GHANA AIDS COMMISSION

Evaluation Plan for the Ghana National Strategy for Key Populations

This research has been supported by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through the U.S. Agency for International Development (USAID) under the terms of MEASURE Evaluation cooperative agreement GHA-A-00-08-00003-00, which is implemented by the Carolina Population Center at the University of North Carolina at Chapel Hill, with Futures Group, ICF International, John Snow, Inc., Management Sciences for Health, and Tulane University. The views expressed in this publication do not necessarily reflect the views of PEPFAR, USAID, or the United States government.

August 2013 SR-13-75

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I. Executive Summary

The Ghana AIDS Commission (GAC), as part of its strategic information and monitoring and evaluation efforts, is planning for an evaluation of its national HIV prevention programme for key populations, also known as most-at-risk populations (MARP), as outlined in the *National MARP Strategic Plan 2011-2015* and *MARP Operational Plan Framework 2011-2013*.[1,2] This document is the national evaluation plan developed by the GAC and the members of the national MARP Technical Working Group (TWG). MEASURE Evaluation collaborated by facilitating the process to develop the evaluation plan with funds from the U.S. Agency for International Development (USAID). The process was informed by guidance provided in a 2010 United Nations Joint Programme on HIV/AIDS (UNAIDS) document titled *Strategic Guidance for the Evaluation of HIV Prevention Programmes*[3] and input from the U.S. Centers for Disease Control and Prevention.

The MARP TWG (called by the GAC) identified three priority evaluation questions regarding HIV prevention programmes targeting female sex workers (FSW) and men who have sex with men (MSM). The primary question is:

- Are changes in outcomes (or changes in HIV prevalence or incidence or STI prevalence) over time due to the implementation of services and programme components?

And two secondary questions are:

- To what extent are planned MSM and FSW programme activities realized/implemented and with improved quality?
- Are there changes in outcomes (or changes in HIV prevalence or incidence or STI prevalence) over time?

The purpose of this document (the evaluation plan) is to provide GAC and the MARP TWG with the information necessary to inform activities to answer the evaluation questions. The evaluation plan describes the process, data collection, analytic approach, and process to determine needed resources necessary to carry out an evaluation to answer those questions. This evaluation plan complements and expands on the M&E strategy and operational plan already developed for the national MARP strategy.

In order to answer these questions in a feasible and an efficient manner, this plan relies on a plausibility analysis research design. This approach synthesizes data from multiple sources including from population-based surveys, HIV and STI surveillance, programme data, special studies, and other relevant data collection and analysis efforts.

The main analysis relies on data from a proposed 2014 integrated biological and behavioral surveillance survey (IBBSS), one with FSW and one with MSM. A post-test only, non-equivalence control group design will be used to determine whether there is a statistical association between programme reach and HIV related outcomes, after controlling for a host of potentially confounding factors. To implement the plausibility design, additional data from the following activities: analysis of programme monitoring data, quality and costs assessments, and

contextual events assessment will be used to a) answer the secondary research questions and b) determine whether there are potential factors *other than programme exposure* that might explain any observed changes in outcomes from the analysis of IBBSS data. These data can help establish whether programs have been implemented with adequate quality, intensity, and coverage and that there has been a change observed in HIV related outcomes and impacts in the target populations (FSW and MSM); it builds the plausible case that the programme has resulted in the observed changes in outcomes.

The plausibility evaluation design can be considered feasible and efficient because it makes use of planned and existing data collection. Plausibility designs are appropriate when random assignment into intervention and control group is not feasible and when the programme being evaluated includes interventions of known effectiveness. In Ghana, programs have been targeted to areas with greatest need, and answers are needed more for learning and to inform future strategic plans. The disadvantage of this approach is that the evaluation could be endangered if sufficient high quality data are not collected and analyzed as planned.

This evaluation plan document describes the study design, data collection activities, analysis plan, responsible parties, and timeline. These are summarized in Table 1. These are the data collection or data management activities:

1. Aggregation of routinely collected programme data for output monitoring to assess MSM and FSW programme coverage;
2. IBBSS 2011 and 2014 to assess trends in HIV-related outcomes and HIV prevalence among MSM and FSW over time and to conduct multivariate analyses linking programme reach with changes in outcomes;
3. Service Quality and Cost Assessments to document FSW and MSM programme quality and client satisfaction and to calculate the unit costs associated with programme implementation and observed changes in outcomes; and
4. Context Events Assessments to document external factors that may influence programme implementation and/or outcomes.

The evaluation plan provides a road map for how to conduct an evaluation of the national HIV prevention programme for MSM and FSW. The plan will become part of the MARP Operational Plan Framework 2011-2013 that guides and harmonizes partner programme activities. By integrating the plan in this way, it will also inform partner priorities.

The results from the evaluation will help GAC and the other members of the MARP TWG to understand the effectiveness of the MARP strategy and operational plan. This information is necessary to inform programme implementation and guidance to partners and to inform the next strategic planning cycle in 2016. At the same time, evaluation results will provide generalizable information about how to plan and execute and country-driven evaluation of an HIV prevention programme, providing generalizable information about effective HIV prevention programs.

Table 1. Summary Data Sources, Responsible Parties, Timing, Research Questions, and Analysis Methods Proposed for the Evaluation of the National MSM and FSW Program

Data sources	Responsible parties	Timing	Data will help answer research question	Analysis methods
IBBSS 2014, one for MSM and one for FSW	GAC to lead and create platform for funds Implementation by GAC and partner organization(s) following procurement process	• Start planning *now* • Identify funds by December 2012 • Implement in April 2014	*Primary*: Are changes in outcomes due to the implementation of services and programme components?	Multivariate analysis to test association between programme reach and outcomes taking into account confounding factors. Combine with descriptive analysis of contextual events and other data
IBBSS 2011 and 2014, for MSM and FSW	(*see above*)	IBBSS 2011 completed	*Secondary:* Are there changes in behavioural outcomes and HIV prevalence and incidence over time?	Descriptive graphs and trend analysis of knowledge, behavior, service use, and HIV prevalence
Context events assessment	GAC in collaboration with MARP implementing organization(s), possibly as part of existing work plans	• Start planning *now* • Collect data semi-annually starting in April-June 2013	*Primary:* Results will help interpretation of results by documenting factors that may influence implementation and/or outcomes.	Descriptive analyses, qualitative and quantitative
Aggregation of routine output monitoring data	Partners implementing MSM and FSW programs (monitoring and reporting) GAC for guidance on indicator standards, data aggregation and storage	On-going, continue monthly reporting to GAC.	*Secondary*: To what extent are planned MSM and FSW programme activities realized/implemented and with improved quality? (Includes costs.)	Descriptive graphs and trend analysis of programme reach, coverage and intensity
Service quality assessment	GAC lead Implementation as part of partner work plan(s) and/or independent procurement	Process evaluation in 2012 Performance evaluation in 2013 Start planning for 3rd assessment (including costs) in October 2013, implement in April 2014.	*Secondary*: To what extent are planned MSM and FSW programme activities realized/implemented and with improved quality? (Includes costs.)	Descriptive graphs and trend analysis of programme quality.
Cost assessment	GAC lead Implementation as part of partner work plan(s) and/or independent procurement	Include as part of 3rd quality assessment (above)	*Secondary*: To what extent are planned MSM and FSW programme activities realized/implemented and with improved quality? (Includes costs.)	Cost per person reached and by service.

