



USAID
FROM THE AMERICAN PEOPLE

COSTING THE STANDARD DAYS METHOD



D H S O C C A S I O N A L P A P E R N O . 6

JULY 2013

This publication was produced for review by the United States Agency for International Development (USAID). The report was prepared by James E. Rosen, Bill Winfrey, and Adebisi Adesina of the Futures Institute, Glastonbury, Connecticut, USA.

MEASURE DHS assists countries worldwide in the collection and use of data to monitor and evaluate population, health, and nutrition programs. Additional information about the MEASURE DHS project can be obtained by contacting MEASURE DHS, ICF International, 11785 Beltsville Drive, Suite 300, Calverton, MD 20705 (telephone: 301-572-0200; fax: 301-572-0999; e-mail: reports@measuredhs.com; internet: www.measuredhs.com).

The main objectives of the MEASURE DHS project are:

- to provide decision makers in survey countries with information useful for informed policy choices;
- to expand the international population and health database;
- to advance survey methodology; and
- to develop in participating countries the skills and resources necessary to conduct high-quality demographic and health surveys.

DHS Occasional Paper No. 6

Costing the Standard Days Method

*The Cost of Integrating the Standard Days Method (SDM) into Family
Planning Programs at Scale and of Providing the SDM in Routine
Service Delivery in Guatemala, India, and Rwanda*

James E. Rosen

Bill Winfrey

Adebiyi Adesina

Futures Institute

Glastonbury, Connecticut, USA

July 2013

Corresponding author: James E. Rosen. Senior Associate, Futures Institute, 41-A New London Tpke,
Glastonbury, Connecticut, USA; Tel: 1-860-657-5300; Fax: 1-860-657-5302; Email:
jrosen@futuresinstitute.org

This study was carried out with support provided by the United States Agency for International Development (USAID) through the MEASURE DHS project (#GPO-C-00-08-00008-00). The views expressed are those of the authors and do not necessarily reflect the views of USAID or the United States government.

Cover photo © 2006 David Alexander, Courtesy of Photoshare

Recommended citation:

Rosen, James E., Bill Winfrey, and Adebisi Adesina. 2013. *Costing the Standard Days Method: The Cost of Integrating the Standard Days Method (SDM) into Family Planning Programs at Scale and of Providing the SDM in Routine Service Delivery in Guatemala, India, and Rwanda*. DHS Occasional Paper No. 6. Calverton, Maryland, USA: ICF International.

Contents

| | |
|---|-------------|
| List of Tables | v |
| List of Figures | vii |
| Preface | ix |
| Acronyms and Abbreviations | xi |
| Acknowledgements | xii |
| Executive Summary | xiii |
| 1 Introduction and Background | 1 |
| 1.1 About the Standard Days Method | 1 |
| 1.2 Integration of the Standard Days Method into Family Planning Programs | 1 |
| 1.3 Study Questions | 2 |
| 1.4 Study Perspective | 3 |
| 1.5 Time Frame and Analytic Horizon..... | 3 |
| 2 Methods | 5 |
| 2.1 Selection of Countries | 5 |
| 2.2 Study Timeline..... | 6 |
| 2.3 Methods for Measuring SDM Integration Costs | 6 |
| 2.4 Methods for Measuring Cost of Family Planning Service Provision..... | 10 |
| 3 Results | 13 |
| 3.1 Integration Cost | 13 |
| 3.2 Total Cost of Integration..... | 13 |
| 3.4 The Cost of Routine Service Delivery..... | 21 |
| 3.5 Sensitivity Analyses | 29 |
| 4 Discussion and Conclusions | 31 |
| 4.1 Study Limitations..... | 32 |
| 4.2 Conclusion | 34 |
| References | 35 |
| Appendix | 37 |

List of Tables

| | |
|--|----|
| Table 1: The integration process in the three study countries..... | 7 |
| Table 2: Number of service delivery sites where cost data was collected, by country and sector | 10 |
| Table 3: Sources of data for input quantities and prices, SDM costing study | 11 |
| Table 4: Proportion of costs designated as fixed or variable, by integration category | 19 |
| Table 5: Sensitivity analysis showing how five-year cost of SDM varies with a change in the percentage of SDM users also using condoms..... | 29 |
| Table 6: Sensitivity analysis showing how first-year cost of SDM varies with a tripling of the client contact time with SDM users..... | 30 |
| Table 7: Sensitivity analysis showing how cost per birth averted over a two-year time horizon varies when reducing the effectiveness and continuation rate of SDM..... | 30 |
| Appendix Table A1: Percentage of SDM users who use condoms during their fertile days | 37 |
| Appendix Table A2: Total spending on SDM integration by category and by project year, Guatemala, US\$ constant 2012..... | 38 |
| Appendix Table A3: Total spending on SDM integration by category and by project year, India, US\$ constant 2012..... | 38 |
| Appendix Table A4: Total spending on SDM integration by category and by project year, Rwanda, US\$ constant 2012..... | 39 |

List of Figures

| | |
|--|----|
| Figure 1: SDM costing study countries | 5 |
| Figure 2: Process to categorize integration expenditure..... | 9 |
| Figure 3: Spending on integration by project year, Guatemala..... | 13 |
| Figure 4: Spending on integration by project year, Jharkhand State, India | 14 |
| Figure 5: Spending on integration by project year, Rwanda, constant 2012 US\$..... | 14 |
| Figure 6: Distribution of integration costs by category, Guatemala | 15 |
| Figure 7: Distribution of integration costs by category, India..... | 15 |
| Figure 8: Distribution of integration costs by category, Rwanda..... | 16 |
| Figure 9: Distribution of spending across integration categories over time, Guatemala | 16 |
| Figure 10: Distribution of spending across integration categories over time, India | 17 |
| Figure 11: Distribution of spending across integration categories over time, Rwanda..... | 17 |
| Figure 12: Distribution of spending between IRH and partners, Guatemala | 18 |
| Figure 13: Distribution of spending between IRH and partners, India | 18 |
| Figure 14: Distribution of spending between IRH and partners, Rwanda | 19 |
| Figure 15: Fixed and variable costs of SDM integration, by country | 20 |
| Figure 16: Variable cost of SDM integration per capita, by country | 20 |
| Figure 17: Variable cost of SDM integration per service delivery point, by country | 21 |
| Figure 18: Cost per user for first year of use, by method and service delivery channel, Guatemala | 21 |
| Figure 19: Cost per user for first year of use, by method and service delivery channel, India | 22 |
| Figure 20: Cost per user for first year of use, by method and service delivery channel, Rwanda | 22 |
| Figure 21: Year 1 cost of service delivery by cost input, NGO clinical services, Guatemala | 23 |
| Figure 22: Year 1 cost of service delivery by cost input, India..... | 23 |

| | |
|---|----|
| Figure 23: Year 1 cost of service delivery by cost input, urban clinic, Rwanda..... | 24 |
| Figure 24: Total minutes of staff time for an initial visit, by method and service delivery channel, Guatemala..... | 25 |
| Figure 25: Total minutes of staff time for an initial visit, by method and service delivery channel, India..... | 25 |
| Figure 26: Total minutes of staff time for an initial visit, by method and service delivery channel, Rwanda..... | 26 |
| Figure 27: Cost per user for second and subsequent years of use, by method and service delivery channel, Guatemala..... | 26 |
| Figure 28: Cost per user for second and subsequent years of use, by method and service delivery channel, India..... | 27 |
| Figure 29: Cost per user for second and subsequent years of use, by method and service delivery channel, Rwanda..... | 27 |
| Figure 30: Births averted per acceptor over a two-year horizon, by method and study site | 28 |
| Figure 31: Cost per birth averted over a two-year time horizon, by method and study site | 29 |

Preface

One of the most significant contributions of the MEASURE DHS program is the creation of an internationally comparable body of data on the demographic and health characteristics of populations in developing countries.

The *DHS Comparative Reports* series examines these data across countries in a comparative framework. The *DHS Analytical Studies* series focuses on analysis of specific topics. The principal objectives of both series are to provide information for policy formulation at the international level and to examine individual country results in an international context. While *Comparative Reports* are primarily descriptive, *Analytical Studies* comprise in-depth, focused studies on a variety of substantive topics. The studies are based on a variable number of data sets, depending on the topic being examined. A range of methodologies is used in these studies, including multivariate statistical techniques.

The topics covered in all DHS reports are selected by MEASURE DHS staff in conjunction with the U.S. Agency for International Development, with the goal of enhancing the understanding of analysts and policymakers regarding significant issues in the fields of international population and health.

This *Occasional Paper* deals with a topic of interest for family planning programs in many countries, but falls outside the general framework of the other series of DHS reports.

Sunita Kishor
Project Director

Acronyms and Abbreviations

| | |
|-------|--|
| AIDS | Acquired immune deficiency syndrome |
| ARBEF | Rwandan Association for the Promotion of Family Welfare |
| CBD | Community-based distribution |
| DHS | Demographic and Health Surveys |
| FAM | Fertility Awareness Methods Project, USAID |
| HMIS | Health management information system |
| IGSS | Instituto Guatemalteco de Seguridad Social, Guatemala |
| IRH | Institute for Reproductive Health, Georgetown University |
| LAM | Lactational Amenorrhea Method |
| M&E | Monitoring and evaluation |
| MOH | Ministry of Health |
| NGO | Nongovernmental organization |
| PHC | Primary health center |
| PY | Project year |
| SDP | Service delivery point |
| SDM | Standard Days Method |
| SRH | Sexual and reproductive health |
| STI | Sexually transmitted infection |
| TDM | Two-Day Method |
| USAID | United States Agency for International Development |
| WHO | World Health Organization |

Acknowledgements

We thank the many people who made this study possible.

At USAID/Washington: Mihira Karra, Ishrat Hussein, Jewel Gaussman, and Imran Mahmud.

At the Institute for Reproductive Health/Washington: Victoria Jennings, Rebecka Lundgren, Susan Igras, Francesca Cesti-Brown, Meredith Pueleio, Elizabeth Salazar, Elizabeth Kilwake, Jen Schulz, Miranda Beckman, Begona Fernandez, and Danielle McCadden.

In Guatemala: Almeda Aguilar, Yma Alfaro, Flor de María Alvarado Lidia Álvarez Macariegos, Karina Arriaza, Donald Cruz, Verónica Dávila, Julieta Flores, Ricardo García Castro, Byron González, Silvia Hernandez, Olinda Lopez, Margarita Menchu, Carlos Morales, Claudia Xicay Morelos, Paola Munoz, Clemencia de Ovando, Sergio Penagos, Alicia Pérez Calvez, Varinha Pinto, Heber Poz, Raul Rossal, Alejandro Silva, Claudia Telejuario, Nely Tucux, and Ligia Irene Zamora.

In India: Priya Jha, Ashit Kumar, Sonia Panja, S. Vijay Paul, Vishal Raj, Saurav Tiwari, and Nalin Nath Tiwary.

In Rwanda: Nzeyimana Anastase, Nyirakarehe Anonciata, Jean de Dieu, Kelly Hamblin, Joyce Ineza, Mbanda Kagabo, Eric Kagame, Edith Kayitesi, Ayinkamiye Kezie, Marie Mukabatsinda, Donat Murego, Vincent Musongande, Jovith Ndahinyuka, Abdallah Ndarama, Desiré Nyirimanzi, and Anicet Nzabonimpa.

Our thanks also to the MEASURE DHS staff who facilitated our travel and other administrative aspects of the work.

We are also grateful to those reviewers who provided comments on earlier versions of this report: Mihira Karra, Sarah Harbison, Shawn Malarcher, and IRH staff.

We gratefully acknowledge funding from the Africa Bureau of USAID.

Executive Summary

Background and Objectives

The Standard Days Method (SDM) has been part of the family planning modern method mix for over a decade, and countries are gradually incorporating SDM into national family planning norms, policies, and programs. Although knowing family planning costs is critical to a range of policy and financing decisions, this study is the first to systematically examine SDM costs. Where countries have yet to introduce SDM, donors and family planning program managers are interested in what it might cost to fully integrate SDM into their family planning services. Similarly, in the context of limited funding, it is important for planning and policy purposes to know the routine costs of providing SDM once a country has achieved scale up, and how these compare to the costs of other user-dependent family planning methods.

Methods

The study examined costs in three of the five focus countries where the Institute for Reproductive Health (IRH) and its partners have worked to integrate SDM into family planning programs. The national scale-up in Rwanda took 11 years. The effort in Guatemala, which combined national level policy work with a focus on service provision in three of Guatemala's 22 districts, spanned a similar period. The six-year scale-up effort in India focused on the state of Jharkhand, covering 11 of the state's 24 districts. The study defines integration as comprising six categories of activities: coordination and planning for integration; research,¹ monitoring and evaluation; policy and advocacy; training; communication for awareness raising; and adapting systems. Costs of integration were calculated using information drawn from budgets, work plans, and actual expenditures made by IRH, along with information on costs incurred by IRH partners involved in the integration process. Costs were examined over the period during which integration activities occurred, 2003-2013 (11 years) in Guatemala, 2007-2013 (6 years) in India/Jharkhand State, and 2003-2013 (11 years) in Rwanda.

Results

The unit cost analysis compared service delivery costs of SDM with costs of providing oral pills, injectables, and condoms. In Guatemala and Rwanda, SDM had substantially lower routine service delivery costs compared with the other methods. In Rwanda, for example, the cost per user for the first year of SDM use was about \$4 on average, compared with \$5.73 for oral pills, \$4.80 for injectables, and \$4.61 for condom users. In India, SDM is more costly than orals, but less costly than condoms. Generally, SDM becomes even less costly by comparison for those users that continue using beyond the first year. This relationship generally holds across a broad range of types of service delivery sites, including public and private, and with different types of health workers.

Factoring in the reportedly higher continuation rates of SDM and rates of use-effectiveness on par with other methods, SDM compares quite favorably with similar methods in terms of cost per birth averted over a two-year time frame. In Guatemala, for example, the cost for birth averted for SDM was \$13.32 compared with \$31.55 for condoms, \$42.92 for injectables, and \$53.03 for oral pills.

¹ The study excluded costs associated with research that are not part of routine introduction and scale-up activities, including, for example, research examining the effectiveness of the Standard Days Method.

The analysis of scale-up costs, while not focused on comparing costs across the three settings, revealed some interesting findings related to the sequencing and composition of costs. Generally, costs were lower in the initial years of the integration effort, and gradually increased. Of the six categories of integration, communication, research, monitoring and evaluation, and training were the top categories of spending in Guatemala and Rwanda. In Jharkhand, training, adapting systems, and communication accounted for three-quarters of spending. In each country, the pattern of spending among the categories changed over time, although showing differences across countries. Spending by partners accounted for similar proportions of total cost in Guatemala (23%), India/Jharkhand (28%), and Rwanda (20%).

The total cost of the SDM integration effort was \$916,000 in Guatemala, \$671,000 in India/Jharkhand, and \$2,718,000 in Rwanda. This included both fixed costs generated regardless of the size of the scale-up effort and variable costs that change depending on the size and scope of scale up. Fixed costs made up between 50 and 60 percent of the total in all three countries, and include all policy and advocacy and systems adaptation costs, and most coordination and research, monitoring, and evaluation activities. Fixed costs ranged from \$432,000 in India/Jharkhand to \$521,000 in Guatemala, to \$1.4 million in Rwanda. There was no predictable relationship between variable costs and various measures of the scope of the scale-up activity in the three countries. For example, although the variable cost per service delivery point (SDP) was about the same in Guatemala (\$1,285) and Rwanda (\$1,866), it was much lower in India (\$114).

