by the universalization of the ICDS and the mandate of food as a human right converged to make the transition of project health interventions to the GOI a workable sustainability strategy. Similarly, the guaranteed employment scheme, NREGA, represented a national mandate backed by the resources and a management system to implement it. These are examples of how the convergence of critical factors can result in a successful phase-over.

Effective phase-over to government programs depends critically on effective local implementation.

One striking result that holds across both projects and all sectors studied in India is the substantial difference among individual states in the degree to which service delivery, service use, recommended practices, and impacts were sustained. For almost all indicators, states differed in the degree to which indicators improved or declined, and there was little consistency in which state demonstrated improvement or showed decline from endline to follow-up. In the India case, "endline" represented the end of a 3-year phase-out period. In many cases, improvements were seen between the baseline and final evaluation of the preceding FFP-funded development project (e.g., school enrollment and attendance in CRS's education sector interventions), with maintenance but not always further improvement from the POP endline to follow-up. One conclusion to be drawn from this is that systems administered in a top-down fashion (as was the case for CARE's INHP) may encounter facilitating factors or barriers due to local context; for example, health staff (supervisory or frontline) may be more or less conscientious; local government or community agencies may be more or less engaged; access to schools, AWCs, or markets may vary depending on geographic factors. No matter how effective the training at senior levels, service delivery must ultimately play out at the level of the community: Service providers must have the resources, capacity, and motivation to perform their jobs, and beneficiaries must have the resources, capacity, and motivation to take advantage of them. CRS explicitly acknowledged in its POP that exit strategies and sustainability plans would have to be developed based on local conditions. This is particularly relevant for that project, which worked in remote and underserved areas where the government services that were intended to be the basis for phase-over were not always regularly available. The great variation in the sustainability and level of activities and outcomes across states

underscores the importance of linkages between communities and the programs provided through the state and central governments. Even strong government programs are effective only if the activities and behaviors they support are effectively supported by communities and taken up by beneficiaries.

Few countries have the resources and capacity that India has to implement national-scale programs that reach down to the community level, providing services backed by a government budget. That said, India offers a unique case study of the elements that must be in place for phase-over to government to be effective and demonstrates that the local context must always be taken into account: Those same critical factors of resources, capacity, and motivation must operate at all levels of the system for sustainability to be achieved.

Resources, capacity, and motivation must all be in place to ensure sustainability.

The results of this study consistently demonstrate the importance of ensuring that the critical factors of resources, capacity, and motivation are all in place to ensure sustainability. The maintenance and use of the watershed infrastructure developed by the CRS project demonstrated the convergence of these factors. The structures were maintained because farmers benefited from the water for irrigation, and their labor was paid by NREGA (though in some cases farmers contributed funds to the WDC to support repairs that required materials and skilled labor, as well as the unskilled labor paid under the NREGA scheme). Irrigation permitted an increased level of double cropping: From endline to follow-up, double cropping and farmers' engagement in the sale of crops and milk increased, and the level of grain sufficiency (days of dependence on home-produced grain) increased, providing motivation to continue maintaining the watershed infrastructure and making use of the irrigation provided.

Despite the lack of linkages to the Mid-Day Meals program in many schools supported by CRS's FFP-funded development projects, enrollment, retention, and student progress through the grades (survival) were sustained; improvements in these indicators from baseline (2002) to endline (2010) were maintained at follow-up (2012), including substantial reductions in the differential outcomes for girls and boys. Although quantitative data are not available, qualitative evidence indicated that the persistence of CRS-supported improved teaching methods and the continued outreach of operating partner staff still present in the community post-project contributed to parents' motivation to send their children to school and allocate the needed resources (school fees, food donations) to do so, though some qualitative interviews indicated that lack of resources was a constraint for some parents to send their children to a school that required them to send food, despite their motivation.

Linkages must be functioning prior to project exit.