II. Background and Rationale

The HIV epidemic in Ghana is heavily concentrated among key populations with high risk sexual behaviours such as FSW and MSM. In response, the Ghana *National Strategic Plan for HIV 2011-2015*(NSP) highlights key activities and objectives to prevent infections among key populations.[4] To achieve the goals and objectives outlined in the NSP, the GAC, with assistance from the MARP TWG has developed a *National Strategic Plan for MARP 2011-2015* and an *MARP Operational Plan Framework 2011-2013*.[1,2] These documents provide definitions of four separate key population groups,[*] specify goals, indicators, and targets; define strategic objectives and a comprehensive framework of HIV prevention services and activities; outline a monitoring and evaluation plan; and define roles and responsibilities.

The GAC and MARP TWG want to understand the effectiveness of the MARP strategy and operational plan in order to:

- inform goals, objectives, and activities for the next national strategic planning cycle starting in 2016;
- inform programme implementation guidance to partners and standardized service delivery across partners; and
- provide generalizable information about effective HIV prevention programmes to other countries.

To this end, GAC and the TWG members have engaged in a participatory evaluation planning process, facilitated by the MEASURE Evaluation project, and prioritized **three research questions** for investigation to inform their information needs. The **primary research question** is:

- Are changes in outcomes (or changes in HIV prevalence, incidence or STI prevalence over time) due to the implementation of services and programme components?

The secondary research questions will also provide important information for decision making:

- To what extent are planned MSM and FSW programme activities realized/implemented and with improved quality?
- Are there changes in behavioural outcomes and HIV prevalence and incidence over time?

The purpose of this document (the evaluation plan) is to provide GAC and the MARP TWG with the information necessary to inform activities to answer the evaluation questions. The evaluation plan describes the process, data collection, analytic approach, and process to determine needed resources to carry out an evaluation to answer those questions. This evaluation plan complements and expands on the M&E strategy and operational plan already developed for the national MARP strategy.

[*] The key population groups include FSW, MSM, people who use injecting drugs, and the prisoner population. This evaluation plan focuses on the FSW and MSM programs since they are more widespread.

III. Evaluation Planning Process

The international evidence base to inform HIV prevention programmes is unclear and inconsistent.[5-7] This is due in large part to difficulties associated with evaluating such complex interventions as HIV prevention programmes. Moreover, the way programmes are implemented—with urgency of response and targeting the most vulnerable and affected—makes it difficult to implement probabilistic study designs that require random assignment to intervention and control groups.

In response, in 2008, the UNAIDS Monitoring and Evaluation Reference Group (MERG) called for practical evaluation guidelines on the use of appropriate evaluation methods, unified with national M&E systems, and grounded in the realities of the field.[8] In 2010, following expert consultations, UNAIDS produced *Strategic Guidance for Evaluating of HIV Prevention Programmes*.[3]In 2011, more detailed guidance was produced specific to evaluating MARP programs.[9]The UNAIDS guidance, specifically the Public Health Questions Approach to HIV M&E (Figure 1), is the framework underpinning the developing of the evaluation plan.

The process to develop the evaluation plan launched in September 2011(Table 2) when GAC called a two-day workshop to introduce the Public Health Questions Approach Framework and UNAIDS guidelines; gain an understanding of the ongoing monitoring, evaluation, and research activities in Ghana; and outline a plan for continuous and coordinated evaluation of the national MARP programme. The outputs of the meeting were:(a) the Evaluation Plan Road Map; (b) On-going M&E Activities Mapped to the Public Health Questions Approach Framework; and (c) Programme Logic Model **(These three documents appear in this document as Appendices A, B, and C, respectively)**.

GAC called a second two-day meeting in March 2012 with the objectives of obtaining details necessary to draft the evaluation plan, including identifying research questions, and defining programme “reach”.

A third meeting was held in June 2012 to validate this evaluation plan and to develop a concrete strategy to ensure the plan becomes an integral part of the overall MARP strategy and is successfully implemented by stakeholders under GAC’s coordination.

Table 2. Summary of Evaluation Planning Process Timeline

September 2011	March 2012	June 2012	September 2012
Two-day workshop • Introduce Public Health Questions Approach • Document ongoing M&E and research activities • Outline Evaluation Plan Road Map	*Two-day workshop* • Details for evaluation plan including research question and programme reach definition	*Two-day workshop* • Validate evaluation plan	*TWG meeting* • Approve evaluation plan

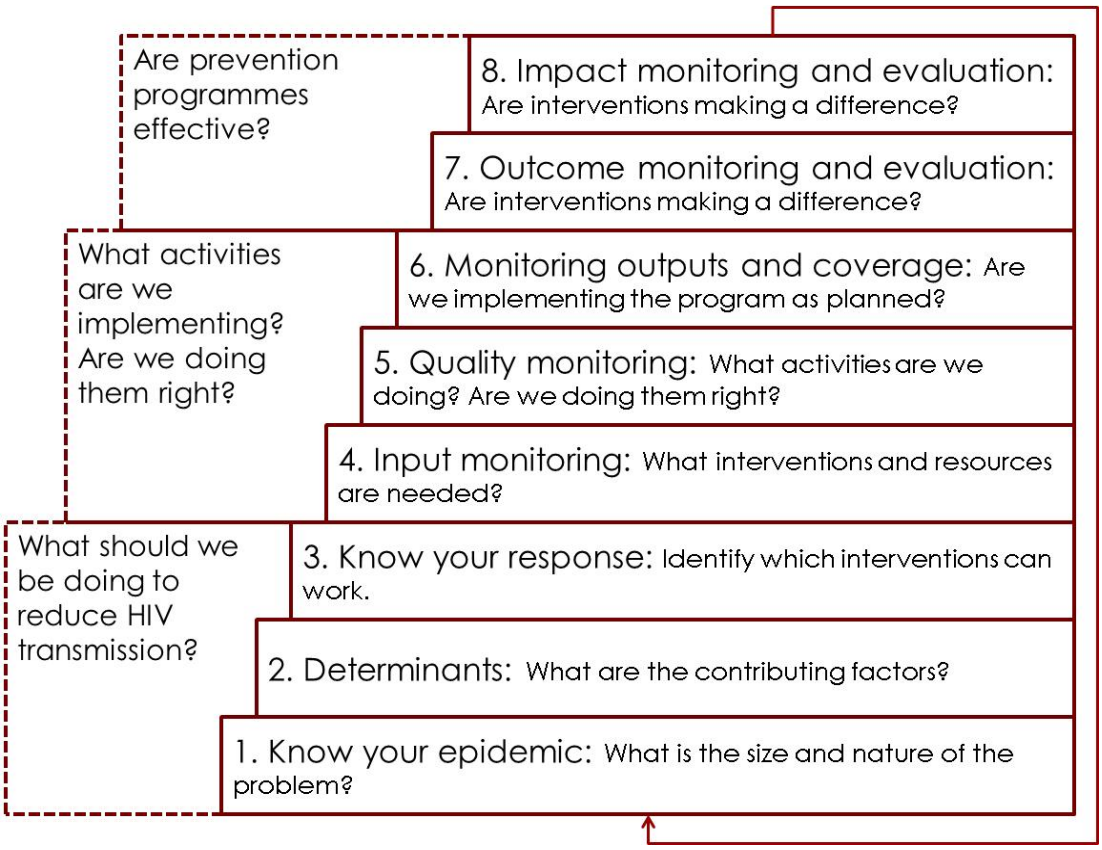

Figure 1. Public health questions approach to HIV M&E

IV. Evaluation Design

In order to answer the primary research question (Are changes in outcomes [or changes in HIV prevalence, incidence or STI prevalence over time] due to the implementation of services and programme components?) a number of study designs were considered. We recommended a study design based on a plausibility evaluation design. In this section, we briefly describe some of the study design options and present the rationale for a plausibility evaluation.