Discussion and Conclusions

Integrating a new method into a family planning program at national or subnational scale takes a considerable amount of time and resources. Introduction and scale-up took 11 years in Rwanda and Guatemala, and 6 years in the Indian state of Jharkhand.² The national-level effort in Rwanda cost almost \$3 million, scaling up to about one-sixth of the country in Guatemala cost about \$1 million, and covering about half of one state in India cost about \$0.7 million. However, because we lack a reference point for comparison, it is difficult to judge whether these figures, which likely are a moderate underestimate of the true cost, are “low” or “high.”

Several reasons might explain the differences in the total cost of the integration effort across the three countries. First, no two countries followed the same process for integration, investing differently given the varying country contexts. Second, varying levels of investment may be a function of the different degrees of difficulty in achieving integration goals and related intensity of the integration effort. For example, the integration process may have been “easier” in India, either because of the particular country context or because India came later to SDM integration than Guatemala and Rwanda, and thus benefited from previous lessons learned that produced a more efficient use of resources. Third, although the analysis did not explore in any depth differences in prices for key inputs such as labor and transport, such differences may also underlay some of the observed difference in total cost. Fourth, the possibility exists that under-reporting or misinterpretation may have led to errors in the estimates for specific countries.

Although the introduction and scale-up process in the three countries incorporated the same set of six categories of activities, each country took its own unique path depending on the local circumstances. This divergence makes it difficult to generalize about what the integration cost might be in other settings. Roughly half of the spending in these three settings were fixed costs associated with policy and advocacy, adapting systems, research, and coordination. Thus, replicating the integration process elsewhere is likely to cost at least between \$0.5 and \$1.5 million for these fixed costs alone. The remainder were variable

² The timeline was accelerated in Jharkhand because research had previously been conducted elsewhere in the country and did not need to be repeated in Jharkhand.

costs associated with communication and training. Estimating what such costs might be in other settings is less straightforward, given that measures relating variable costs to population size and number of service delivery points differ substantially by setting.

Whether these levels of spending are “worth it” in terms of expanded contraceptive choice and the other benefits associated with the introduction of the Standard Days Method is a question beyond the boundaries of this study. Because this is one of the only studies to examine the cost of large-scale integration of a new family method, further information is needed from studies on other, similar new methods of family planning to provide context for our findings.

The results of the unit costs analysis of routine service delivery should help allay concerns that SDM is somehow a “more expensive” method of family planning. The lower commodity costs of SDM compared with injectables, orals, and condoms greatly outweighs the cost of additional staff time required to educate clients on how to use SDM. The SDM cost advantage increases as users continue beyond their first year of use. Combined with high reported rates of method continuation, SDM maintains an advantage over the other three methods in terms of cost per birth averted over a two-year period.

The study had some important limitations to consider when interpreting the results. In calculating integration cost, we have likely underestimated partner costs. Also, by relying mainly on budget information, our estimates of cost by integration category could be off significantly. Furthermore, the study does not explicitly address the strength or quality of a country’s family planning program. In determining routine service delivery costs, we did not carry out representative sampling of sites. We used a relatively small number of sites for data collection, relied on reported client contact time and reported revisit and resupply norms rather than direct observation or review of records, relied on earlier studies of condom use by SDM clients, and did not address the quality of care. In addition, as with any cost study, comparability across countries is limited.

Despite these limitations, the results from these analyses should provide decision makers with reliable information on costs. As would be the case with any new method, large-scale integration of SDM into a family planning program takes a substantial amount of time and money, and, in deciding whether to undertake such introduction and scale-up activities, decision makers need to weigh those costs against the individual and societal benefits of expanding method choice. Once SDM is established within family planning programs, it appears to have a similar, or even lower, routine service delivery cost compared with other short-term methods of contraception. Combining this information with reportedly robust rates of continuation and use-effectiveness, SDM is well positioned to take its place alongside other, more established methods of family planning.

1 Introduction and Background

This document presents results from a study to determine the costs of integrating the Standard Days Method (SDM) into a family planning program and to offer the method routinely within services.

1.1 About the Standard Days Method

The Standard Days Method prevents pregnancy by identifying a fixed set of days in each menstrual cycle as the time when a woman can get pregnant if she has unprotected intercourse. If the woman does not want to get pregnant, she and her partner avoid unprotected intercourse on days 8 through 19 of her cycle. The SDM is typically used with CycleBeads, a visual tool that helps a woman determine the days when she is most likely to be fertile.

The World Health Organization (WHO) recognizes SDM as an evidence-based, modern family planning method and includes it in its family planning guidance documents (WHO and Johns Hopkins 2011). SDM is 95% effective in preventing pregnancy with consistent and correct use (Trussell 2007). The effectiveness of SDM with typical use (88%) is lower than that of other user-dependent methods such as injectables (97%) and pills (92%) but higher than that of condoms (85%) (Trussell 2007). Furthermore, there is some evidence that one-year continuation rates for SDM clients of 81% may be higher than for users of other, similar methods (Sinai et al. 2011).

SDM may be a useful addition to the contraceptive method mix, one that provides a simple, easy, and natural option to couples wanting to prevent unplanned pregnancy. Studies have shown that offering SDM in programs attracts new family planning users and reduces unmet need. Family planning programs can offer SDM via the entire range of service delivery channels—hospitals, clinics, posts, pharmacies, communities—using the entire array of health workers, including physicians, nurses, auxiliary nurses, and community volunteers. Studies have also shown that using SDM can increase women’s knowledge of their bodies and their menstrual cycles, increase self-confidence, and improve levels of communication with their partners. SDM also necessarily involves men and addresses gender, because the couple has to decide together how to manage the fertile days (FAM Project 2009 – FAQs).

Data on current use of SDM is scarce, partly because it is a new method and national surveys such as the Demographic and Health Surveys (DHS) have only recently begun asking women and men if they are users.³ Program experience shows that in well-run programs, demand has tended to plateau at 5-15% of all new family planning clients choosing SDM. Demand for SDM tends to be higher in countries/sites with lower contraceptive prevalence. (FAM Project 2009 – FAQs). The 2010 Rwanda DHS found that 0.6% of married women of reproductive age (about 7,200 women) used SDM, out of an overall modern prevalence rate of 45% (National Institute of Statistics of Rwanda et al. 2011, UN Population Division 2011).

1.2 Integration of the Standard Days Method into Family Planning Programs

Georgetown University’s Institute for Reproductive Health (IRH) in Washington, DC, has spearheaded the testing and introduction of SDM worldwide, largely with funding from the U.S. Agency for International Development (USAID). Because of these efforts, national family planning norms and policies in at least 16 countries have now incorporated SDM.

³ SDM remains an “opt in” rather than “opt out” method in the DHS questionnaire.

With the science behind the efficacy of SDM now firmly established, and after learning from the experience of introducing SDM in a range of countries, under the USAID-funded Fertility Awareness Methods (FAM) Project IRH and its partners are nearing the end of a strategic process to integrate the method into existing family planning programs in five countries: DRC, India, Guatemala, Mali, and Rwanda.

IRH defines integration in this context as the process of ensuring that a country successfully introduces SDM and makes it a regular part of the family planning service delivery system (IRH 2006). Under this definition, integration includes activities commonly referred to as introduction and scale-up.

As for any health intervention, knowledge of costs is critical to the kinds of policy and financing decisions necessary for SDM integration. Where countries have yet to introduce SDM, donors and family planning program managers want to know what it might cost to start an SDM program in their country. Decision makers also use cost information to weigh whether it makes sense to integrate a new method versus using the same resources to improve the quantity and quality of services for family planning methods the program already offers. Recognizing the importance of cost information, WHO and ExpandNet (2009) recommend costing of health scale-up activities. However, very few studies measure scale-up costs (Bratt 2012). This study is one of the first to examine the cost of large-scale integration of a new family method.

Similarly, knowledge of the service delivery costs of SDM is important to decision makers. In addition to assisting budgeting and—where applicable—setting prices, solid information on costs can help clarify how SDM compares with other family planning methods. Many providers continue to view SDM as relatively ineffective in preventing pregnancy, in part because of the association of SDM with other “natural” family planning methods. In addition, because proper use of SDM requires health workers to educate clients, many providers view SDM to be difficult and time-consuming. For these reasons, there is a perception that SDM is “expensive” compared with other methods of spacing pregnancies, especially condoms, pills, and injectables.

Although some countries have introduced and scaled up SDM, and information exists on the types and amounts of inputs required for such introduction, no formal study has examined the cost of the integration process. There is a similar gap in knowledge about the cost of routine service provision of SDM in existing family planning programs.

This study sought to fill those knowledge gaps by generating detailed cost information in three countries where IRH has committed major resources to integration: Guatemala, India, and Rwanda.

1.3 Study Questions

This study aimed to answer the following questions:

1. How much does it cost to introduce and scale up SDM in a country? This is mainly of interest to USAID missions and other donors considering adding SDM to country family planning programs that it supports. The information may also be useful to national planners in a Ministry of Health and to nongovernmental organizations (NGOs) that offer family planning services.
2. Once SDM services are introduced and scaled up, what are the routine costs of offering SDM? National planners and program managers (public and NGO) want to know what the impact will be on their day-to-day operations. What does offering SDM require in terms of staff time, supplies, and other inputs? The cost analysis can help answer this question.

3. How do routine SDM costs compare to the costs of other similar short-term spacing methods? Knowing the answer helps to place SDM along the spectrum of existing family planning methods. This is of interest to donors, to program managers, and to the proponents of SDM.
4. How might routine SDM costs vary in different service delivery settings? Costs might conceivably vary by sector (public and NGO), prevalence setting (high versus low), type of facility (community, health post, clinic, pharmacy), and associated type of provider (community workers, nurse, doctor, etc.). Documenting this variation will be helpful to planners and program managers.
5. How might routine SDM unit costs vary as the program scales up? Cost analysis can help determine whether economies or diseconomies of scale might result from an expansion of the program. This is of interest to donors and program planners.

1.4 Study Perspective

The choice of perspective or viewpoint is important because it determines the scope of the costs and consequences to be analyzed. A cost analysis should reflect the perspective of the persons or institutions who are most affected by the outcome of interest and who bear certain costs associated with the program being evaluated. For study question 1, which focuses on introduction and scale-up costs, the most important audiences are USAID and other donors and national family planning program managers of integration costs. Their focus is on what they may actually have to budget or spend on integration activities, i.e., the financial costs of integration. For the remaining study questions, which focus on the cost of offering SDM as part of normal operations and how this relates to other spacing methods, the primary audience shifts to program managers. Managers are concerned with what they need to budget, but also may want to know about other economic costs associated with running the program (for example, donated goods or volunteer labor).

1.5 Time Frame and Analytic Horizon

For any cost study, the time frame (the period over which the program is carried out) and the analytic horizon (the period over which the costs and outcomes that occur as a result of the program are considered) should be long enough to capture all relevant program effects. For the study question related to introduction and scale-up, the time frame correlates with the period over which integration took place, to ensure that the analysis includes all relevant costs. This varied from country to country, ranging from 11 years in Rwanda and Guatemala, to six years in India. For the study questions focused on service delivery costs, a one-year time frame is relevant for calculating costs of new and continuing family planning acceptors. For calculation of certain outcomes such as cost per birth averted, the study uses a two-year analytic horizon to be able to better capture the effect of method continuation.

2 Methods

This section describes the costing methodology.

2.1 Selection of Countries

IRH has worked intensively in five countries to integrate SDM into family planning programs: Democratic Republic of Congo, Guatemala, India, Mali, and Rwanda. All five countries have a relatively mature SDM program. In addition, in each country SDM is provided in a range of facilities (community, clinics, hospitals, posts, pharmacies) and by a range of providers (community health workers, auxiliaries, nurses, doctors, midwives, pharmacists). For budget reasons, we limited the study to three of the five countries, choosing one from each region where IRH works: Guatemala (Latin America); India (Asia); and Rwanda (Africa) (Figure 1).

Figure 1: SDM costing study countries



2.2 Study Timeline

Study design took place in late 2011 and early 2012. Futures Institute staff made field visits in March (Guatemala) and May 2012 (India and Rwanda). Analysts applied a questionnaire to service providers to collect facility-level data on time spent with clients and use of commodities and supplies. IRH/Washington and IRH country offices provided budget and expenditure data.

2.3 Methods for Measuring SDM Integration Costs

2.3.1 *The integration process*

Integration encompasses a range of inter-related activities that can happen sequentially or simultaneously, depending on the country circumstances (WHO and ExpandNet 2009, IRH 2006). Using the IRH approach to integration and based on conversations with IRH staff, we developed the following six integration categories for use in classifying costs:

- **Coordination and planning for integration.** Annual planning and ad hoc meetings of the team coordinating the integration activities.
- **Research, monitoring, and evaluation.** An initial feasibility assessment that may include a pilot of SDM integration into existing family planning services, which generally occurs at the beginning of the process. This includes intervention quality assurance studies, fidelity checks to ensure that the intervention is implemented as intended, and activities required to adapt a generic model of service and integration to the local country context. This process also includes collecting data on SDM clients and services for reporting and management purposes. This is especially needed where a system-wide health management information system (HMIS) is not fully operational. This data collection activity will have to go on for quite a long time, until the HMIS is operational and includes the method in question. These activities are ongoing throughout the scale-up process. The study excluded costs associated with research that is not part of routine introduction and scale-up activities, including, for example, research examining the effectiveness of the Standard Days Method.
- **Policy and Advocacy.** Creating a supportive environment to facilitate sustainability, including changes to laws, policies, and norms. Includes technical working groups to revise norms. This happens through various activities, including the “SDM scale-up resource team” that IRH sets up in each country.
- **Training.** Initial training of providers on how to screen and counsel clients. This training may or may not be integrated with training on other family planning methods. Training takes place as required for scale-up, depending on the training plan.
- **Communication for raising awareness.** Promoting SDM and providing information about it in the community to both women and men who are potential SDM users. Sometimes this requires activities solely focused on SDM, although always in a context of informed choice. In other circumstances, the effort may focus on making sure general information, education, and communication efforts integrate SDM messages.
- **Adapting systems.** This includes:
 - Ensuring that CycleBeads are available where services are offered. This involves making sure the appropriate people are trained in quantification (forecasting and supply planning); product

registration as necessary; and adapting the logistics management information systems to include Cyclebeads.

- Integrating SDM into routine HMIS. This requires adapting information systems at all levels and training relevant staff in using them.
- Adapting and institutionalizing SDM into in-service training or continuing education.
- Adaptation of management systems.
- Institutionalizing SDM in pre-service training curricula.
- Building SDM into the ongoing supervision and monitoring and evaluation systems.

Although the integration process in all three countries included all of the activities described above, in practice the process varied widely in terms of duration, scope, and the particular combination of the six categories of activities (Table 1).

Table 1: The integration process in the three study countries

| Country | Scope | Population coverage | Service delivery points | Providers trained | Time frame |
|-----------|--|---------------------|-------------------------|-------------------|-------------------------|
| Guatemala | Cover three departments National-level work on policies and norms | 825,000 | 308 | 1,809 | 2003-2013 (11 years) |
| India | State of Jharkhand (11 of 24 districts) | 12 million | 2,100 | 15,000 | 2007-2013 (6 years) |
| Rwanda | National | 11 million | 690 | 6,008 | 2003-2013 (11 years) |

The starting point for integration is a function of when activities associated with integration began. For Jharkhand state, the starting point coincided with the start of the FAM Project in 2007 and ended with the end of the FAM Project in 2013. In both Guatemala and Rwanda, there were long-standing activities associated with testing the acceptability and effectiveness of the method that predated the FAM Project. Interviews with project staff and review of documents revealed that integration activities in both countries began in 2003. From 2003-2007, integration activities in Guatemala were at a very low level (see section 3.2.1 below). In Rwanda, the situation was more complex, with a larger integration effort in 2003-2007, which then ramped up with the beginning of the FAM Project in late 2007.