Almost by definition, both awardees' sustainability plans were built on linkages: CARE linked health care workers vertically according to the government's supervisory structures, from frontline workers up through the District Health Officer and to higher administrative levels. Of course, sustainable services depend on linking beneficiaries to these service providers as well, which the CARE project started out doing with its community-based interventions in its first FFP-funded development project cycle. CARE then worked at higher levels within the health system in its last two FFP-funded development project cycles in India.

Vertical and horizontal linkages were central to CRS's sustainability plans in all sectors. In the MCHN sector, beneficiary mothers were vertically linked to the public health system through AWWs and ASHAs, as well as ANMs who provided direct services and resources (supplementary food, immunizations at Nutrition and Health Days, nutritional supplements) and also promoted use of clinic and hospital-based services. In the agriculture (watershed development) sector, farmers were linked to the

community organizations managing the irrigation infrastructure (the WDCs), as well as to the government employment scheme (NREGA) that provided unskilled labor for general infrastructure maintenance and repair. The majority of farmers reported participating in the NREGA scheme. In the education sector, linkages were to be established between the CRS-supported schools and the government-provided Mid-Day Meals program. However, few of the schools that had been supported through CRS's FFP development project were authorized recipients of the Mid-Day Meals program at the time of follow-up; linkages between schools and the government program had not been established prior to the closure of the FFP-supported development project. Horizontal linkages among teachers and school administrators from geographically proximate schools were to be established to sustain teachers' capacities to continue using the educational methods taught by CRS during the project. Qualitative interviews undertaken during this study indicated that this approach worked in at least some places.

The timing of phase-over is critical to its effectiveness: Transitions should be gradual and systems should be operating independently prior to project exit.

One of the strengths of the exit process in India was that the long period of transition to full government ownership of project activities allowed for extended troubleshooting and independent operation before the FFP projects ultimately withdrew support.

CARE and CRS differed in terms of when they began the process of exiting their FFP development project interventions. From the beginning of the first FFP-funded development project in 1997, CARE focused on preparing the various actors in the health sector for its eventual exit. CRS, in contrast, began to implement its exit strategy starting with the POP (in 2007), and the stage at which CRS's various stakeholders were informed of the project's plan to exit was reportedly variable across states and sectors. Given that many of CRS's former cooperating and operating partners continued to have a presence in CRS's former FFP development project implementation areas, it is not clear that this later start resulted in any consistent difference in the sustainability of the project's activities, outcomes, or impacts.

The administrative and management systems that CARE worked to strengthen over a period of 13 years were institutionalized in the Indian health system: States adopted these systems and structures, and there was evidence that in areas where supervision was stronger, frontline worker performance (AWW home visits, for example) was also better. A factor in the sustainability of these health systems is undoubtedly the long project time frame—much longer than the 3-year POP or even a single 5-year FFP-funded development project—during which all activities were aimed at building the independent operation of the system. The lesson to be drawn is that longer time horizons are often necessary to incorporate change into a larger system, such as the GOI's health care system.

Another distinction between the CARE and CRS approaches is that CRS, as a religious organization affiliated with churches throughout the country, has a permanent presence in the country and in the areas it served, and it worked largely with local cooperating and operating partner organizations that (mostly) had existed before the implementation of the FFP-funded development projects and that continued to have a presence in the communities that the project had targeted after project closure. CARE, in contrast, planned for exit from its health sector activities without the expectation of any level of continued involvement of entities other than the Indian government. The continued presence of CRS and its partner organizations meant that a complete transition to independence from external (nongovernmental) support was not always implemented.

Motivation for service provision can, in some instances, be maintained through pay-for-performance and salary models.

CARE and CRS both implemented activities in the health sector, and both counted on transitioning beneficiaries to health and nutrition services provided by the ICDS and the NRHM. Among the consistent results from these two experiences, we saw that the services provided by the ASHAs under the NRHM consistently showed significant improvement over the life of the projects and good sustainability or continued improvement in the 2 years after the projects' exit. The services for which the ASHAs were most responsible were the promotion of institutional deliveries, compliance with norms of prenatal and postnatal care, and complete immunizations. ASHAs were paid on a pay-for-performance basis; they were considered volunteers but received a stipend for every hospital delivery and every child who completed his or her immunizations, providing strong motivation for the ASHA to ensure that these services were delivered. AWWs were salaried, not paid on the basis of results; nonetheless, AWWs largely continued to conduct home visits and encouraged mothers to attend Nutrition and Health Days, participate in growth monitoring and health education, and receive food. In the case of both of these frontline workers, the GOI programs themselves provided resources, training and refresher training to ensure capacity, and motivation at least in part due to their pay.