1. **Experimental or quasi-experimental intervention and control group design**: Randomized control designs, where participants or intervention areas are randomly assigned to intervention or control group, or quasi-experimental designs with an adequate comparison group are considered strong probability designs that can help establish whether an intervention had an effect on the outcomes of interest. The National Strategic Plan for MARP signals the intent of the government of Ghana to target MSM and FSW with a package of interventions as a key strategy to stem the HIV epidemic in the general population. In response and with their partners, GAC is rolling out interventions and scaling them up in geographic areas known to be most affected. While this approach is imperative due to the urgency of the public health threat and the nature of the epidemic, it

limits the feasibility of experimental and quasi-experimental designs that hinge on the identification of control groups to allow the comparison of health outcomes in exposed and unexposed groups from the target population. In general, finding adequate control groups faces many difficulties due to ethical concerns about withholding intervention and the complex development environment where there are many actors and interventions working to influence health and HIV outcomes.[7]

2. **Cohort study design**: Another possible design is a prospective cohort design where the cohort is a group of FSW and/or MSM. The cohort design does allow for the collection of prospective, high quality data in order to study the factors associate with changes over time. The cohort could either be a single cohort of FSW or MSM unexposed to the HIV prevention programmes or a two-group cohort, where one group has been exposed to the intervention and the other has not. Then the groups are followed over time to see what services they access, how their behaviour changes, and possibly depending on sample sizes and funding, HIV incidence. However, a prospective cohort design would have some feasibility concerns as well, as these studies can be very expensive and require long term follow up and study participation by the target group, in this case, FSW and MSM. By definition these are hard to reach populations, often with a lot of mobility, and highly stigmatized. Moreover, FSW and MSM may move in and out of sex work over the course of the study. These factors can make that can make recruitment for even a single interview difficult, much less allow for high levels of study retention over time. Further, cohort designs can suffer from problems with representativeness, with even the most carefully chosen cohort becoming less representative of the larger population over time. This is especially a concern among key population such as MSM and FSW where it may be difficult to recruit a truly representative cohort, even at the start of the study. So while a cohort study design may yield some very interesting information, it is not a practical method in this scenario for understanding the effect of programmes on behaviour and disease.
3. **Post-test only, non-equivalent design**: In this design, changes in outcomes could be assessed by whether or not survey participants were reached by the HIV prevention programme. Data could come from a survey, such as an IBBSS in 2014 with each MSM and FSW, and the data used to test the association between programme reached and the outcome and impact variables (e.g., HIV status, STIs, condom use, multiple partnerships, and health service use). Multivariate analysis can help to control for variation in characteristics that might also affect outcomes. The major limitation of this design is that it is not possible to determine whether any observed difference in outcomes are actually due to exposure to the HIV prevention programs or simply difference between the two groups.
4. **Plausibility evaluation design (recommended)**: This evaluation plan recommends a plausibility study design because random assignment into intervention and control groups and the identification of traditional control groups is not feasible, as the programme has been implemented in areas with greatest need. Specifically, we recommend post-test only, non-equivalent design (see item 3 above) and work to add other data in order to rule out alternative explanations. The advantage to this approach is that we can answer the two other research questions (To what extent are planned MSM and FSW programme activities realized/implemented and with improved quality? Are there changes in behavioural outcomes and HIV prevalence and incidence over time?) while also using

this information to make a plausible argument for the effect of the HIV prevention programme on outcomes. A plausibility design is appropriate because the programme includes interventions of known effectiveness; the NSP for MARP takes into account the need to address both the proximate (e.g., condom use) and distal (e.g., stigma) determinants of HIV infection;[10] and it is in the intent of GAC to learn from this effort to inform future strategic plans and to produce guidelines to standardize programme implementation. Finally, a plausibility design is appropriate in this context because it systematically addresses alternative explanations for observed trends in behaviour and is feasible to implement, even among hard-to-reach populations.

An important element underpinning a plausibility design is the causal pathway (demonstrated in a programme impact path way or logic model) that helps to tell the story of how programme inputs are expected to affect outcomes. The programme logic model in Appendix A organizes the expected inputs, outputs, outcomes, and impacts that are defined in strategic documents and identifies the main measures.

Evaluation plan conceptual model

This evaluation plan is a conceptual model based on the programme logic model, in order to help to increase confidence in the plausibly of the study results (see Figure 2). Figure 2 outlines the analytic steps that will be taken in order to answer the three evaluation research questions previous listed. The boxes numbered 1-6 in figure 2 correspond to the following steps:

1. This analysis will assess the adequacy of programme implementation, coverage, intensity, and quality (secondary research question).
2. The study will examine whether there are changes in key outcomes such as the increase in condom use and whether there is a decrease in HIV or other STIs (secondary research question).
3. The study will examine whether these declines are associated with programme reach and whether declines are associated with increasing exposure to the programme (primary research question).
4. To increase the confidence in these results, we will use multivariate analyses to control for factors that may confound this relationship between programme exposure and outcomes, such as education levels.
5. We will also take into account the other contextual factors (e.g., other interventions, information campaigns, stigma events) that may help interpret the observed results.
6. Finally, cost information of programme inputs will be documented to inform what was the cost per population reached with different services at various (geographic) levels and what were the costs of the major components of the implementation (outreach, condom distribution, services etc.).

The conceptual model also includes a feedback arrow linking the changes in outcomes back to programmes, as programmes should adapt to the ever changing landscape of the epidemic and progress in reaching target groups.