2.3.2 Data sources and allocation of expenditures

The study team categorized and annualized the expenditures through a retrospective analysis of a combination of the following sources:

- IRH country budgets
- IRH country budget reconciliations

- IRH country work plans
- Partner work plans and budgets
- IRH/Washington expenditure reports
- Partner cost-share reports
- Additional documentation on spending (especially under the FAM Project and its predecessor, the Awareness Project)
- Discussions with IRH staff in Washington and in the field
- Discussions with IRH partners in the field

Although expenditure reports theoretically provide the most accurate information on actual spending, the existing accounting systems do not report in ways that make it easy to sort spending according to the integration categories as defined above. Reports could be generated for every expenditure made by the project; however the amount of time required for a detailed categorization of the tens of thousands of project expenses would have placed an inordinate burden upon the analysts as well as on IRH program and financial staff.

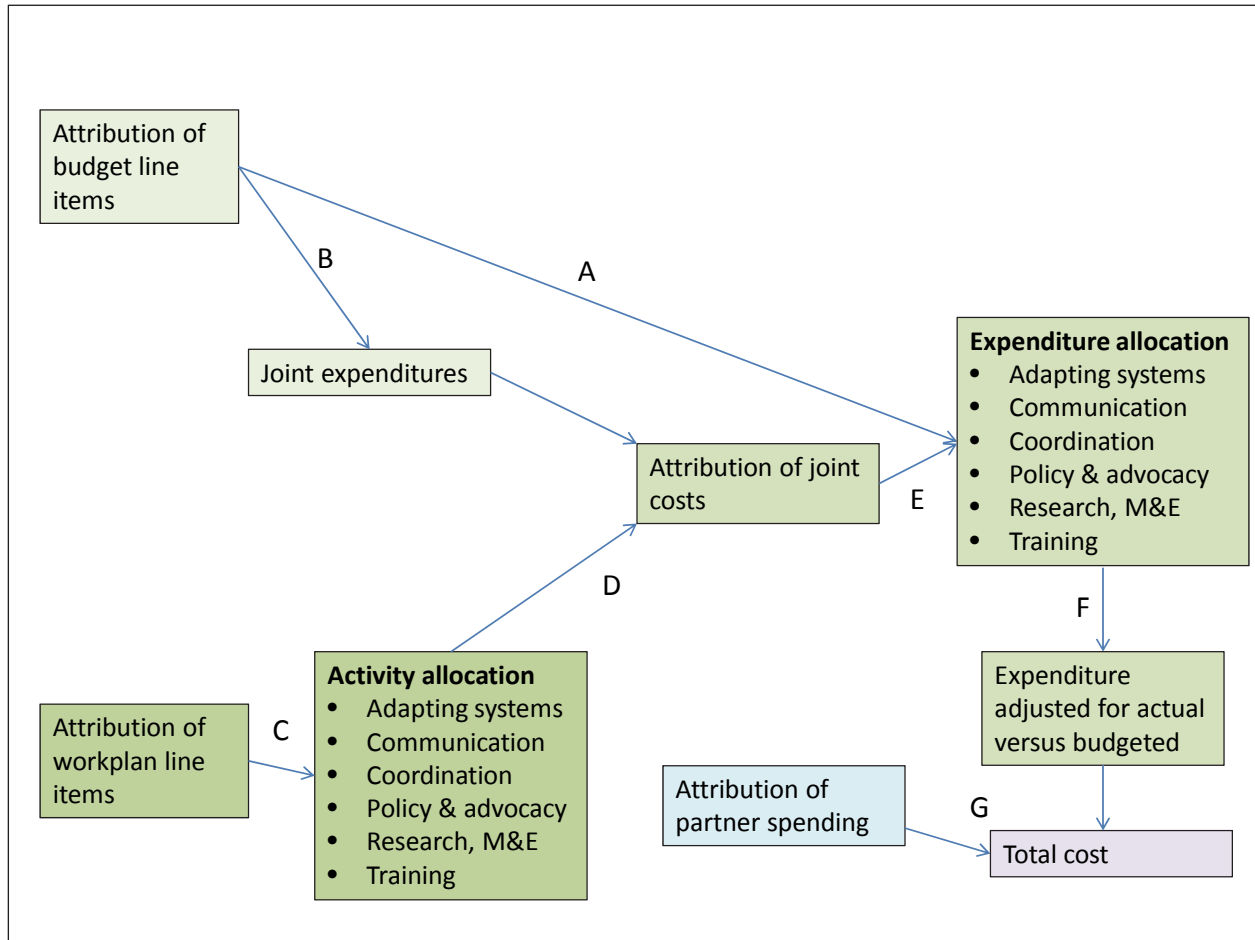
In light of these difficulties, the study team opted to use country budgets or budget reconciliations as the primary starting point to ascertain levels and categorization of expenditures. The detailed country budgets are mostly activity-based, with the exception of IRH salaries, office expenses, and a few other items. Furthermore, some offices adjusted budgets as the fiscal year passed and plans changed, and the reconciled budgets more accurately reflected actual spending levels.

Aggregating and categorizing partner costs was another challenge. The true cost of the integration effort should include not only what was budgeted and spent by IRH but also what was spent by in-country partners – for example, the time spent on coordination, or staff time spent in training, or the cost of producing informational materials, etc. Information on partner costs was collected through analysis of cost-share reports and via interviews with IRH staff and partners in country. IRH staff compiled the cost-share reports, which included detailed accounting of estimated cost of partner resources including time, imputed rental cost, materials, transport, etc. The interviews provided a general sense of the extent to which partners used their own resources during the integration process as well as a check on the figures from the cost-share report.

Figure 2 shows the process for counting spending and assigning expenditures to integration categories, which included the following general steps (letters correspond to arrows on Figure 2):

- A. Attribute budget items to expenditure category. Where we could easily identify the category for the budget line, we assigned each budget or budget reconciliation line to one of the expenditure categories based on the definitions noted above. Country offices also had activities related to non-SDM activities such as the Two-Day Method (TDM), the Lactational Amenorrhea Method (LAM), and youth fertility awareness (youth). Where easily identified, we excluded budget lines for these activities from the analysis. When this was not possible, we asked country office staff to estimate the relative proportion of spending on SDM versus non-SDM activities, and applied these proportions as appropriate.

Figure 2: Process to categorize integration expenditure



- B. Identify joint costs. Some budget line items such as the country coordinator salary did not fall unambiguously into a category. For these cases, the line item was assigned as a “joint” cost. The percentage of line items assigned to the joint category was relatively large and varied, for example, from 31 to 59 percent in the case of Rwanda. Joint costs were reduced according to an estimate of the proportion of effort expended on SDM versus non-SDM activities.
- C. Categorize work plans. We categorized activities in the work plans as a way to help allocate joint costs. We summed the number of activities for each of the six integration categories, and then divided by the total number of activities to get a percentage for each category.
- D. Attribute joint costs to expenditure categories. We applied the percent distribution of work plan activities to the total of the budget line items that were assigned to joint.
- E. Add joint costs to expenditure allocation. The study team then added the joint expenditures to those directly allocated.
- F. Check actual expenditure against budgets. Actual expenditure reports available from IRH/Washington were used as checks to establish that using the budgets and budget reconciliations were in the right ballpark. Where appropriate, expenditures were reduced according to actual spending levels.

- G. Count and categorize partner costs. Partner costs are not included in country budgets or work plans, but can in some cases be quite a substantial proportion of the overall integration effort. We carried out a similar categorization of these partner costs, and added these to the budgeted costs for a total cost by category.

Throughout the process, IRH headquarters and country staff were indispensable for providing interpretations of budgets, budget reconciliations, and expenditure reports. In addition, they frequently provided judgment calls on how to categorize or apportion a particular activity across categories.

2.3.3 Measures of integration costs

The study analyzed integration costs according to the following measures:

Total cost. The total cost of the integration effort over the entire period.

Cost by year. The cost for each year of the integration effort.

Cost by integration category. The total and year-by-year cost by integration category as defined above.

IRH versus partner costs. Includes budgeted IRH costs and estimated cost incurred by partners in the integration effort not already included in the IRH budget.

Fixed and variable costs. Fixed costs are those that do not vary with the scope of the integration effort. Variable costs vary with the scope of the integration effort.

Resources used in the integration effort were valued in US\$ and, as necessary, converted from local currency at the current exchange rate. All costs were valued in constant US\$ 2012, with costs of previous years adjusted using the international dollar price deflator.

2.4 Methods for Measuring Cost of Family Planning Service Provision

As noted, a second principal goal of the study was to examine the service delivery costs of SDM in a routine family planning service setting, and to compare SDM costs with costs of other methods that couples use for birth spacing, specifically oral pills, injectables, and condoms. Each country offers family planning services in diverse settings, ranging from public to NGO to private, and in hospitals, clinics, centers, posts, and via community workers.

2.4.1 Selection of service delivery sites

Because the aim was to compare the costs, we chose a convenience sample of sites that provided SDM along with other spacing methods, thus excluding SDM-only sites. We also chose sites that reflect the major thrust of the integration effort. In Guatemala for example, both the public and NGO sectors were involved. In India, by contrast, only public sector sites offered SDM services (Table 2).

Table 2: Number of service delivery sites where cost data was collected, by country and sector

| Country | Public sector | NGO | Total |
|-----------------|----------------------|------------|--------------|
| Guatemala | 2 | 2 | 4 |
| India/Jharkhand | 7 | - | 7 |
| Rwanda | 4 | 1 | 5 |

2.4.2 Data sources on service delivery costs

For service delivery costs of SDM and the other methods, we collected data on input quantities and prices from existing programs. We limited our analysis to the direct cost of services provision, those costs that correspond to resources that can be explicitly identified with the family planning service. A full costing would have also included indirect costs, those costs that cannot be directly identified with a service or product, but are associated with supporting the direct activities. However, we opted not to measure indirect costs because (1) they are frequently difficult to collect and analyze and (2) although including indirect costs would generate an absolute unit cost that more closely reflects the true cost of providing the service, their inclusion would not affect the relative ranking of the cost of methods.⁴

Direct costs include health worker staff time, contraceptive commodities, and associated medical supplies (Table 3). To calculate direct costs we multiplied input quantities times input price. Analysts collected facility-level data on time spent with clients and use of commodities and supplies through application of a questionnaire during site visits. Information on input prices (salaries, contraceptive prices, etc.) came from review of program records and staff interviews.

Table 3: Sources of data for input quantities and prices, SDM costing study

| Input | Source of input data | Source of price data |
|----------------------------------|---|-----------------------------|
| Personnel | | |
| Health worker staff time | Program staff interview and observation | Program records, interviews |
| Administrative staff time | Program staff interview and observation | Program records, interviews |
| Volunteer time | Program staff interview and observation | Program records, interviews |
| Contraceptive commodities | | |
| Pill, injectable | Program staff interview and observation | Program records, interviews |
| Condom | Program staff interview and observation | Program records, interviews |
| Cycle Beads | Program staff interview and observation | Program records, interviews |
| Medical supplies | | |
| As appropriate | Program staff interview and observation | Program records |

Where possible, the analysis used market rates for input prices, for example, valuing volunteer time. The study valued inputs in local currency or in US\$ as appropriate, and this report shows results in US\$ for comparison, using average exchange rates for the relevant periods. To adjust for inflation, we reported all costs in constant 2012 prices.

Other key information for the cost calculation included:

- *Follow-up visit and resupply norms.* The frequency of visits after the initial visit in which a client accepts a method and the norms for resupply of contraceptives after the initial visit. This information came from interviews with staff at the service sites.
- *Proportion of SDM users also using condoms.* The proportion of SDM users also using condoms during their fertile period (during the 12 days on average each period during which the couple

⁴This is because indirect costs are typically calculated as a percentage of the direct costs.

needs to avoid unprotected intercourse). We set the proportion at 50 percent, using information from available studies (IRH 2009, IRH 2008); see also Appendix Table A1.

2.4.3 Measures of service delivery costs

The study analyzed service delivery costs using the following measures:

Cost per user for first year of use. Includes the cost of the initial contact with the service delivery site and any subsequent visits, assuming a client begins using the method at the beginning of the year.

Cost per user for second and subsequent years of use. Uses the same methodology as for first year of use, but does include an initial visit to the service delivery point.

Cost per birth averted, adjusted for method continuation. Studies (Sinai et al. 2011) have suggested that the continuation rate for the Standard Days Method is as long as or longer than the continuation rate for re-supply methods. If this is the case, cost-effectiveness of SDM will become more favorable compared with other methods as the period for analysis increases. Therefore, in addition to calculating the cost per user, we also calculated the cost per birth averted based on multi-year time horizon. First, family planning acceptors are tracked from acceptance through five years. At each year, the calculation applies a discontinuation rate to users (or remaining users as the cohort reaches years 2, 3, 4 and 5).⁵ At each year, the number of births that would occur with and without the contraceptive use is calculated.⁶ The difference between these calculations is the births averted. Secondly, the costs of serving the acceptors (first year) and continuing users (second year and beyond) are evaluated. These costs are based upon diminishing numbers of users across the years as the discontinuation rates are applied. The cost per birth averted is the cost of serving the users across the relevant span (two to five years) divided by the births averted across the same period. The cost per birth averted of a particular method will depend on the combination of various factors, including its use-effectiveness, the continuation rate, the cost per new acceptor, and the cost per continuing user.

2.4.4 Data entry and processing

Upon completion of facility-level data collection, data were cleaned and entered into standardized Microsoft Excel spreadsheets tailored to the specific data needs of the study.

⁵ The proportion of remaining users can become quite small at the end of a five year period depending on the discontinuation rate. For example, with an annual discontinuation rate of 50%, only about 6% of the original acceptors will still be using the method.

⁶ This is done with a proximate determinants of fertility calculation (Bongaarts 1978, and Stover et al. 2000).

3 Results

This section first presents the results on integration costs followed by the results on routine service delivery costs.

3.1 Integration Cost

As Table in the discussion on integration in section 2.3 showed, the integration process varied in each country in accordance with local aims and circumstances. Because the integration processes were dissimilar, we discourage comparison of costs across countries and encourage the reader to interpret any differences in this light. In trying to answer the question of what the integration costs might be in another country, as we do further in this section, we urge a similar caution.

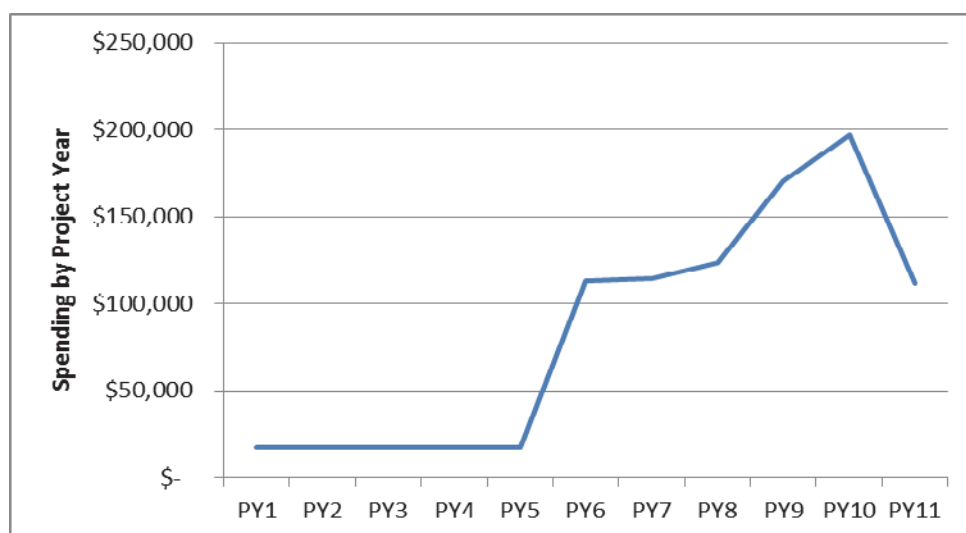
3.2 Total Cost of Integration

The total spent on integration in Guatemala was \$916,000⁷ over 11 years, \$671,000 over 6 years in Jharkhand State, and \$2,718,000 in Rwanda over 11 years. (See Appendix Tables A2 to A4 for more detail on integration spending by country, year, and category.)