It is critical to verify the validity of a project's underlying theory of change.

The discouraging result in the case of both the CARE and CRS MCHN sector activities is that all of these resources and much positive activity in the health sector, along with some evidence of improved breastfeeding and other care practices, were not sufficient to achieve substantial improvements in the prevalence of undernutrition in their implementation areas. The intractable challenge of childhood malnutrition in India has been recognized in the literature, as cited earlier, and the lesson from the inability to reduce it substantially through these interventions is that at least one critical factor in the causal chain of malnutrition underlying the design of these projects is missing. The theory of change and the causal model supporting it must be fully developed within a project to achieve real and sustained reductions in child malnutrition.

10. Recommendations

The findings of the India country study result in the following recommendations.

Recommendations for Project Designers and Managers

- Carefully assess the factors of budgetary resources, technical and administrative capacity, and commitment on the part of the government (at all levels) as conditions for adopting a strategy of phase-over to the national government.
- Critically assess the mechanisms by which communities and beneficiaries will gain access to the services and resources provided by national government programs: resources, capacity, and motivation must be present at every level down to the most local for project activities, outcomes, and impacts to be sustained.
- Allow sufficient time to ensure the technical capacity of relevant government entities and, when necessary, establish or strengthen these entities' existing organizational and administrative systems; engage the relevant government entities from the beginning of the project and allow a gradual transition to independent functioning of any system, to allow time for troubleshooting prior to project closure.
- Critically assess the theory of change underlying the design of the project to ensure that, if sustainability of activities, outcomes, and impacts is achieved, the project's goals will be met and sustained.
- Critically assess the assumptions underlying each component of the sustainability plan; ensure that the assumptions are valid and have been tested.

Recommendations for Donors/Funders

- Build time into the project cycle after resources are withdrawn so that assessment of sustainability of activities, outputs, and impacts may continue after the endline evaluation. This was done in the case of the FFP-supported development projects in India (the POP, which was the final project cycle, was devoted to the process of phase-over), and should be considered for incorporation into future development projects.
- Set aside funding for post-project evaluations as a matter of donor policy.
- Incorporate indicators of sustainability, along with impact indicators, into project evaluation, to ensure that a focus on immediate impact does not jeopardize investment in longer-term sustainability. The FFP India development projects' POPs assessed not only impacts, but also the persistence of activities, behaviors, and administrative systems that were presumed to be conducive to sustained impact. Endline and follow-up assessments of future projects should include these other areas of inquiry.
- Allow sufficient time in the project cycle for design modifications if activities are not achieving the desired impacts, and allow time for gradual phase-over to the government or other entity tasked with continuing project activities.

Recommendations for Future Research

- Conduct research into the causal pathways that determine the nutritional outcomes for children in India. Despite the sustained implementation of many of the GOI programs aimed at reducing childhood undernutrition, this key impact indicator was not consistently achieved. Research is needed to identify the barriers to achieving this goal.

- Conduct qualitative and quantitative assessments to identify the factors underlying the variability among states and among localities within states in successful implementation and sustainability of project activities, outcomes, and impacts. Use information from the POP endline, the present follow-up study, and other sources to identify outliers and develop explanations for variable success that could inform future programming.
- Explore the differential impact on worker effectiveness and beneficiary outcomes of the alternative models of salary and pay-for-performance as a basis for remuneration, as demonstrated in the cases of AWWs and ASHAs.
- When possible, implement pre-/post-studies using randomly assigned control groups to strengthen conclusions and permit cause-and-effect attribution.

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