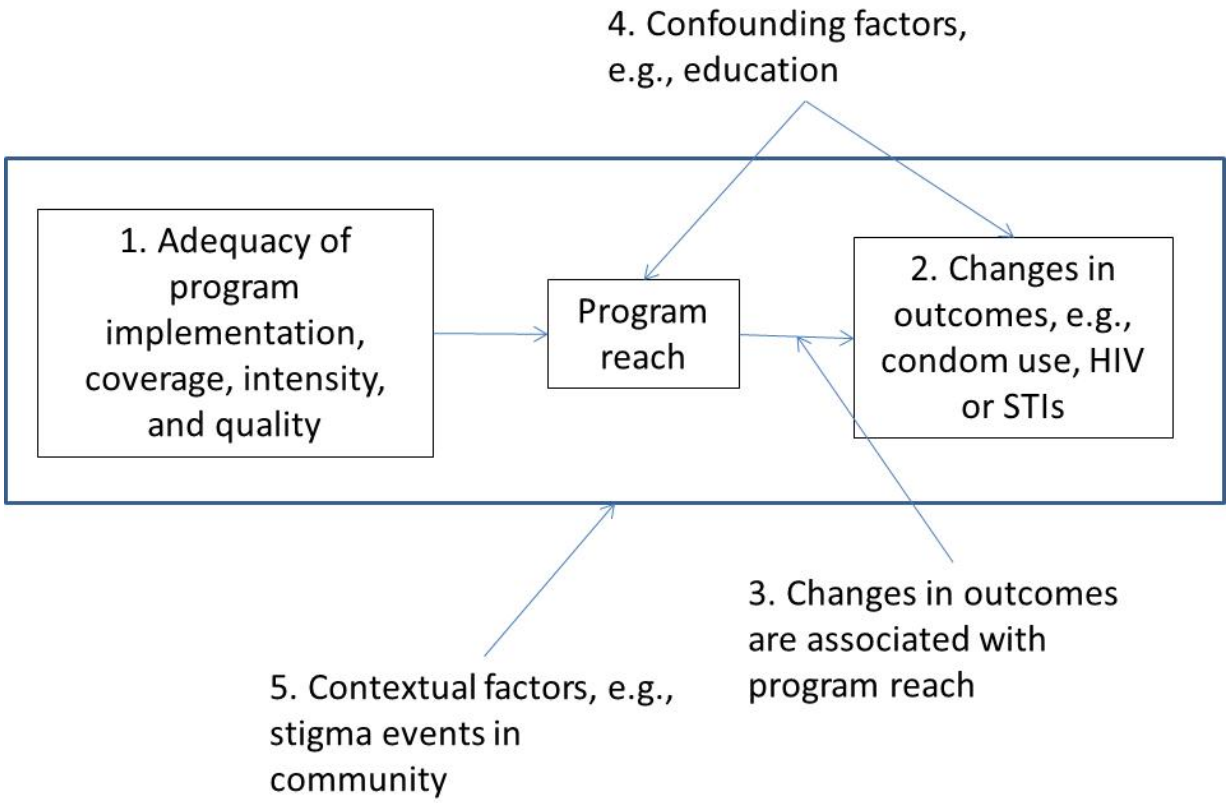

Figure 2. Evaluation Plan Conceptual Model.

V. Methods

In order to ensure that the data are available to execute the plausibility evaluation design as described in the evaluation plan conceptual model, the following section describes the research methods and data sources:

1. **Aggregation of routine data for output monitoring**: Implementing partner routine data from monitoring systems will yield information about the number of people who have used services. Combined with target population denominators from IBBSS results, this will yield proportions, reflecting service coverage and intensity. There is a need to come to consensus on key core indicators and to ensure the mechanisms are in place at the partner level and throughout the reporting system to standardize measures. An assessment of reporting mechanisms can be incorporated into the performance evaluation planning for early 2013 to yield recommendations. Key core indicators can be drawn from existing activities, deliverables, and indicators (i.e., outputs) that are clearly stated in the MARP Operational Plan Framework 2011-2013.[2] The framework includes these three indicators from the national HIV plan for 2011-2015[4]:
    a. number of male and female condoms distributed to key population groups, MSM and FSW

b. number of MSM or FSW individuals who received an HIV test in the last 12 months and who know their results
c. number of FSW or MSM individuals who are reached by HIV prevention programmes (excluding HTC)

(NOTE: for the purposes of the evaluation, the focus is on MSM and FSW, not all key populations). In addition to getting consensus on the key core indicators, a process which is underway with the development of operational plan standard operating procedures (SOPs) and indicator reference sheets, there is a need to specify the time frame of data collection; identify how to merge the partner data, where to store the data, and who will analyse the data; and to determine whether a data quality assessment is needed. Stakeholder recommendations include monthly reporting of data by partners to GAC which will store and handle the aggregated data and coordinate the analysis of data and assessment of data quality.

2. **IBBSS 2011 and 2014 with both MSM and FSW**: Two IBBSS, one for MSM and one for FSW, were implemented in 2011 prior to intensification of programme activities and thus will serve as a baseline. A second round of surveys is planned for approximately 2014 and results will inform follow-up assessments and strategic planning. Funding to execute the surveys is needed and stakeholders recommend that GAC take the lead in advocating for funding for this effort. Given planning and funding cycles for the government of Ghana and likely donors for an IBBSS, it is recommended that planning and advocacy for this second round of IBBSS begin in 2012. The surveys will yield important measures of exposure to programme and outcomes, however it is important to keep in mind the long planning to implementation to data availability timeline of an IBBSS survey, and actively plan ahead to insure that data are available by 2015. Suggested indicators and other measures for the IBBSS are drawn from existing sources such as the National MARP Strategy and Operation Plan and they are listed in tables 3 and 4. Sample size calculations will need to be conducted prior to the 2014 surveys and take into account the power needed to conduct the analyses in tables 3 and 4. It will be necessary to ensure that data from the 2011 IBBSS can be shared and merged with data from the 2014 IBBSS.
3. **Service quality assessment**: Quality of services is being assessed by a largely qualitative study in 2012; a quantitative performance evaluation in 2013 will also assess quality. A third quality assessment is recommended in 2014 to be able to track improvements in quality over time. To collect service quality information, methods from the 2012 and 2013 assessments should be taken into account. Those methods generally include a sample of implementing partners and assessments at their service delivery points, i.e., peer education, drop in centres, and referral points. It will be necessary to come to a consensus on a core set of service quality indicators that will adequately reflect trends in particular components of service quality such as:
    a. client satisfaction
    b. awareness and implementation of service standards and protocols for MSM or FSW-specific services
    c. intensity and quality of supervision
    d. provider skills and confidence
    e. commodity and equipment security

In the June 2012 meeting, the TWG discussed various components of service quality as they pertain to service provision for FSW and MSM. It was generally agreed in that discussion that quality MSM and FSW services must emphasize confidentiality of services, MSM or FSW friendly attitudes by service providers, and levels of client satisfaction. It was agreed that given stigma and discrimination against these groups, that building trust in the client community is the necessary foundation of quality services for key populations.

4. **Context events assessment**: A key source of information for plausibility evaluations is contextual information to help interpretation of study results. We recommend regular and systematic documentation of contextual events from now through 2014. Contextual events are those unanticipated or uncontrollable events outside the sphere programme implementation that may, nonetheless, influence service delivery provision or demand for or access to services. Common events are such things as political disruptions such as demonstrations or elections, severe weather or seasonal variations, or lack of commodities. In the context of MSM and FSW, stigma events such as attacks against gays and lesbians in the community or reports of negative sentiments in the media may result in major disruptions if clients fear going to services or if services have to be moved out of fear of violence against clients. Other contextual events may include mass communication or health interventions also going on in the programme area. Contextual event data should be proactively collected quarterly or semi-annually using a structured questionnaire. Interviewees would be a purposive sample of community leaders, health professionals, district officers and others who know about the events in their community. Suggested contextual event information to document include:
    a. mass communication/behaviour change communication (BCC) interventions on-going in project area during project period
    b. major testing and counselling drives in district in project area during project period
    c. supply/commodity issues affecting availability of testing, treatment, or condoms (making these more or less available) in project area during project period
    d. stigma related incidents taking place during project area in project period that could affect reach
    e. any other barriers to implementing the programme as planned during the project period in the project area
    f. factors influencing whether reach targets were met/the intervention was implemented as planned and with the quality intended

    Stakeholders recommend that GAC coordinate the collection of contextual events information with implementation assistance from key implementing organizations such as FHI 360 and West Africa Project to Combat AIDS and STI Ghana (WAPCAS). It is recommended that data be collected from knowledgeable respondents in pre-identified "activity zones". Potential respondents include MSM or FSW friends, nongovernmental organizations (NGOs) and community service organizations (CSOs) working with MARP, opinion and community leaders, human rights groups and advocates, uniformed personnel, and the media.
5. **Cost assessment**: From August 2011 through January 2012, the GAC with support from the Health Policy Project and USAID conducted a study to estimate the unit costs (direct and indirect) of providing comprehensive HIV services to FSW and MSM in Ghana. This

information can be used, in combination with new data, to estimate the cost of services for MSM and FSW. Collection of costing data can be combined with data collection for the third service quality assessment recommended for 2014. Types of costing data to be collected include:

a. service delivery staff time
b. supplies
c. capital costs

These costs can be collected for a variety of service types allowing for an analysis of unit costs by service contact or programme reach, as well as a sensitivity analysis of unit costs.