3.2.1 Cost by year

As Figure 3 shows, spending during the early years of integration in Guatemala was low, as the office laid the groundwork for scale up and focused more on basic research not directly tied to integration and scale up. Spending rose dramatically with the funding that accompanied the FAM Project in PY6 (2007-2008) and continued to rise with a focus on demand creation, peaking in PY10 before gradually falling back in the final year of the project as activities neared completion.

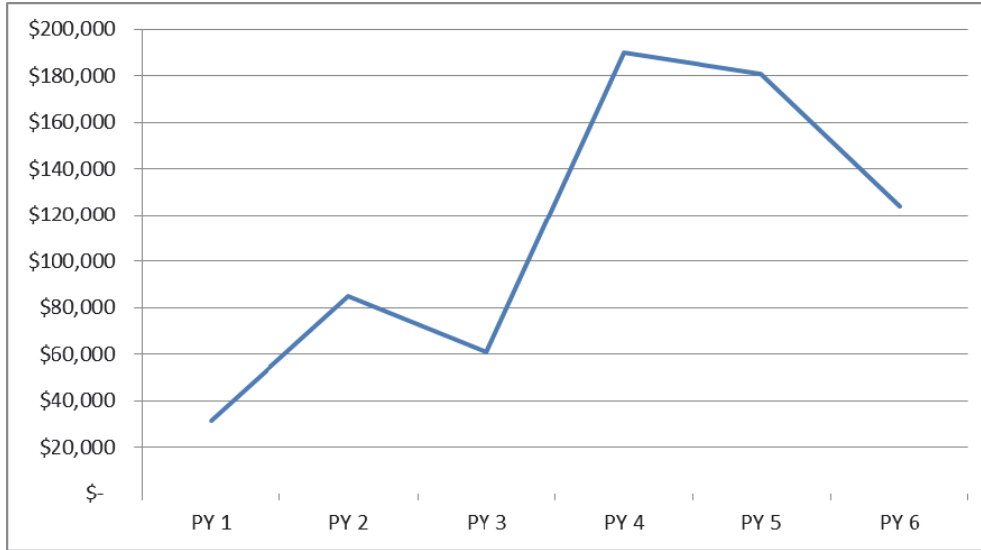
Figure 3: Spending on integration by project year, Guatemala



1. ⁷ All spending figures are expressed in constant 2012 US\$.

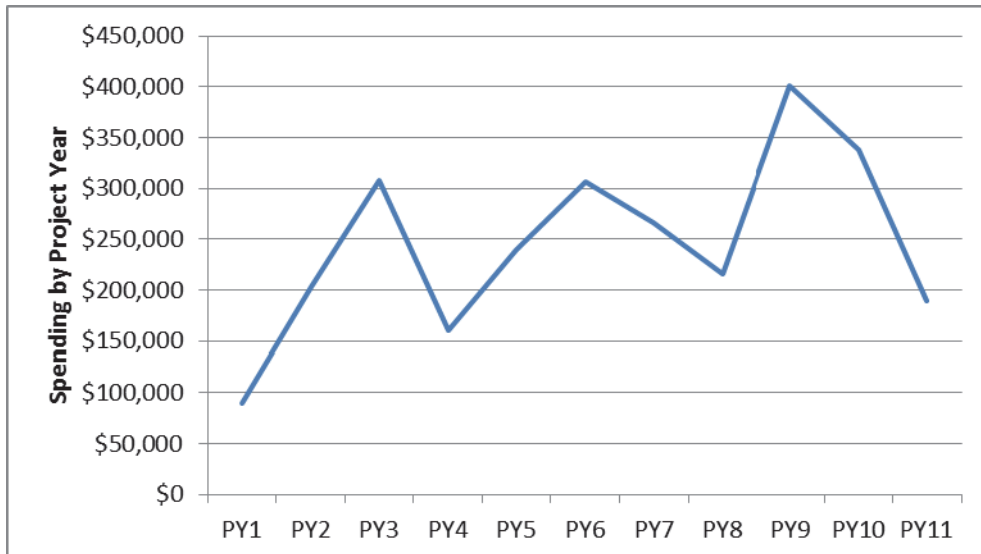
In India, excluding 2009-2010 (PY 3), expenditures increased from the first year, peaked in the fourth year, and fell in fifth and sixth years (Figure 4).

Figure 4: Spending on integration by project year, Jharkhand State, India



Spending in Rwanda gradually increased, although at an uneven pace, then fell in the final two years of the project (Figure 5).

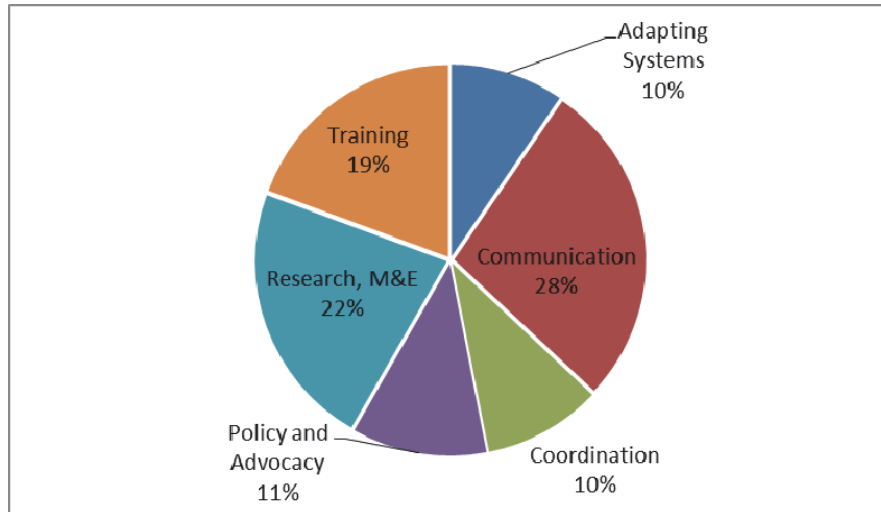
Figure 5: Spending on integration by project year, Rwanda, constant 2012 US\$



3.2.2 Cost by integration category

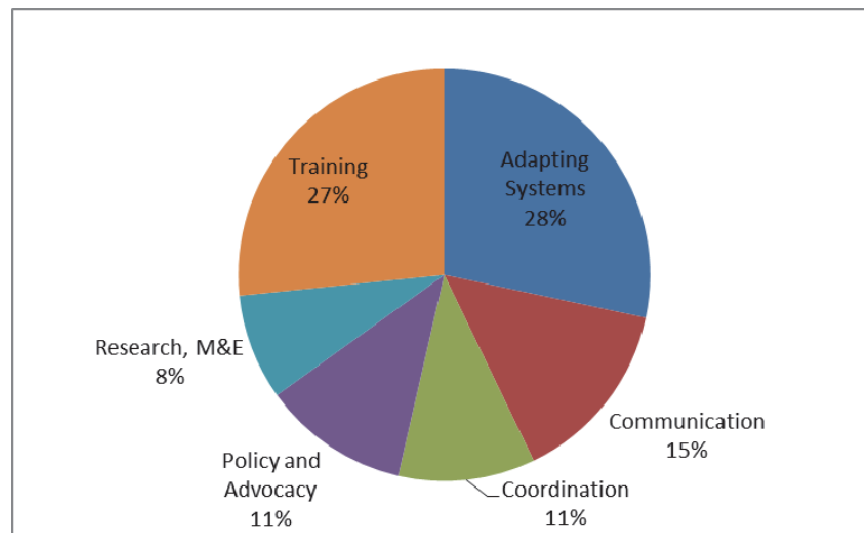
Three categories of activities dominated the integration effort in Guatemala: communication (28% of total spending), training (19%), and research and M&E (22%). Policy and advocacy, coordination, and adapting systems each accounted for about 10% of the total spent on integration (Figure 6).

Figure 6: Distribution of integration costs by category, Guatemala



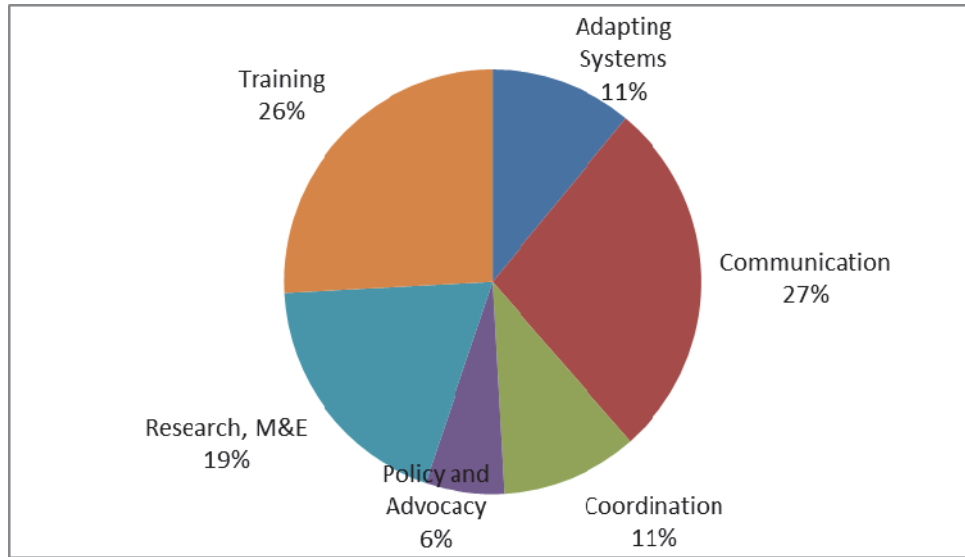
In India, the integration effort was focused on adapting systems (28%), training (27%) and communication (15%) while coordination, policy and advocacy and research and M&E account for 11, 11 and 8%, respectively (Figure 7).

Figure 7: Distribution of integration costs by category, India



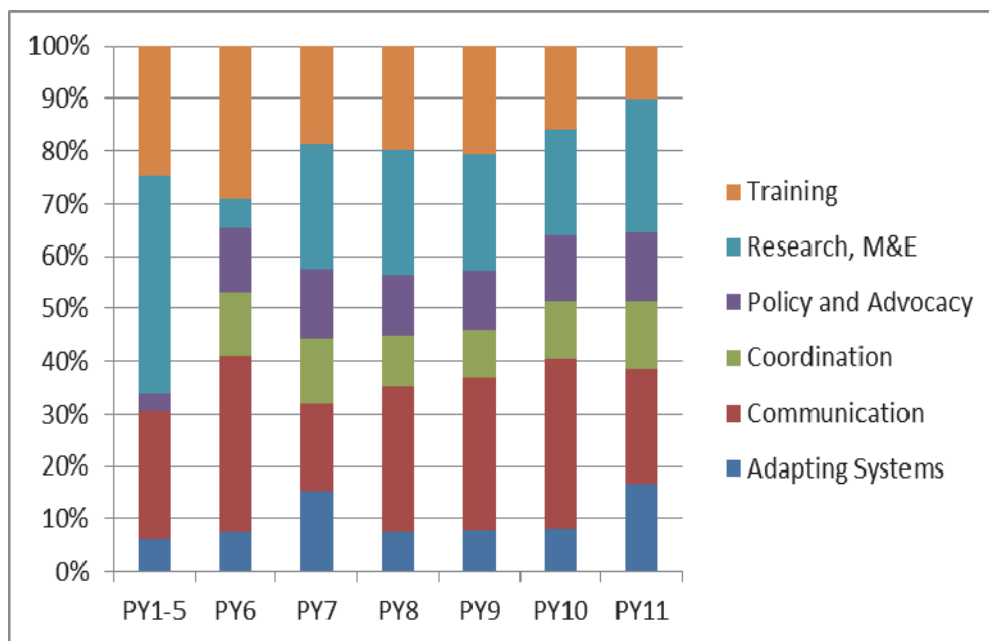
In Rwanda (Figure 8), communication (27%), training (26%), and research and M&E (19%) accounted for the largest share of spending, followed by adapting systems (11%), coordination (11%), and policy and advocacy (6%).

Figure 8: Distribution of integration costs by category, Rwanda



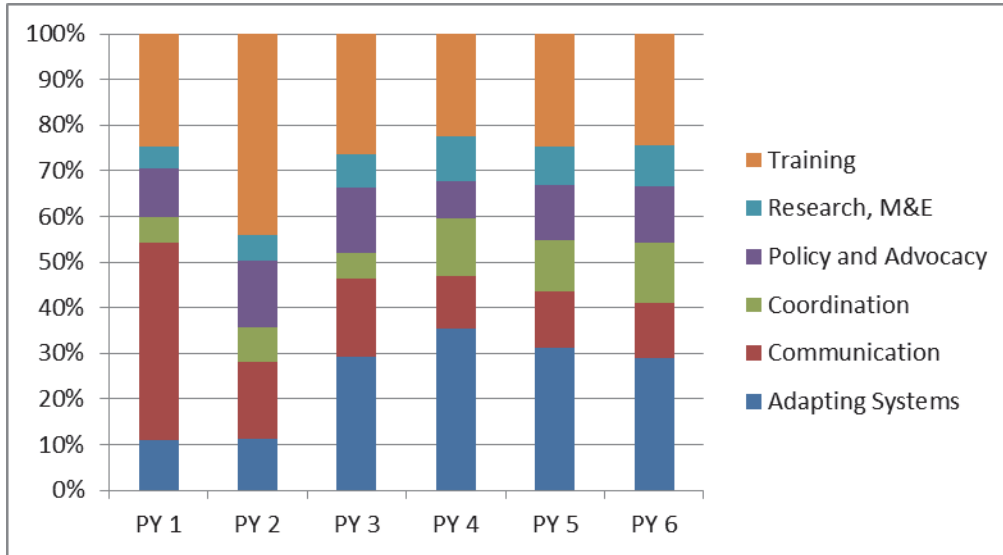
As Figure 9 shows, in virtually every year over the life of the project in Guatemala, communication, training, and research were the top three spending categories.

Figure 9: Distribution of spending across integration categories over time, Guatemala



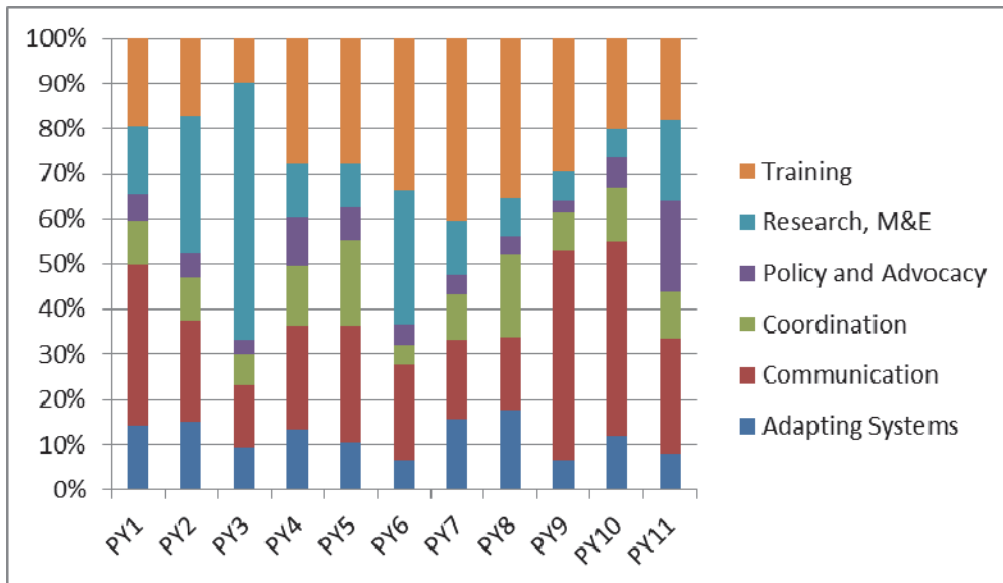
For the India project, training remained a large portion of spending, while communication decreased as systems adaptation increased (Figure 10).