VI. Data Analysis

The purpose of the evaluation plan is to be able to answer the **main research question**: Are changes in outcomes (or changes in HIV prevalence, incidence or STI prevalence over time)among FSW and MSM due to the real-world implementation of services and programme components? This question, along with the two secondary evaluation questions posed by stakeholders (previously listed), will be answered using **plausibility evaluation methods**. This methodology will make use of data from multiple sources, will be guided by the analytic steps outlined in the evaluation plan conceptual model presented in Figure 2, and will establish whether a plausible link exists between exposure to the programme and changes in outcomes among FSW and MSM.

Multivariate analysis for main research question

A major component of this plausibility analysis will be a multivariate analysis that will approach the main research question using a post-test only design including an internal control group based on whether subjects were "reached" by the programme vs. "not reached". Discussion of the measure of "reach" as well as "exposed" is in the next paragraph. This analysis will utilize data from the IBBSS 2014 with MSM and FSW. Bivariate, or descriptive, analysis will first be used to assess the association between programme "reach" and several outcome and impact variables (e.g., HIV status, STIs, condom use, multiple partnerships, and health service use) among populations of interest (e.g., roamer and seater FSW and among MSM). Multivariate analysis will then be used to test the association between programme "reach" and the proposed outcomes of interest, while taking into account variation in personal characteristics of the MSM and FSW in the study which might also affect outcomes. By identifying the different characteristics between the exposed and unexposed groups and treating those variables as confounders in multivariate analysis, in this way, the internal validity of this design will be strengthened. See **Supplemental Table 1** for more information about the specific variables proposed for analysis. This analysis is represented in analytic steps 3 and 4 from the evaluation plan conceptual model (Figure 2).

Definition of programme reach

Stakeholder groups have undertaken significant work to understand and define to the concepts "reached" by and "exposed" to the programme.[*] Based on this work, the following definition of "programme reach" is proposed for survey research (as opposed to the definition that is used for programme monitoring):

- **Programme reach** is the number of people given condom supplies *and* who received information about the risk of HIV transmission via unprotected sex *and* were provided counseling on how to use condoms by a programme targeting FSW or MSM at least once in the last 12 months.

The creation of this variable would rely on approximately four survey questions similar to these:

- Did you have contact with a peer educator or other health educator working for an HIV prevention programme for FSW or MSM?
- If yes, did anyone from this programme give you condoms in the last 12 months?
- Did anyone from this programme provide information to you about how to prevent HIV transmission?
- Did anyone from this programme provide you with counseling about how to use condoms correctly?

Additional questions could be asked to increase the validity of the responses. For example, the researcher could add: How many condoms did the programme person provide? How much did you pay? What did the counselor tell you about how condoms prevent HIV?

Definition of programme exposure

The advantage to these four questions is that the first question (Did you have contact with a peer educator or other health educator working for an HIV prevention programme for FSW or MSM?) also produces an indicator of *exposure*. There was great debate among participants from the June 2012 meeting about the concept of exposure vs. reach. At the end of the day, there was consensus that simply knowing if an individual had any contact with a programme or counseling (e.g., Did you go to WAPCAS?), regardless of the nature of that contact, was valuable and can be considered "exposure". Reach, however, was a more complex concept and was associated with a minimum level of services that could theoretically be linked to behavior change.

It is important to note that these suggestions about how to measure 'reach' using the proposed survey question still need to be vetted and refined. They are put forward only as examples questions to give people a flavor of the type of question that could be asked and how a programme "reach" variable could be constructed.

[*] See meeting report for more details about the process for definition reach among stakeholders and details of those discussions.

In addition to the bivariate and multivariate analyses of data from the IBBSS, the plausibility analysis will also **consider contextual information**, collected quarterly or semi-annually with a standardized questionnaire, to aid in appropriate interpretation of the findings from the multivariate analysis. This will allow for the consideration of possible factors that might have modified the relationship between programme exposure and observed outcomes and influenced the findings of the multivariate analysis. In additional study findings will be further contextualized utilizing data from other sources. These analyses could pull from IBBSSs, planned process evaluations, routine monitoring data, and future special studies (such as service mapping studies and planned U.S. Centers for Disease Control and Prevention-supported triangulation study) to combine data from the multiple available sources in an effort to support the argument for the plausible relationship between programme exposure and key outcomes. These additional analyses are described in analytic step 5 of the programme evaluation plan conceptual model (Figure 2).

Data synthesis for the second research question

Synthesis of available data through descriptive graphs and trend analysis measuring programme implantation, coverage, and intensity will help understand the second research question: To what extent are planned MSM and FSW programme activities realized/implemented and with improved quality? This analysis is contained in analytic step 1 of the evaluation plan conceptual model (Figure 2). Results on programme quality will be presented in tables, graphs, and trend analysis from service assessments in 2012, 2013, and 2014.Cost data will provide insight into to the cost per population reached and cost of the individual services (e.g., peer education, drop in centre, etc.).**Supplemental Table 2** outlines these indicators and data sources. Analysis of cost information is represented in analytic step 6 of the evaluation plan conceptual model.

Trend analyses for the third research question

The final research question to be addressed is: Are there changes in behavioural outcomes and HIV prevalence and incidence over time? This question will be addressed through descriptive graphs and trends analyses and statistical tests from IBBSS in 2011 and 2014. Measures will include HIV prevalence, condom use and consistency, multiple partnerships, HIV knowledge and attitudes, and health care seeking behaviour for MSM and FSW. **Supplemental Table 3** summarizes the outcomes measures suggested and the source question on IBBSS 2011 that should be replicated in the IBBSS 2014 to allow trend analysis. This trend analysis is described in analytic step 2 of the evaluation plan conceptual model (Figure 2).

To the extent that positive trends are observed overtime in behavioural outcomes and HIV prevalence and programme implementation, coverage, and intensity, this will provide support for any statistically significant associations that are detected between programme exposure and outcomes. Contextual information will be used to further establish the degree of plausibility of any observed associations.

Table 3. Summary of the Research Questions with the Conceptual Model, Data Sources, Analytic Methods, and Specific Variables and Sources

Research question	Step in conceptual model (Figure 2)	Data sources	Analysis methods	Tables for specific variables and sources
Primary: Are changes in outcomes (or changes in HIV prevalence, incidence or STI prevalence over time) due to the implementation of services and programme components?	Steps 3, 4, 5	IBBSS 2011 and 2014 with both MSM and FSW Context events assessment	Multivariate analysis to test association between programme reach and outcomes taking into account confounding factors Descriptive analysis of contextual events and other data	Supplemental Table 1
Secondary: To what extent are planned MSM and FSW programme activities realized/implemented and with improved quality? (includes costs)	Steps 1, 6	Aggregation of routine output monitoring data Service quality assessment Cost assessment	Descriptive graphs and trend analysis of programme reach, coverage and intensity and programme quality Descriptive analysis of cost per person reached and by service	Supplemental Table 2
Secondary: Are there changes in behavioural outcomes and HIV prevalence and incidence over time?	Step 2	IBBSS 2011 and 2014 with both MSM and FSW	Descriptive graphs and trend analysis of outcomes and HIV prevalence	Supplemental Table 3

VII. Filling Data Gaps: Proposed Methods and Costs

In order to facilitate planning to implement the national evaluation and the related study methods, this section describes the budget inputs by data collection method and activity. Along with the budget template (see **Supplemental Table 4**), this information should facilitate the budgeting process.

For a number of reasons, it is not possible at this point to estimate the costs of the study activities. For example, salary costs make up a large proportion of study budgets. Without knowing which implementing partners will be involved, it is hard to estimate these salary costs. Travel costs are significant, and are also dependent upon where the implementing partners are located. Finally, organizations have overhead (or indirect) costs that can range from 10% to 50% of total study costs. Table 4 provides a list of budget inputs for study activities.