Figure 10: Distribution of spending across integration categories over time, India



In Rwanda, research activities dominated the early years of the integration effort, with training and communication activities becoming more important with the passage of time (Figure 11).

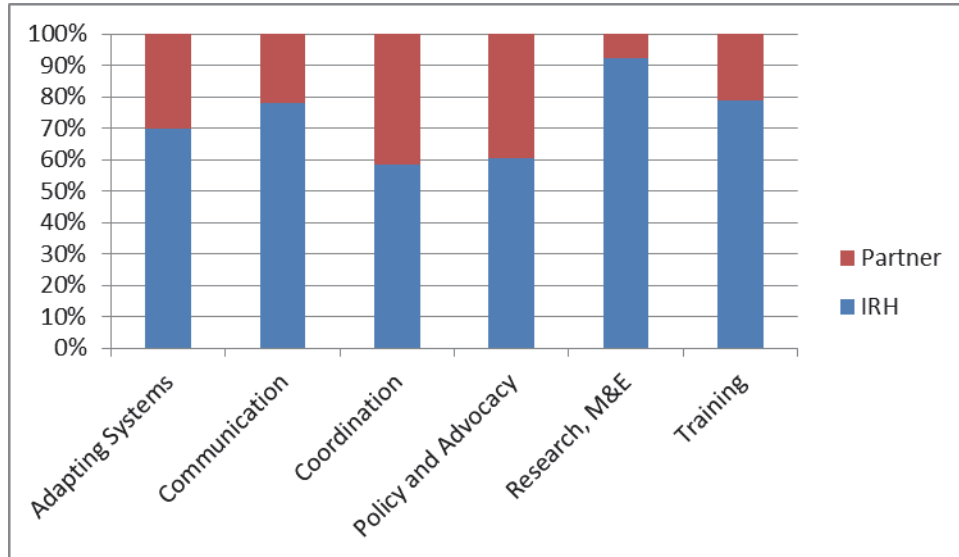
Figure 11: Distribution of spending across integration categories over time, Rwanda



3.2.3 Split between IRH and partner cost

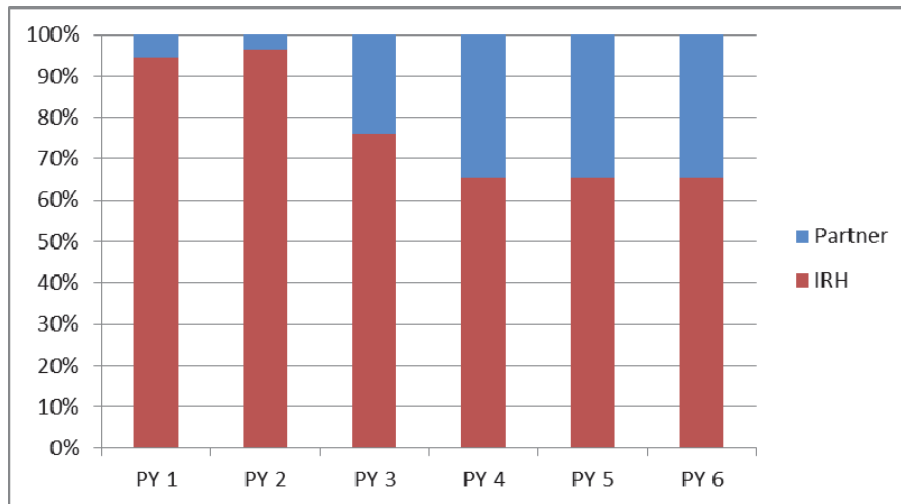
Of the \$916,000 in total spending in Guatemala, IRH partners spent about \$214,000 (23%). If we examine spending by integration category, as Figure 12 shows, partner spending as a proportion of total spending was highest for coordination (42%), policy and advocacy (39%), and adapting systems (30%).

Figure 12: Distribution of spending between IRH and partners, Guatemala



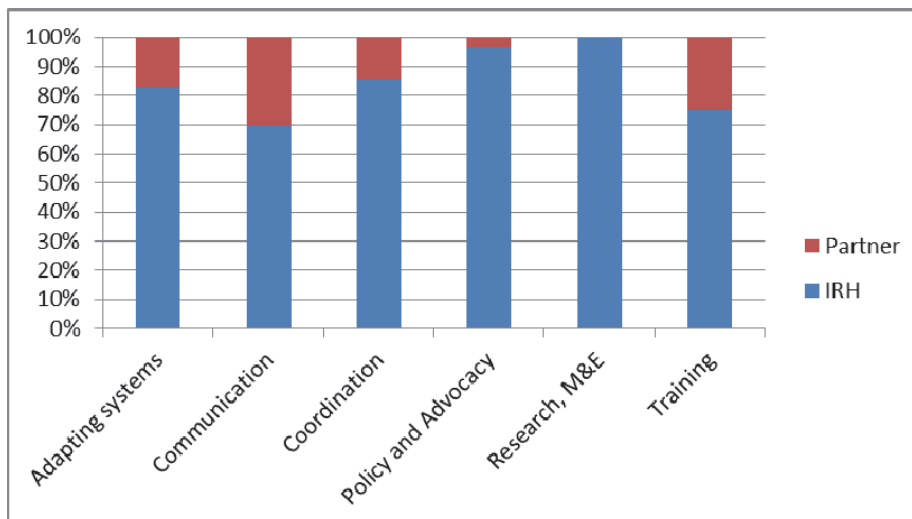
In India (Figure 13), the main IRH partner is the government of Jharkhand, which between 2007 and 2013, spent \$190,000, or approximately 28% of the total cost. All cost-sharing from government support split almost evenly between adapting systems (49%) and training (51%). The focus on these two categories accurately reflects the nature of the partnership, i.e., IRH plays a support role to the government's role as the provider of direct services.

Figure 13: Distribution of spending between IRH and partners, India



Partners in Rwanda contributed 20% of total expenditures, with their largest contributions coming in the categories of communication and training (Figure 14).⁸

Figure 14: Distribution of spending between IRH and partners, Rwanda



3.3 Applying the Integration Cost Findings to Other Settings

To generalize from these specific results to settings in other countries, we further analyzed the structure of costs, with a particular focus on the behavior of fixed and variable costs. We classified each of the integration categories according to the percentage of their costs that is fixed, regardless of the scale of the integration effort and the percentage that varies with the scale of the effort (Table 4). We assumed that costs associated with policy and advocacy and adapting systems are entirely fixed, that coordination and research and M&E activities are mostly fixed costs, and that communication and training costs are mostly variable costs.

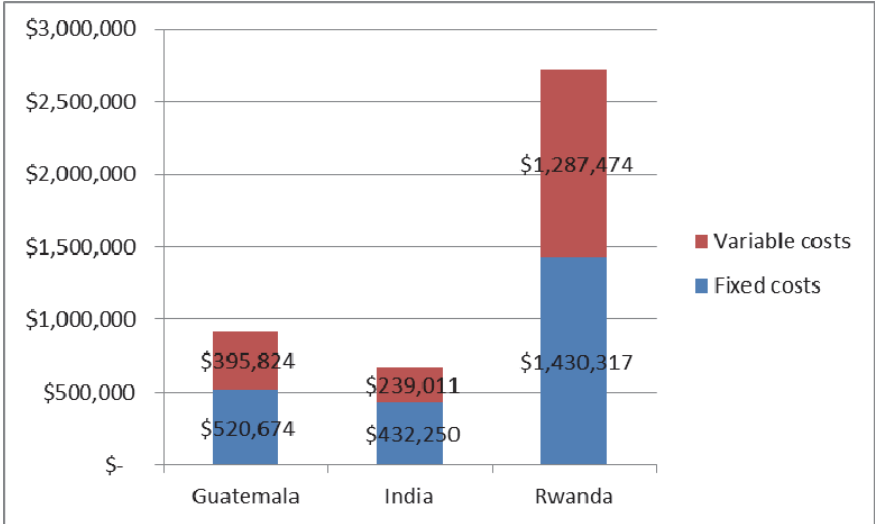
Table 4: Proportion of costs designated as fixed or variable, by integration category

| Integration category | % fixed | % variable |
|----------------------|---------|------------|
| Adapting Systems | 100 | 0 |
| Communication | 25 | 75 |
| Coordination | 75 | 25 |
| Policy and Advocacy | 100 | 0 |
| Research, M&E | 75 | 25 |
| Training | 25 | 75 |

⁸ Partner costs for Rwanda were calculated only for project years 6 through 11, the years for which cost-share data were available.

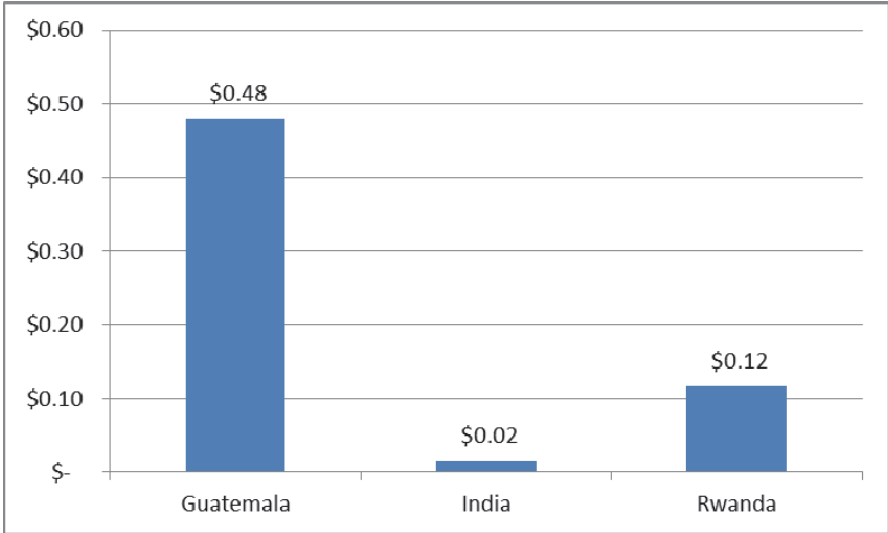
When applying these proportions we found that fixed costs range from \$432,000 in India to \$1.4 million in Rwanda (Figure 15).

Figure 15: Fixed and variable costs of SDM integration, by country



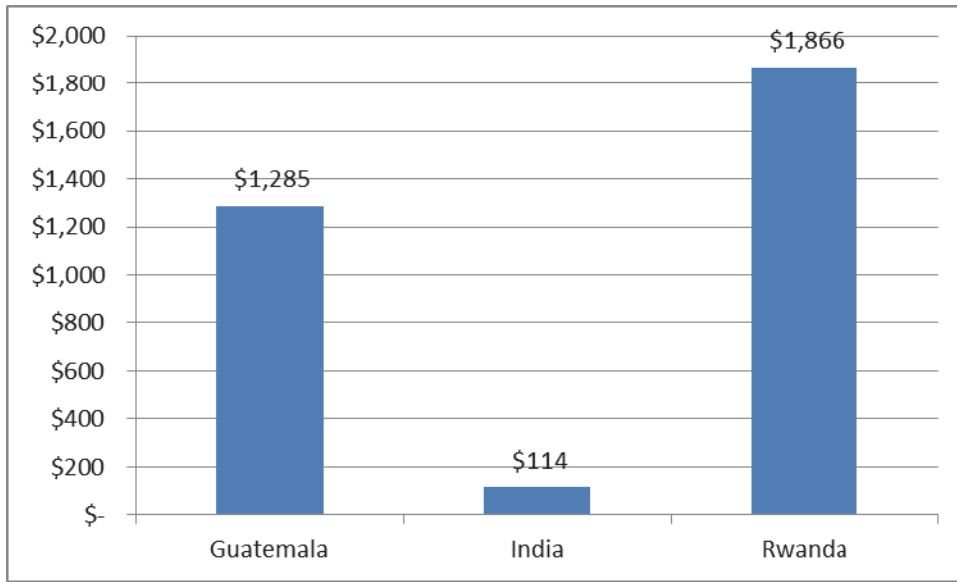
We further analyzed variable costs to understand the relationship between the variable costs and measures of the scale of integration, including population size and number of service delivery points covered in the scale-up process. As Figure 16 shows, the variable cost per capita is between \$0.02 in India and \$0.48 in Guatemala.

Figure 16: Variable cost of SDM integration per capita, by country



As Figure 17 shows, the variable cost per service delivery point (SDP) was much lower in India (\$114) than in Guatemala (\$1,285) and Rwanda (\$1,866).

Figure 17: Variable cost of SDM integration per service delivery point, by country



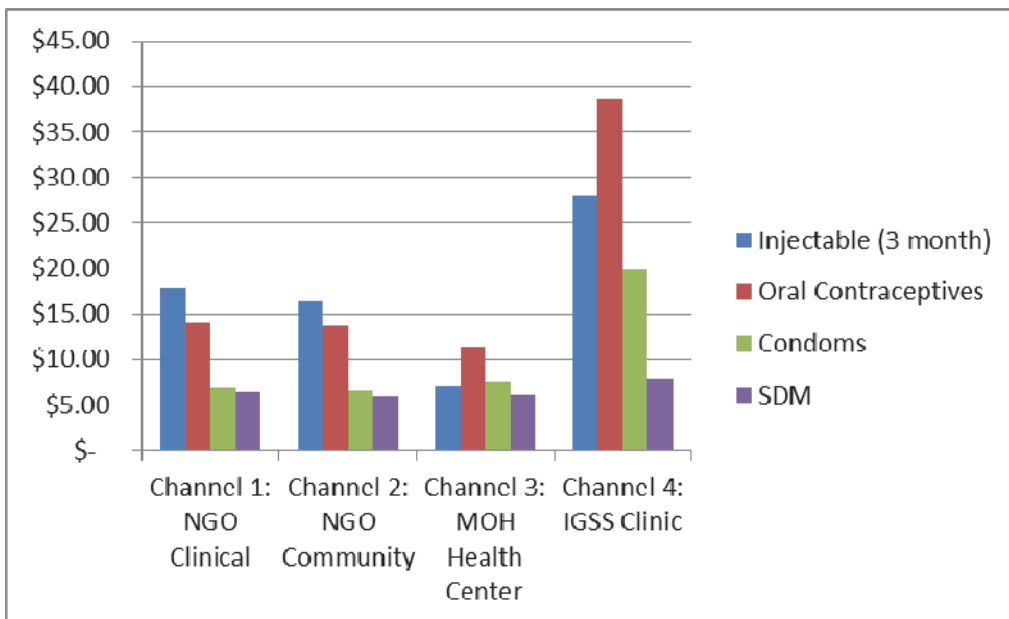
3.4 The Cost of Routine Service Delivery

This section presents the results of the analysis of service delivery costs.