Table 4. Budget Inputs for Study Activities by Study Method and Activity

Activity	Responsible	Budget inputs
Aggregation of routine data for output monitoring		
Develop/revise core indicators, reference sheets, SOPs	GAC	Costs covered by current work plans
Mechanisms for standardized reporting	GAC	Costs covered by current work plans
Mechanism to merge partner data	GAC	Costs covered by current work plans
Data storage	GAC, consultant, or implementing partner to be identified	Data manager to create secure database, to ensure timely monthly entry and aggregation
IBBSS with both FSW and MSM		
Advocate/identify funding source	GAC and MARP TWG partners	Costs covered by current work plans
Respond to and procure award including negotiating GAC and implementing partner roles	Depends on agreement process	Costs covered by current work plans
Protocol development, including pilot test, mapping and size estimates, survey, and biological samples protocols	Study team partners	PI, co-PI(s), research assistant, statistician, and clinical researcher for biological samples salary time to develop protocols, study design, sampling plan
Questionnaire development, special attention to needed evaluation questions are added to measure reach and outcomes, and ensure comparability between 2011 and 2014 questions.	Study team partners	PI, co-PI(s), research assistant for questionnaire development
Prepare IRB applications and shepherd process	Study team partners	PI, co-PI(s), research assistant salary time
Translate data collection forms and informed consent (if needed)	Study team partners	Translator salary time
Data collection	Study team partners	• Multiple trained data collectors salary time (number depends on logistics, sample sizes, and timeframe) • Per diem (meals and housing) if needed for data collectors in the field • Transportation (air, car rental, or public transport) to the field and for data collection • Supervision salary time for data collection and storage and entry • IT support salary for computers, handheld data collection • Printing • Copies • Communication (e.g., phone time) • Materials such as notebooks, bags, folders, pens,

Activity	Responsible	Budget inputs
		filing cabinets, computers, hand held/mobile devices • Purchase equipment for biological sample collection, storage, and processing
Data entry	Study team partners	• Data entry staff salary time (number depends on data collection volume, time frame, and need for double data entry) • Software
Data analysis plan development and data analysis	Study team partners	PI, co-PI(s), research assistant, statistician salary time
Data interpretation workshops, Dissemination meetings	Study team partners	• Research assistant and support staff salary time to arrange logistics, staff meeting, prepare report. • Venue rental, food, lodging, transport • Materials such as pens, flip charts • Printing • Copies
Prepare reports and manuscripts	Study team partners	• PI, co-PI(s), research assistant, statistician, and clinical researcher for biological samples salary time • Printing • Copies
Service quality assessment, including costs		
Advocate/identify funding source	GAC	Costs covered by current work plans. Components below could be absorbed into implementing partners' scope of work
Respond to and procure award including negotiating GAC and implementing partner roles	Depends on agreement process	Costs covered by current work plans
Protocol and questionnaire development	Study team partners	PI, co-PI(s), research assistant, statistician, and public health economist salary time to develop protocol, study design, sampling plan, questionnaires
Prepare IRB applications and shepherd process	Study team partners	PI, co-PI(s), research assistant salary time
Translate data collection forms and informed consent (if needed)	Study team partners	Translator salary time
Data collection, quality	Study team partners	• Multiple trained data collectors salary time (actual number depends on logistics, sample sizes, and timeframe) • Supervision salary time for data collection and storage and entry • Per diem (meals and housing) if needed for data collectors in the field • Transportation (air, car rental, or public transport) to the field and for data collection • Printing • Copies • Communication (e.g., phone time) • Materials such as notebooks, bags, folders, pens, filing cabinets, computers

Activity	Responsible	Budget inputs
Data collection, costs	Study team partners	(Same as above, but fewer data collectors are needed)
Data entry	Study team partners	• Data entry staff salary time (number depends on data collection volume, time frame, and need for double data entry) • Software
Data analysis plan development and data analysis	Study team partners	PI, co-PI(s), research assistant, economist salary time
Data interpretation workshops, dissemination meetings	Study team partners	• Research assistant and support staff salary time to arrange logistics, staff meeting, prepare report. • Venue rental, food, lodging, transport • Materials such as pens, flip charts • Printing • Copies
Prepare reports and manuscripts	Study team partners	• PI, co-PI(s), research assistant, and economist salary time • Printing • Copies
Context events assessment		
Identify and procure funding	GAC	Study components could be integrated into GAC and implementing partner work plans
Develop protocol, data collection form, and prepare IRB applications	GAC, Consultant, or implementing partner to be identified	PI and research assistant salary time to develop protocol and data collection instrument and shepherd IBR process (should be minimal risk study)
Translate data collection forms (if needed)	GAC, Consultant, or implementing partner to be identified	Translator salary time
Identify and recruit participants, contact and conduct interviews	GAC, Consultant, or implementing partner to be identified	• Research assistant salary time • Communication (e.g., phone time) • Transportation to field (likely car rental + fuel or local transport)
Data entry and storage	GAC, Consultant, or implementing partner to be identified	• Data entry staff salary time (number depends on data collection volume, time frame, and need for double data entry) • Software
Plausibility analysis		
Identify and procure funding	GAC	Study components could be integrated into GAC and implementing partner work plans
Develop protocol and analysis plan	GAC, Consultant, or implementing partner to be identified	PI, co-PI(s), research assistant, statistician salary time
Procure, merge and prepare data sets	GAC, Consultant, or implementing partner to be identified	• Research assistant, data manager, data analyst • Software

Activity	Responsible	Budget inputs
Data interpretation workshops, Dissemination meetings	GAC, Consultant, or implementing partner to be identified	• Research assistant and support staff salary time to arrange logistics, staff meeting, prepare report. • Venue rental, food, lodging, transport • Materials such as pens, flip charts • Printing • Copies
Prepare reports and manuscripts	GAC, Consultant, or implementing partner to be identified	• PI, co-PI(s), research assistant, statistician, and clinical researcher for biological samples salary time • Printing • Copies

VIII. Roles and Responsibilities

The GAC plays a central role in coordinating and facilitating harmonization among partners working on the programmatic response and gathering the strategic information necessary to monitor and evaluate the response. GAC is the interface between the range of domestic and international partners. It is important for partners to report to GAC on what they are doing so that all of the partners in the country can benefit from lessons learned. This is especially important when resources are constrained.

Partners on the MARP TWG also have roles and responsibilities for ensuring that funding is procured and the data collection methods are carried out. Those responsibilities are summarized in table 5.

Table 5. Summary of Parties Responsible for Ensuring Implementation of the Study Method

Method	Responsible parties
Aggregation of output monitoring reporting across partners	• Partners implementing MSM and FSW programmes (monitoring and reporting) • GAC (reporting standards, aggregation, data storage)
Contextual data collection from now to 2015	• GAC in collaboration with MARP implementing organizations e.g., FHI360 WAPCAS to help facilitate data collection
IBBSS in 2014, with MSM and FSW	• GAC to lead advocacy and to create platform for funds from donors, e.g., UN, UNFPA, DANIDA, GF, USG, private sector, etc. • GOG to set aside some annual budget for this • Implementation depends on the outcome of procurement process, lead organization and implementing partners
Quality and cost assessment	• GAC to lead advocacy and to create platform for funds from donors, e.g., UN, UNFPA, DANIDA, GF, USG, private sector etc. • Implementation depends on whether partners already have related activity in work plan and/or outcome of procurement • Some local orgs have expertise in similar studies: MSA, FHI360, Price Water House Coopers; Health Policy Project/ USAID, MEASURE Evaluation
Plausibility analysis and report writing	• GAC to lead advocacy and to create platform for funds from donors, e.g., UN, UNFPA, DANIDA, GF, USG, private sector, etc. • Planning and review should be a consultative and participatory process at all levels: district, regional, and national.

IX. Ethical Considerations and Data Collection Guidelines

Ethical considerations

Three of the data collection activities will need to be cleared by ethical committees or institutional review boards (IRBs):

- contextual data collection;
- IBBSS in 2014 with MSM and FSW; and
- the quality and cost assessment.

The methods involve primary data collection from people and are for research purposes. The plausibility data analysis will rely on secondary data, but will still need some sort of ethical determination of being exempt from review.

Protocols will contain sections related to ethical considerations. Also,all study personnel, including data collectors, must be trained in study procedures and research ethics to ensure that they adhere to the protocol. All study participants will be informed of their rights and risks of participating in the study according to the approved informed consent text. All participants will have to give their verbal or written consent before continuing with data collection and receive a copy of the informed consent including the name, phone number, and address of key contacts at the implementing organization and governing IRBs. Because many respondents will be MSM or FWS, which are highly vulnerable due to stigma and discrimination, special considerations are needed when conducting research in these populations.

Ethical clearance usually takes place in Ghana through the Noguchi IRB, although there are others. Depending on the implementing partner, the partner may also have its own institutional IRB requirement or board. Each IRB has its own procedures, forms, and timelines that need to be take into account.

Data sharing

Data sharing is an important consideration in the evaluation plan. Ghana is moving more toward country ownership and GAC will want to retain data. Data sharing facilitates the translation and communication of research into knowledge to improve health. It has the potential to increase the value of the research and reduce unnecessary duplication and competition.

There are two types of data sharing agreements: an agreement among partners implementing the study and an agreement for third-party data use (i.e., external use). Data sharing agreements need to be developed at the same time as the protocol, so as to avoid any future problems. Agreements should strive to respect the rights and privacy of people who participated, give due acknowledgement to the generators of the data, and balance the needs of researchers who generated the data to use the data and other people interested in using the data to replicate findings or lead to new knowledge.

Shared data should be anonymized and accompanied by the study documentation including protocols, data collection forms, recode manuals, and any other supporting documents.

Authorship

Authorship and authorship order will also need to be negotiated among implementing partners. For articles intended for the peer-reviewed literature, there are clear guidelines for authorship, although they do not necessarily deal with how to determine authorship order. According to the International Committee of Medical Journal Editors (ICMJE):

> Authorship credit should be based on 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3.

For more information, see the uniform requirements for manuscripts on the ICMJE Web site at: http://www.icmje.org/ethical_1author.html

GAC has established some precedence with authorship. When reports and manuscripts are drafted, authorship is determined by which partners were centrally involved. Each organization elects the appropriate people to be authors. Other partners are listed in acknowledgements.

X. Timeline

Activities listed in Figure 3 in black represent data collection efforts that are completed or underway with funding. Activities listed in green are future activities with funding available/secured. Activities listed in red represent future activities where funding has yet to be secured. Table 6 goes in to more detail and specifies in which quarter resource mobilization and implementation need to occur.

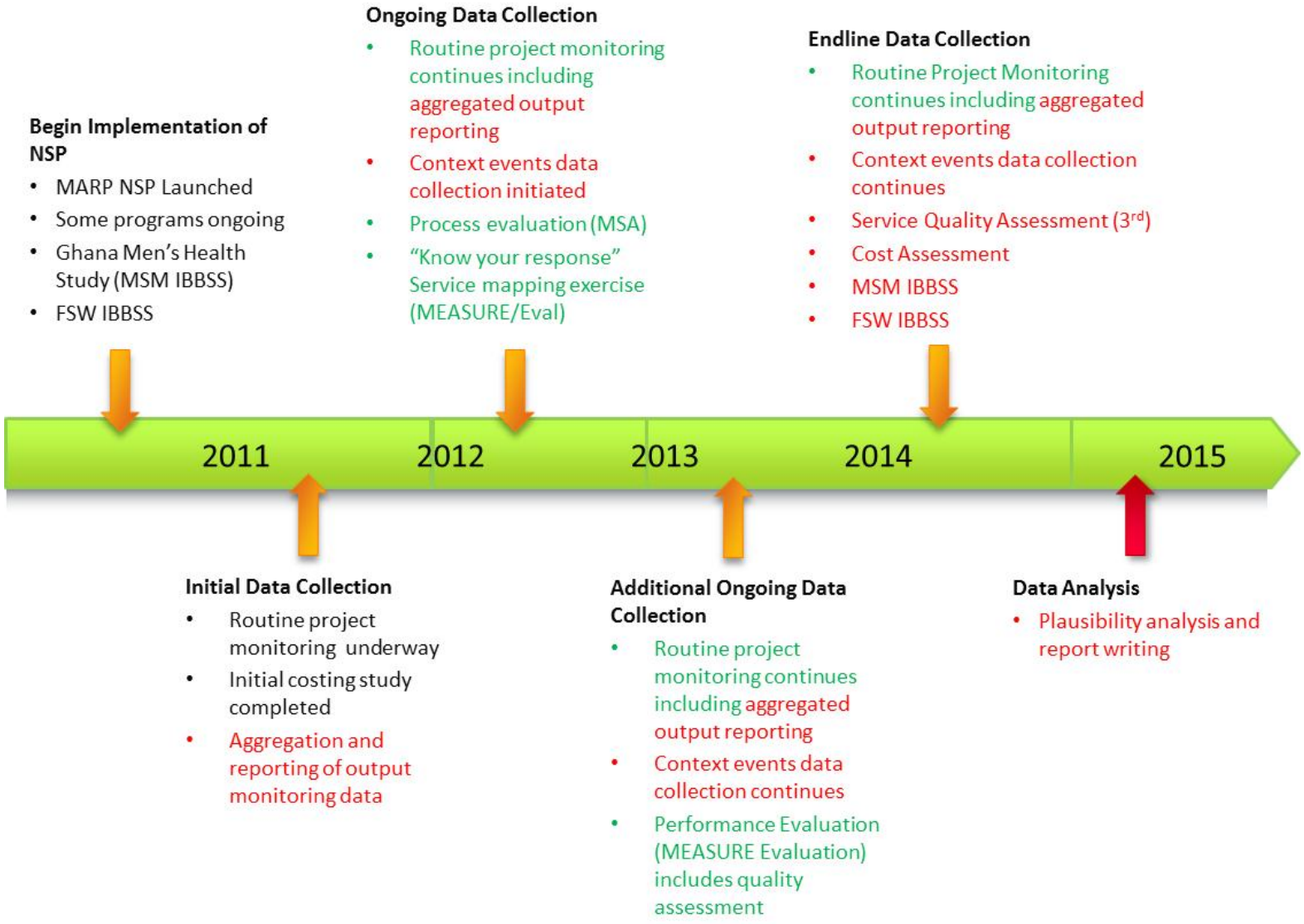

Figure 3. Timeline of proposed evaluation plan data collection activities (black = completed or underway, green = future activities with secured funding, red = future activities where funding has yet to be secured).