3.4.1 Cost per user for first year of use

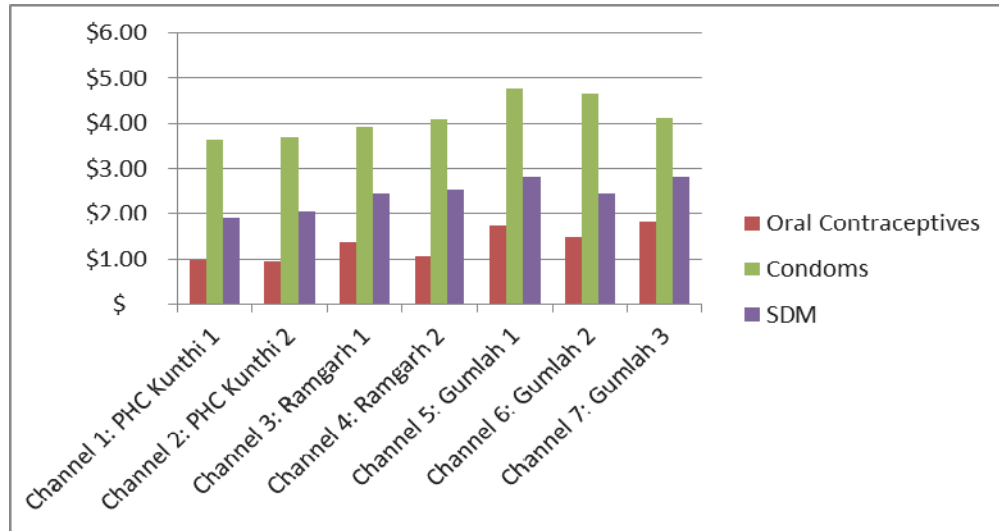
In Guatemala, the study compared the direct service delivery costs of four methods (injectable, orals, condoms, and SDM) via four different service delivery channels (NGO clinical, NGO community, Ministry of Health (MOH) health center, and the Social Security Institute [IGSS] clinic). As Figure 18 shows, the cost for the first year of use was lowest for SDM in all four service delivery channels.

Figure 18: Cost per user for first year of use, by method and service delivery channel, Guatemala



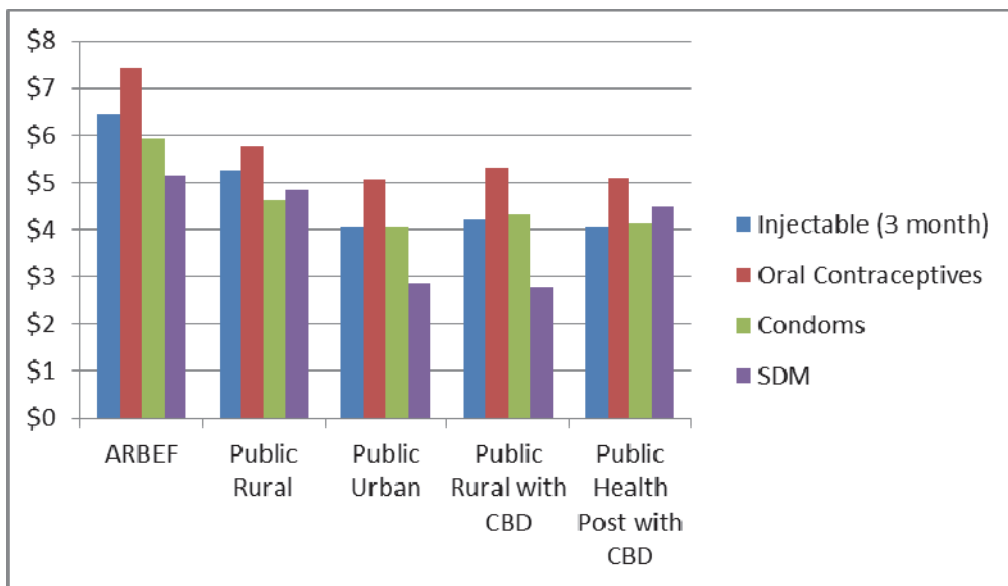
In India, the study compared direct service delivery costs of three short-term methods (condoms, pills, and SDM) provided through primary health centers (PHC) located at the sub-district level. Based on the analysis of first-year costs across seven PHC, the average cost of SDM is slightly lower than the cost of condoms but higher than the cost of oral contraceptives (Figure 19).

Figure 19: Cost per user for first year of use, by method and service delivery channel, India



In Rwanda, the study compared the direct service delivery costs of four methods (injectable, orals, condoms, and SDM) via five service delivery channels, including ARBEF (NGO), rural and urban public sector clinics, a rural public sector clinic with community-based distribution (CBD), and a public sector health post with CBD. As Figure 20 shows, the cost for the first year of use was lowest for SDM, about \$4 on average.

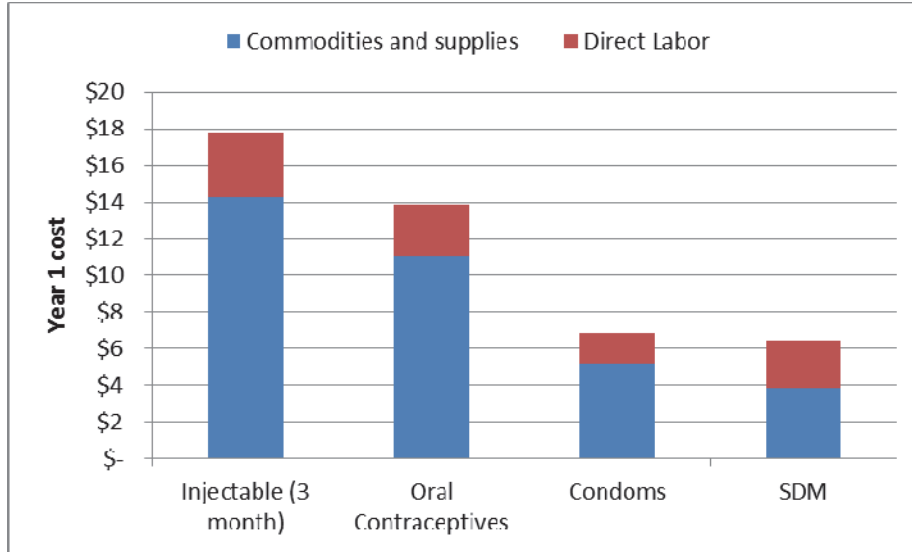
Figure 20: Cost per user for first year of use, by method and service delivery channel, Rwanda



3.4.2 Cost by program input

If we look more closely at the cost in Guatemala (Figure 21), we can see that commodities and supplies account for the large majority of the total cost, ranging from 60% of the total SDM costs to 80% of the cost of injectables and orals. Higher costs in IGSS clinics largely reflect higher commodity costs.

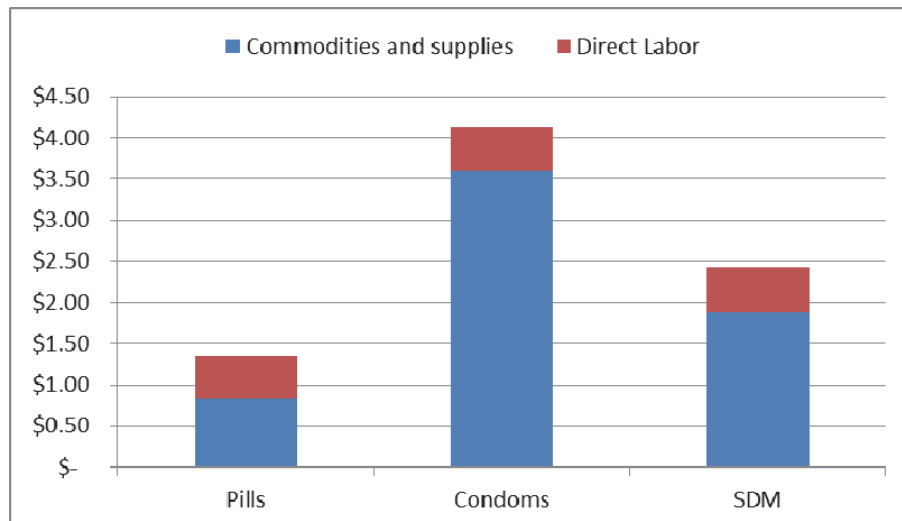
Figure 21: Year 1 cost of service delivery by cost input, NGO clinical services, Guatemala



The breakdown is similar for the NGO community channel and IGSS clinics. However, for the MOH clinical channel, the costs are more evenly split between commodities and supplies and direct labor. In all channels, SDM has the lowest ratio of commodities and supplies to direct labor.

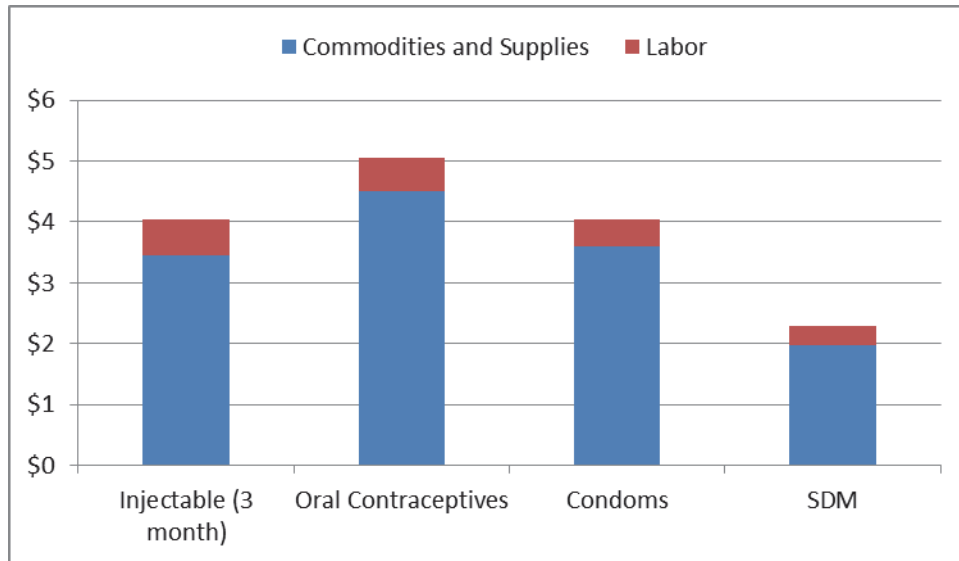
Similarly, a review of the average cost of the three methods in India shows that commodities account for the larger share of cost of services. The proportion of commodities ranges from 64% of the average cost of oral contraceptives to 87% of the average cost of condoms (Figure 22).

Figure 22: Year 1 cost of service delivery by cost input, India



In Rwanda, commodities and supplies similarly make up the large majority of unit costs for each method (Figure 23).

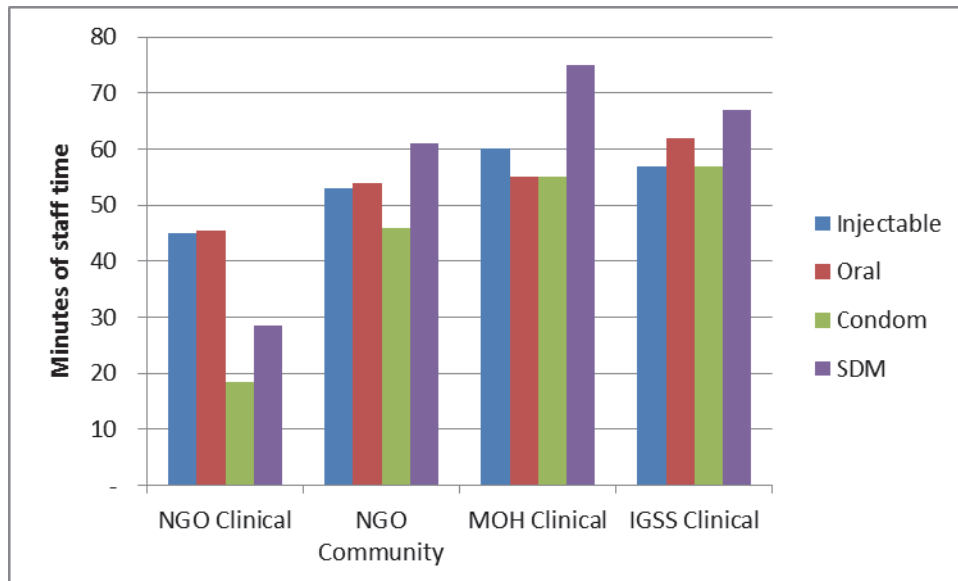
Figure 23: Year 1 cost of service delivery by cost input, urban clinic, Rwanda



3.4.3 Staff time for initial visit

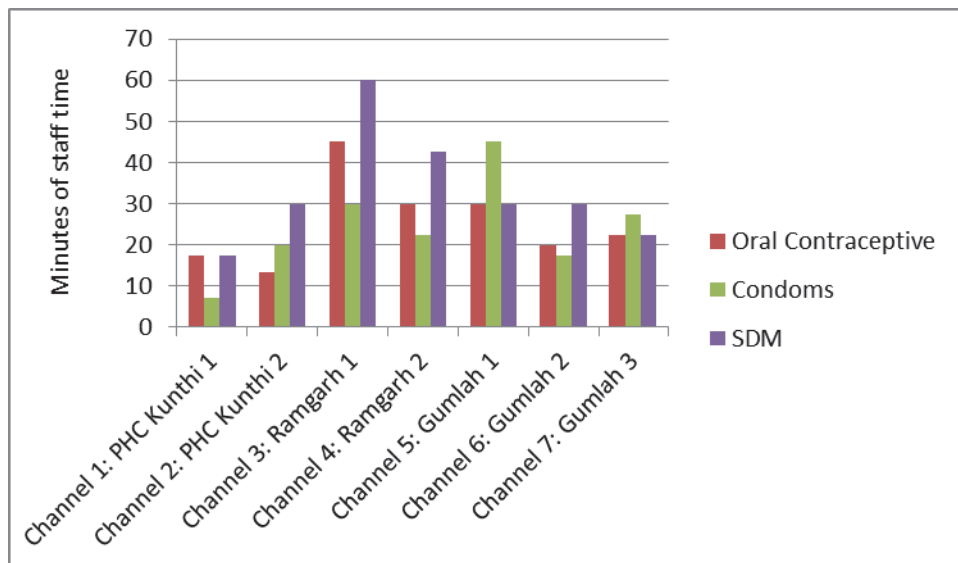
A closer look at labor costs in Guatemala shows relatively little difference between methods when measuring staff time required for a first visit (the most labor-intensive of all visits). In three of the delivery channels (NGO community, MOH, and IGSS), SDM requires a slightly higher staff time, whereas in the NGO clinic channel, SDM requires only about two-thirds the time required to serve an injectable or oral user (Figure 24). These times are within the approximate range found in previous more in-depth studies comparing counseling time for SDM and other methods (Leon et al. 2006, Leon et al. 2008, Lundgren et al. 2007).

Figure 24: Total minutes of staff time for an initial visit, by method and service delivery channel, Guatemala



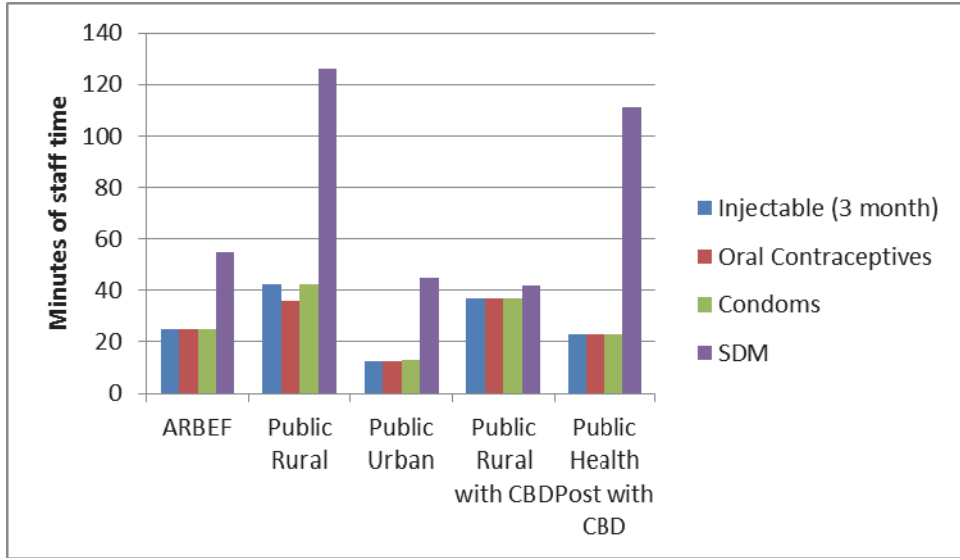
In India, the study found a wide variation in the time providers noted spending with clients for each method (Figure 25). On average, providers spent more time with SDM users (33 minutes) than condoms (24 minutes) and oral contraceptives (25 minutes).

Figure 25: Total minutes of staff time for an initial visit, by method and service delivery channel, India



Rwanda is the only one of the three countries in which the study found significantly higher staff time associated with SDM compared with the other methods (Figure 26). Except for the public rural clinic with CBD, staff time associated with SDM was two to three times higher than for the other methods.

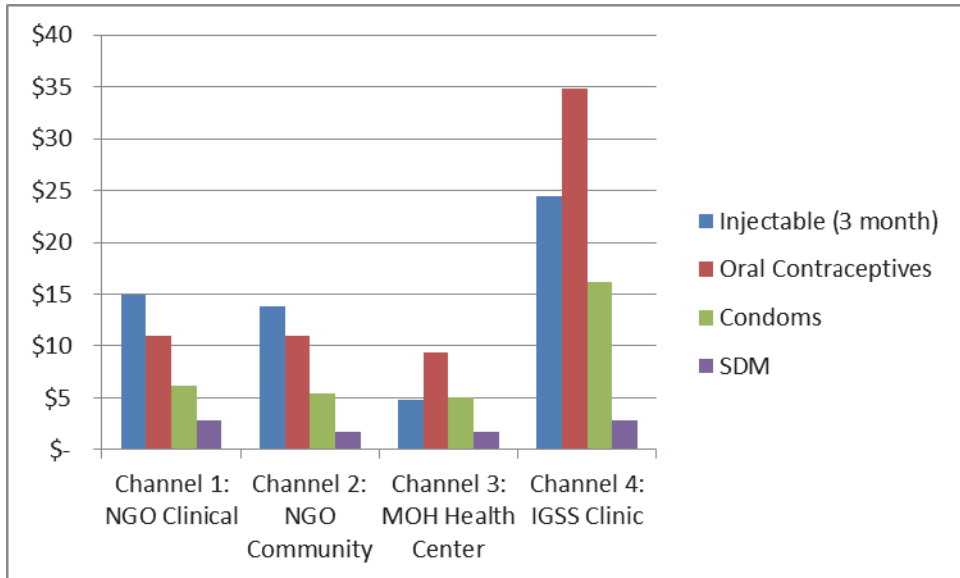
Figure 26: Total minutes of staff time for an initial visit, by method and service delivery channel, Rwanda



3.4.4 Cost per user per second and subsequent years of use

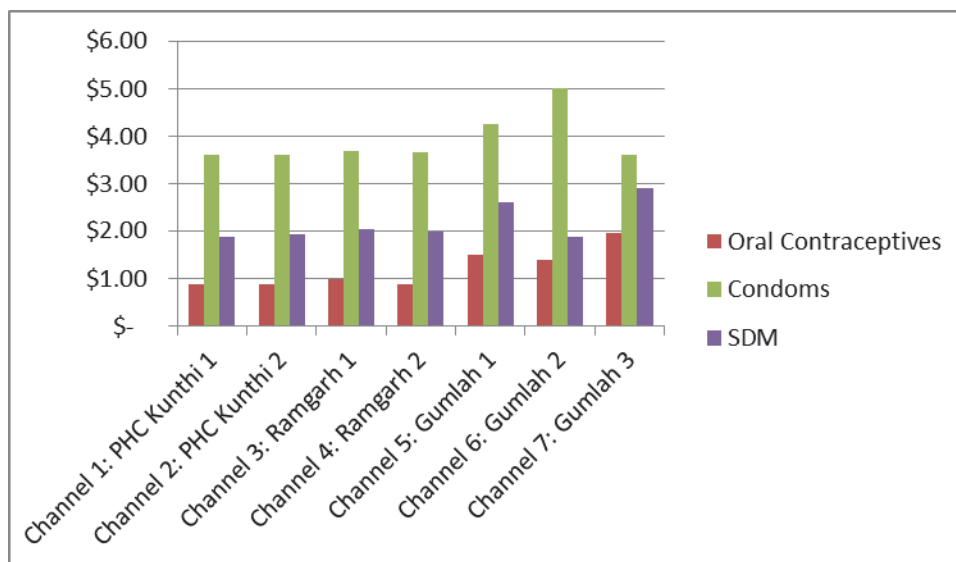
As Figure 27 shows, if we examine costs of service delivery in Guatemala for the second and subsequent years of use, SDM is even less expensive relative to the other three methods, a relationship that holds across all four service delivery channels.

Figure 27: Cost per user for second and subsequent years of use, by method and service delivery channel, Guatemala



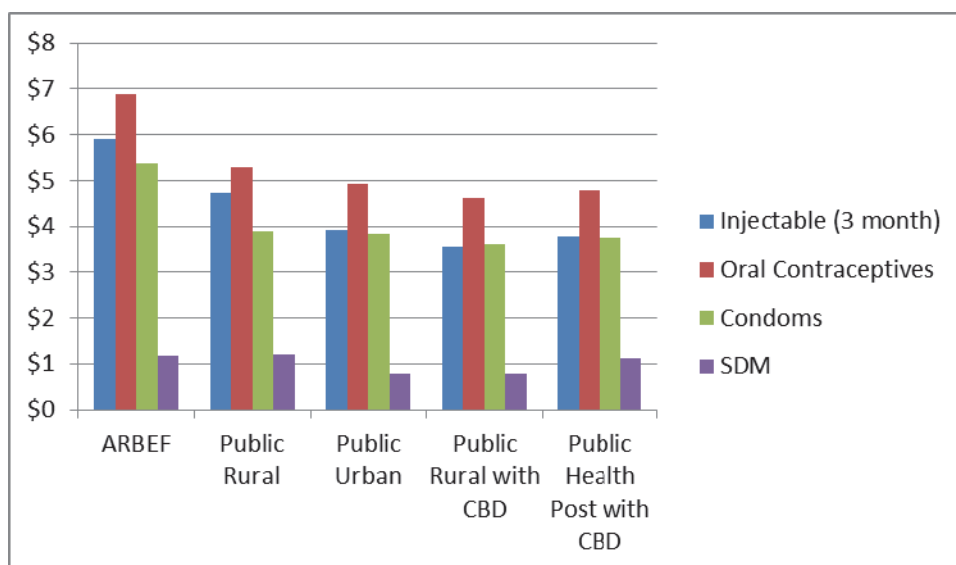
Similarly, in India, the cost of SDM in the second and subsequent year remains more expensive than the cost of oral contraceptives but less expensive than the cost of condoms (Figure 28).

Figure 28: Cost per user for second and subsequent years of use, by method and service delivery channel, India



As Figure 29 shows, in Rwanda as in Guatemala, for the second and subsequent years of use, SDM is even less expensive relative to the other three methods.

Figure 29: Cost per user for second and subsequent years of use, by method and service delivery channel, Rwanda



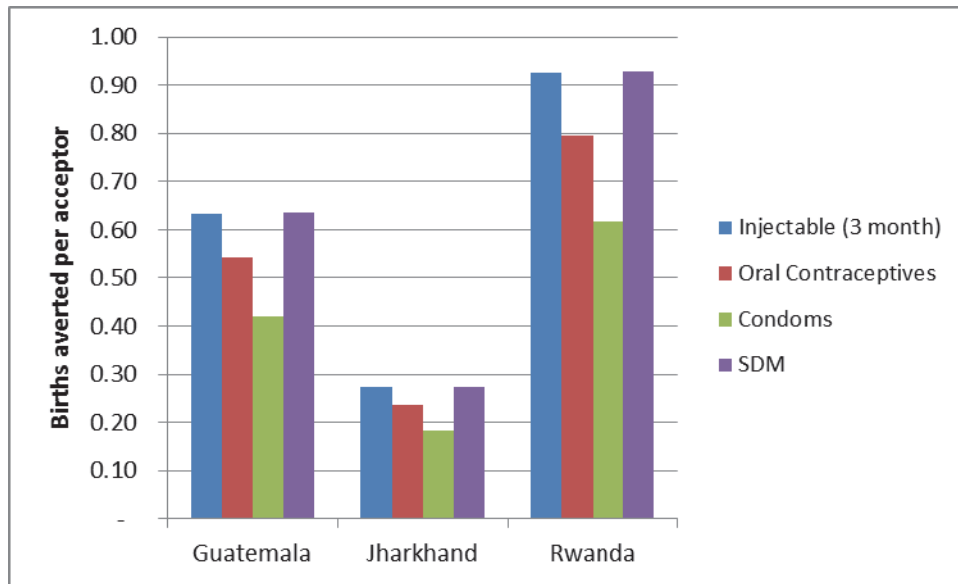
3.4.5 Cost per birth averted

For each method, we also calculated the number of births averted per acceptor and cost per birth averted over a two-year time horizon. In addition to the cost results presented above, the cost per birth averted

calculation takes into account continuation rates of method use along with method effectiveness in preventing pregnancy (see detailed description of methods in section 2.4.3).

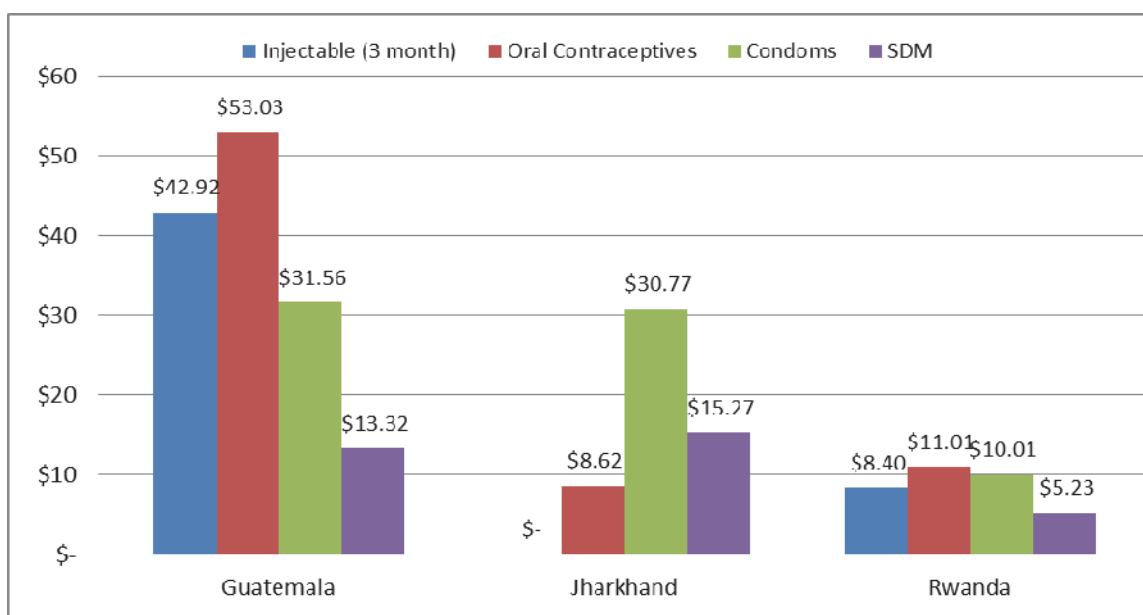
As Figure 30 shows, because SDM has a relatively high effectiveness and high continuation rates compared with the other methods, the number of births averted per acceptor over a two-year period is higher than the other methods in all three countries.

Figure 30: Births averted per acceptor over a two-year horizon, by method and study site



Additionally, because SDM generally has relatively low cost per new and continuing acceptor compared with other methods, the cost per birth averted over two years for SDM is much lower in Guatemala and Rwanda. In Jharkhand, SDM use is less costly per birth averted compared with condoms, but about twice as costly per birth averted compared with the pill (Figure 31).

Figure 31: Cost per birth averted over a two-year time horizon, by method and study site



3.5 Sensitivity Analyses

The results of any cost study may depend largely on the assumptions used to calculate costs and outputs. Therefore, we used sensitivity analyses to help determine whether changes in these assumptions might substantially alter the findings. Because the costing of the integration effort was relatively straightforward, with very few assumptions, we did not carry out any sensitivity analysis. The cost per user and cost per birth averted, however, did rely on some key assumptions that sensitivity analysis can test.

In our base case scenario, we assumed that 50% of SDM users also use condoms. We carried out a sensitivity analysis varying this percentage between 0% and 100%. As Table 5 shows, reducing the percentage to zero results in a considerable decrease in the five-year cost of the method. Increasing the percentage to 100% results in a corresponding increase in the five-year SDM cost. However, the ranking of SDM costs relative to the cost of the other methods remains unchanged.

Table 5: Sensitivity analysis showing how five-year cost of SDM varies with a change in the percentage of SDM users also using condoms

| Country | Percent of SDM users also using condoms | | | Impact on five-year method costs |
|-----------|---|----------|----------|---|
| | 0% | 50% | 100% | |
| Guatemala | \$ 9.34 | \$ 15.75 | \$ 22.17 | Still lower than the other methods at 100% |
| India | \$ 7.28 | \$ 11.13 | \$ 14.98 | Does not change the relative unit cost compared with orals and condoms (still higher than orals but lower than condoms) |
| Rwanda | \$ 3.11 | \$ 6.96 | \$ 10.81 | Still lower than the other methods at 100% |

We also examined how tripling the time health workers spend with SDM users in the initial visit might affect the first-year cost per user. As Table 6 shows, even a tripling of the time spent with SDM clients on their initial visit does not change the relative cost per user compared with the other methods.

Table 6: Sensitivity analysis showing how first-year cost of SDM varies with a tripling of the client contact time with SDM users

| Country | Time spent on health worker with SDM client, initial visit | | Impact on first-year method costs |
|-----------|--|-----------------|---|
| | Base case | Triple the time | |
| Guatemala | \$ 6.59 | \$ 9.54 | Still lower on average than other methods |
| India | \$ 2.43 | \$ 2.98 | Does not change relative unit cost |
| Rwanda | \$ 2.96 | \$ 4.03 | Does not change relative unit cost |

The results for cost per birth averted rest on assumptions on the effectiveness of SDM and on method continuation, both measures on which very few studies exist. Lowering the use effectiveness and continuation rate of SDM to levels associated with traditional natural family planning methods (.5 and .3) results in roughly a doubling of the cost per birth averted over a two-year time horizon (Table 7). Even with this increase in costs, however, SDM is still roughly equivalent in cost to the other methods studied (see Figure 31)

Table 7: Sensitivity analysis showing how cost per birth averted over a two-year time horizon varies when reducing the effectiveness and continuation rate of SDM

| Country | SDM use effectiveness and continuation | | Impact on cost per birth averted |
|-----------|---|--|---|
| | Base case (.93 effectiveness, .81 continuation) | Sensitivity analysis (.50 effectiveness, .30 continuation) | |
| Guatemala | \$ 13.32 | \$ 29.76 | SDM still less expensive than the other three methods |
| Jharkhand | \$ 15.27 | \$ 29.07 | No change in SDM cost ranking relative to the other methods |
| Rwanda | \$ 5.23 | \$ 12.16 | SDM now slightly more expensive than other methods |

4 Discussion and Conclusions

This study examined the cost of introducing and scaling up SDM as well as the service delivery costs of providing the method once it is a routine part of the family planning program. Although examining the results across the three study sites (Guatemala, Jharkhand State in India, and Rwanda) provides some interesting insights, a formal cross-country comparison is not particularly useful given the underlying differences in how each country undertook the integration process and other well-known limitations on cost comparison.

Based on the three country experiences, it is clear that integrating a new method into a family planning program at national or subnational scale requires a considerable amount of time. The national scale up in Rwanda took 11 years. The effort in Guatemala, which combined national-level policy work with a focus on service provision in three of Guatemala's 22 districts, spanned a similar period. The six-year scale-up effort in India focused on the state of Jharkhand, covering 11 of the state's 24 districts.

The integration effort also has substantial costs. When combining the costs incurred by IRH and its partners, the entire effort cost about \$1 million in Guatemala, \$0.7 million in Jharkhand, and \$2.7 million in Rwanda. These figures are likely a moderate underestimate of the true costs given that data on partner costs is incomplete. In the absence of information on the cost of integrating other contraceptive methods into national programs, it is difficult to judge whether these cost figures are "low" or "high." However, because it has taken many years to introduce and scale up other new family planning methods, and because such scale-up efforts have required similar levels of investment in training, policy change, monitoring and evaluation, and other aspects of integration, it is likely that such costs have been similarly high.

Several reasons might explain the differences in the total cost of the integration effort across the three countries. First, as noted, no two countries followed the same process for integration, investing differently given the varying country contexts. Notably, the two countries where integration had a more national character, Rwanda and Guatemala, had significantly higher total cost than in India, where the effort focused on a single—albeit populous—state. Varying levels of investment may be a function of the different degrees of difficulty in achieving integration goals and related intensity of the integration effort. For example, the integration process may have been "easier" in India, either because of the particular country context or because India came later to SDM integration than Guatemala and Rwanda and thus benefited from previous lessons learned that produced a more efficient use of resources. In this regard, India costs may be more representative of what it might currently cost a country to integrate.

Although the analysis did not explore in any depth differences in prices for key inputs such as labor and transport, such differences may also underlay some of the observed difference in total cost. Implementation costs for relatively expensive activities such as training may also vary widely across countries and thus hamper comparisons. Moreover, the definition of what constitutes "training" may vary across countries. Although we were careful to exclude from the cost calculation those costs not germane to the integration process, there is always the possibility that we have inadvertently left out some costs either because of under-reporting or misinterpretation of the costing data. For example, if some of the upfront research costs were left out of the India calculation, this might explain some of why Jharkhand's overall costs were relatively low, although it would not explain why the ratio of variable costs to population size and number of SDPs was so low compared with the other two country settings. The somewhat subjective estimates of partner costs leave open the possibility of misestimation and could further explain differences across countries.

Decision makers considering similar SDM integration efforts in other countries, and looking for guidance on what costs to expect, can draw on the results of this study, with a particular emphasis on the interplay between fixed and variable costs. Although no two settings are alike, the results should give these decision makers a good sense of the range of costs to expect. Roughly half of the spending in these three settings were fixed costs associated with policy and advocacy, adapting systems, research, and coordination. Thus, replicating the integration process elsewhere is likely to cost at least between \$0.5 and \$1.5 million for these fixed costs alone. The remainder of the costs in each of the three countries were variable costs associated with communication and training. Estimating what such costs might be in other settings is less straightforward, given that measures relating variable costs to population size and number of service delivery points differ substantially by setting.

Whether this cost is ultimately “worth it” in terms of expanded contraceptive choices and the other benefits associated with the introduction of the Standard Days Method is a question that goes beyond the scope of this study.

The results of the unit cost analysis of routine service delivery should help allay concerns that SDM is somehow a “more expensive” method of family planning. In two of the three countries studied, SDM has lower routine service delivery cost compared with injectables, orals, and condoms. In India, SDM is more costly than orals, but less costly than condoms. Generally, SDM becomes even less costly by comparison for those users that continue using beyond the first year. This relative cost pattern holds across a broad range of types of service delivery sites, including public and private, and with different types of providers.

The image of SDM as a more costly method may partly be due to the perception that it takes more time to counsel clients on the proper use of the method. Although the study did find that SDM clients had more contact time with providers than pill, injectable, or condom clients, these differences were relatively small. Moreover, the relatively low cost of commodities and supplies associated with SDM outweighs any extra staff time cost. In our sensitivity analysis, we found that even a tripling of the client contact time with SDM clients on their initial visit leaves unchanged the ranking of SDM relative to the cost of the other methods.

Finally, when factoring in the reportedly higher continuation rates of SDM and use-effectiveness on par with other methods, SDM compares quite favorably with similar methods in terms of cost per birth averted over a two-year time frame. As the sensitivity analysis showed, even when we set these measures at lower levels associated with other, less effective natural methods, SDM maintains a similar ranking compared with orals, condoms, and injectables in terms of cost per birth averted.

4.1 Study Limitations

The reader should interpret these results cautiously in the light of several important limitations in our study methodology.

4.1.1 Limitations of the integration cost study

There is limited comparability of these results across the three countries. As we noted, cross-country comparison was not a primary aim of the study. The integration process followed a unique course in each country, and comparisons are further complicated by the methodological constraints discussed in the previous section.

We have probably underestimated partner costs. For partner costs, we relied primarily on the cost-share reports, which provide an incomplete picture of all partner activities. In particular, the cost-share reports do not generally capture the costs associated with partner activities that occurred without any input or

participation of IRH staff. These would have been very difficult to estimate without a much deeper analysis and collection of data from partners that was beyond the scope of the study. By underestimating partner costs, we have likely underestimated the total cost of integration.

By relying mainly on budget information, estimates of cost by integration category could be off significantly. First, there were likely differences between budgeted and actual cost that could alter the distribution of costs among the six integration categories. Second, as noted, a large proportion of the budgeted costs was initially classified as “joint” costs and then redistributed among the six integration categories. Any error in the assumptions used to redistribute these joint costs could result in variation between the estimated and actual cost by category.

The study does not explicitly address the strength or quality of a country’s family planning program. The costs of introducing and scaling up SDM will depend partly on the strength and quality of the existing family planning program. Countries with a weak, poor-quality program likely require higher costs of introducing and scaling up a new method such as SDM. Countries with stronger, higher-quality programs may see lower introduction and scale-up costs. Addressing these program strength and quality issues in a standardized way is inherently difficult and was beyond the scope of this study.

4.1.2 Limitations on the unit cost study

Comparison across countries and between studies is difficult. Similar to the difficulties in cross-country comparison of integration costs, comparing unit cost across countries is problematic for a variety of reasons, and was not an explicit aim of the study. A much more valid and robust comparison is to compare costs at the same site, or across a range of sites within the same country, which was our focus. Similarly, we did not carry out the study with the intention of comparing to results from previous costing studies. To those wishing to make such comparisons, we have tried to make our assumptions and methods as transparent as possible.

We did not do representative sampling of sites. The relatively small convenience sample used to determine unit costs might not be representative of the universe of service delivery sites that offer SDM and the other methods. Nonetheless, because we found similar results across a wide range of sites, this is encouraging in that it bolsters the confidence we have that the results are representative of the broad range of service delivery points in the country.

We relied on reported client contact, not directly observed. Another weakness of our approach was estimating client contact time as reported by health workers, not on direct observation. To some extent, this concern is mitigated by the fact that other studies of client contact time that did rely on direct observation (for example, through mystery client techniques) found similar results for contact time for SDM relative to the other methods.

We relied on reported revisit and resupply norms. Similarly, we relied on revisit and method resupply norms as reported by health workers rather than on client records.

We relied on earlier studies of condom use by SDM clients. We had no way within the scope of the work of this study to examine the proportion of SDM clients also using condoms, relying instead on earlier studies. However, the results of sensitivity analyses that varied this proportion showed that such variation had no impact on our general conclusions about unit costs of SDM relative to the other methods.

The study does not explicitly assess quality of care for SDM and the other short-term methods with which it is compared. The costing will reflect the level of service delivery—and associated quality—that exists.

4.2 Conclusion

Despite these limitations, the results from these analyses should provide decision makers with reliable information on the costs of SDM integration. Moreover, as one of the only studies examining the costs of large-scale integration of a new family planning method, the results should have broader value for policymaking. Integrating a new method into a family planning program takes a substantial amount of time and resources, and, in deciding whether to undertake such introduction and scale-up activities, decision makers need to weigh those costs against the individual and societal benefits of expanding method choice. Once a country has established SDM within its family planning programs, the method appears to have a similar, or even lower routine service delivery cost compared with other short-term methods of contraception. Combined with reportedly robust rates of continuation and use-effectiveness, SDM is well positioned to take its place alongside other, more established methods of family planning.

References

- Bongaarts, J.. 1978. "A Framework for Analyzing the Proximate Determinants of Fertility." *Population and Development Review* 4(1).
- Bratt, J.. 2012. "Estimating Costs of Scale-up: Necessity or Nuisance?" Paper presentation at the meeting of the Implementing Best Practices Consortium, June 19, 2012.
- IRH. 2009. *Colaboración entre socios para la incorporación de MDF en Guatemala*. Washington D.C., USA: Institute for Reproductive Health.
- IRH. 2008. *Comparison of Standard Days Method[®] User Tools*. Washington D.C., USA: Institute for Reproductive Health.
- IRH. 2006. *Process for Integrating the Standard Days Method into Services: Essential Steps*. Washington D.C., USA: Institute for Reproductive Health.
- National Institute of Statistics of Rwanda (NISR) [Rwanda], Ministry of Health (MOH) [Rwanda], and ICF International. 2012. Rwanda Demographic and Health Survey 2010. Calverton, Maryland, USA: NISR, MOH, and ICF International.
- Sinai, I., R.I. Lundgren, and J.N. Gribble. 2011. "Continued Use of the Standard Days Method." *J Fam Plann Reprod Health Care* 38(3): 150-6.
- Stover, J., J. Ross, and L. Heaton. 2000. *FamPlan Version 4. A Computer Program for Projecting Family Planning Needs*. Washington D.C., USA: The Policy Project, USAID.
- Trussell, J. 2007. "Contraceptive Efficacy." In: *Contraceptive Technology*, edited by Hatcher R. et al., 19th revised edition. Valley Stream, New York, USA: Ardent Media, Inc.
- United Nations Population Division. 2011. *World Contraceptive Use 2011*. New York, New York, USA: United Nations Population Division.
- World Health Organization Department of Reproductive Health and Research (WHO/RHR), and Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs (CCP). 2011. *Knowledge for Health Project. Family Planning: A Global Handbook for Providers. 2011 Update*. Baltimore, Maryland, USA, and Geneva, Switzerland: CCP, and WHO.
- WHO, and ExpandNet. 2009. *Practical Guide for Scaling Up Health Service Interventions*. Online at http://expandnet.net/PDFs/WHO_ExpandNet_Practical_Guide_published.pdf

Appendix

Appendix Table A1: Percentage of SDM users who use condoms during their fertile days

| Country | Percentage of SDM users who use condoms |
|----------------|--|
| Guatemala | 51% |
| Ecuador | 43% |
| El Salvador | 34% |
| India (urban) | 87% |
| Philippines | 30% |
| Rwanda | 20% |

Source: IRH 2009, based on results from pilot studies.

Appendix Table A2: Total spending on SDM integration by category and by project year, Guatemala, US\$ constant 2012

| Category | Pre-FAM (2002- 2007) | December 2007- June 2008 | July 2008- June 2009 | July 2009- June 2010 | July 2010- June 2011 | July 2011- July 2012 | August 2012- May 2013 | Total |
|--------------------------------|-------------------------------------|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------------------------------|--------------|
| Total | \$86,815 | \$113,047 | \$114,180 | \$123,222 | \$170,660 | \$197,191 | \$111,385 | \$916,498 |
| Adapting systems | \$5,346 | \$8,290 | \$17,404 | \$9,167 | \$13,019 | \$15,587 | \$18,655 | \$87,468 |
| Communication | \$21,384 | \$38,217 | \$19,330 | \$34,170 | \$49,851 | \$64,231 | \$24,351 | \$251,534 |
| Coordination | \$0 | \$13,435 | \$14,066 | \$12,190 | \$15,766 | \$21,375 | \$14,279 | \$91,111 |
| Policy and advocacy | \$2,673 | \$13,877 | \$14,852 | \$13,937 | \$19,178 | \$24,969 | \$14,716 | \$104,202 |
| Research, M&E | \$36,027 | \$6,362 | \$27,313 | \$29,254 | \$37,629 | \$39,713 | \$28,186 | \$204,484 |
| Training | \$21,384 | \$32,866 | \$21,215 | \$24,505 | \$35,216 | \$31,316 | \$11,198 | \$177,700 |

Appendix Table A3: Total spending on SDM integration by category and by project year, India, US\$ constant 2012

| Category | December 2007- June 2008 | July 2008- June 2009 | July 2009- June 2010 | July 2010- June 2011 | July 2011- July 2012 | August 2012- May 2013 | Total |
|----------------------------|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|--------------|
| Total | \$31,203 | \$84,908 | \$60,809 | \$189,797 | \$180,712 | \$123,831 | \$671,260 |
| Adapting systems | \$3,428 | \$9,555 | \$17,761 | \$67,254 | \$56,269 | \$35,918 | \$190,186 |
| Communication | \$13,537 | \$14,268 | \$10,514 | \$22,013 | \$22,278 | \$14,827 | \$97,438 |
| Coordination | \$1,727 | \$6,581 | \$3,305 | \$23,707 | \$20,326 | \$16,501 | \$72,148 |
| Policy and advocacy | \$3,280 | \$12,214 | \$8,767 | \$15,633 | \$22,120 | \$15,172 | \$77,185 |
| Research, M&E | \$1,552 | \$4,760 | \$4,476 | \$18,532 | \$15,319 | \$11,025 | \$55,663 |
| Training | \$7,678 | \$37,530 | \$15,985 | \$42,657 | \$44,400 | \$30,388 | \$178,639 |

Appendix Table A4: Total spending on SDM integration by category and by project year, Rwanda, US\$ constant 2012

| Category | Jan 01 2003 - Sept 30 2003 (actuals) | Oct 01 2003 - Sept 30 2004 (actuals) | Oct 01 2004 - Sept 30 2005 (actuals) | Oct 01 2005 - Sept 30 2006 (actuals) | Oct 01 2006 - Nov 30 2007 (actuals) | Oct 01 2008 plus July 01 2008 - Sept 30 2008 (actuals) | Oct 01 2008 - Sept 30 2009 | July 01 2009 - June 30 2010 | July 01 2010 - June 30 2011 | July 01 2011 - July 31 2012 | Aug 01 2012 - Sept 30 2013 | Total |
|----------------------------|--|--|--|--|---|--|-------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------------|-------------|
| | | | | | | | | | | | | |
| Total | \$89,332 | \$203,363 | \$308,101 | \$160,916 | \$239,711 | \$306,963 | \$266,471 | \$215,434 | \$400,675 | \$337,871 | \$188,954 | \$2,717,791 |
| Adapting systems | \$12,430 | \$30,298 | \$28,781 | \$21,590 | \$25,198 | \$19,911 | \$40,975 | \$37,782 | \$26,700 | \$40,569 | \$15,227 | \$299,462 |
| Communication | \$32,347 | \$45,756 | \$43,116 | \$36,555 | \$61,931 | \$65,872 | \$47,303 | \$35,326 | \$185,555 | \$145,375 | \$48,130 | \$747,266 |
| Coordination | \$8,546 | \$19,393 | \$20,558 | \$21,590 | \$45,452 | \$12,460 | \$27,427 | \$38,961 | \$33,795 | \$39,478 | \$19,935 | \$287,594 |
| Policy and advocacy | \$5,304 | \$10,905 | \$9,692 | \$17,627 | \$17,264 | \$13,947 | \$10,842 | \$8,818 | \$10,332 | \$23,147 | \$38,059 | \$165,937 |
| Research, M&E | \$13,207 | \$61,485 | \$175,199 | \$18,948 | \$22,859 | \$92,080 | \$32,370 | \$18,325 | \$26,180 | \$21,826 | \$33,567 | \$516,046 |
| Training | \$17,498 | \$35,526 | \$30,755 | \$44,606 | \$67,007 | \$102,693 | \$107,554 | \$76,221 | \$118,113 | \$67,476 | \$34,037 | \$701,486 |