Table 6. Timeline for Resource Mobilization, Planning, Implementation, and Data Analysis of Data Collection Activities

Activity	Completed or on-going	Oct-Dec 2012	Jan-Mar 2013	Apr-June 2013	July-Sept 2013	Oct-Dec 2013	Jan-Mar 2014	Apr-June 2014	July-Sept 2014	Oct-Dec 2014	Jan-Mar 2015
2011 IBBSS	X										
Initial costing study	X										
Process Evaluation 2012	X										
Performance (quality) evaluation 2013	X										
Output monitoring indicators report monthly to GAC	X	X	X	X	X	X	X	X			
Contextual information collected semi-annually				X		X		X			
Resource mobilization for IBBSS, both MSM and FSW						X					
IBBSS planning							X				
IBBSS implementation								X			
IBBSS data analysis									X		
Resource mobilization for quality and cost assessment					X						
Planning for quality and cost assessment						X	X				
Data collection for quality and cost assessment								X			
Data analysis for quality and cost assessment									X		
Plausibility analysis and report writing									X	X	

XI. Conclusion

This evaluation plan provides a road map for how to conduct an evaluation of the national HIV prevention programme for MSM and FSW. The plan accompanies the MARP Operational Plan Framework 2011-2013 that guides and harmonizes partner programme activities. By integrating the evaluation plan in this way, it will also inform partner priorities. There is a real risk, however, in absence of data outlined in this plan that it will not be possible to carry out an evaluation of the national MSM and FSW programmers.

Not only will quality data and results from the evaluation help GAC and the other members of the MARP TWG to understand the effectiveness of the MARP strategy and operational plan, this information is necessary to inform programme implementation and guidance to partners and to inform the next strategic planning cycle in 2016. At the same time, evaluation results will provide generalizable information about how to plan and execute a country-driven evaluation of an HIV prevention programme, providing generalizable information about effective HIV prevention programmes.

XI. References

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XII. Supplemental Material

Supplemental Table 1. Variables and Associated Comments and Relevant 2011 IBBSS Questions

Proposed variables with associated comments and relevant 2011 IBBSS questions for a future bivariate/multivariate analyses of 2014 IBBSS data are given in Supplemental Table 1 to help answer the primary question: Are changes in outcomes (or changes in HIV prevalence, incidence or STI prevalence over time) due to the implementation of services and programme components?

Main Exposure Variable	Comments/Relevant 2011 IBBSS Questions
"reached" by programme" (0/1) or "degree of reach" (0/1/2/etc.)	Number of people given condom supplies *and* received information about the risk of HIV transmission via unprotected sex *and* were provided counselling on how to use condoms by a programme targeting FSW or MSM at least once in the 12 months
Main Outcome Variables (to be prioritized)	
condom at last sex with paying partner (FSW) (0/1)	Q411/501 2011 FSW IBBSS
condom at last sex with non-paying partner (FSW) (0/1)	Q412/602 2011 FSW IBBSS (note: Q602 not worded exactly like question for paying partner. Harmonization needed).
Condom use with every partner in last month	Constructed from Q411/412/501/602 2011 FSW IBBSS
condom at last sex with male partner (If had a partner in last six months) (MSM) (0/1)	Q616c, Q617c 2011 Ghana Men's Health Study (GMHS)
Condom use at last insertive sex with male partner in last six months (MSM) (0/1)	See Q616c 2011 GMHS
Condom use at last receptive sex with male partner in last six months with male partner (MSM) (0/1)	See Q617c 2011 GMHS
Condom at last sex with female partner (if had female partner in last six months) (MSM) (0/1)	Q614c,Q615c 2011 GMHS
Had anal sex with >1 male partner in last 6 months (men)	Q604, 616,617 2011 GMHS
MSM reporting consistent condom use during anal sex with man during last 3 months	Q704 GMHS
Know HIV status in last (time frame) (being tested and receiving results) (0/1)	Q1017/1021/1036 2011 GMHSQ 809/810 asks about having a test. Q 811/812 asks if they will report status. No question explicitly asks if they know status from 2011 FSW IBBSS
Can name a place to receive HIV testing and counseling (0/1)	Q1016 2011 GMHSQ815 2011 FSW IBBSS (note: asks if they know a place, but not to name the place)
Correctly identify ways of preventing sexual transmission of HIV and reject major misconceptions about HIV transmission	Section 10 2011 GMHS Section 8 and 10 2011 FSW IBBSS
Receiving treatment if HIV + (treatment as prevention) (0/1)	Q1025/1026 2011 GMHSQ 813 2011 FSW IBBSS
Receiving care services if HIV + but not ART	This is an indicator from OP. However "care services" is not defined. Not asked in 2011 FSW IBBSS. Q1024 of the 2011 GHMS asks if you have seen a provider about your HIV (presumably ever, not necessarily currently).
Main Impact Variables	
HIV positive (0/1)	Q1022/1037 (self-report) + biomarker data 2011 GMHS Q811/812 (self-report) +biomarker data 2011 FSW IBBSS
Receiving treatment (if HIV positive) (0/1)	Q1025 2011 GMHS(in last 12 months) Q813/814 (Are you taking ARVs (presumed currently) and how long have you been on ARVs?)

Newly HIV infected	HIV incidence may eventually be available
Been treated for other STI in last 12 months (0/1)	Q905/906/908/909 2011 GMHSQ707/710/715 2011 FSW IBBSS
Has STI (specify type)	Possible in 2014 IBBSS if STI biomarkers are available otherwise could substitute presence of specific STI symptoms
Control Variables	
District/Geography/Implementer/Service Area	Geographical area to be defined by district/region or sampling unit for IBBSS based on power calculations and ease of aggregating service statistics.
HIV status	Independent variable (IV) in multivariate analyses where HIV status/treatment is not the dependent variable (DV).
Been treated for STI in last 12 months/STI status (if collect bio markers)	IV in multivariate analyses where STI treatment/infection is not DV
number of dependents of MSM/FSW	Q315 2011 GMHSQ211/309 2011 FSW IBBSS
Average or median age of MSM/FSW	Q302 2011 GMHSQ203 2011 FSW IBBSS
Marital/relationship status of MSM/FSW	Q309/Q310 2011 GMHS Q206 2011 FSW IBBSS
Education level of MSM/FSW	Q 303 2011 GMHSQ209 2011 FSW IBBSS
Alcohol/substance use by MSM/FSW	Section 12 2011 GMHS Section 9 2011 FSW IBBSS. These questions are not standardized and refer to differing time frames and are of differing completeness. In general both ask about use of alcohol, other substances, and injecting drug use. But should be standardized for follow on IBSS utilizing responses from baseline to inform the crafting of meaningful questions and response categories.
Violence experienced by MSM/FSW	Q1102/1104/1106/1108 2011 GMHS Q405a/409 2011 FSW IBBSS These questions are not standard. They refer to different time frames, different types of violence, and some are limited to violence perpetrated by a particular person (a client) or anyone or for a particular reason (such as sexuality). Follow up IBBSS should make effort to standardize these questions utilizing data from baseline IBBSS's to inform the selection of meaningful questions and response categories.
Roamer/Seater (FSW)	Q304/305
# partners in last week (FSW)	Q401
# partners in last six months (MSM)	Q604

Supplemental Table 2. Indicators, Measures, Data Sources, and Rationale

This table provides indicators, measures, data sources and rational for data to be used to help answer the secondary question: "To what extent are planned MSM and FSW programme activities realized/implemented and with improved quality?"

Indicator	Measure	Data Source	Comments/Rationale
Implementation [of each] programme activity in the MARP OP (O/1), by SO and strategy?	Programme implementation	Programme data	MARP Operational Plan Framework 2011-13, multiple indicators and activities list
Numbers of MSM and FSW "reached" with HIV prevention programmes change over time	Coverage	Programme data	National HIV and AIDS Monitoring and Evaluation Plan 2011-2015. Requires consistency across partners on how programme "reach" is measured for monitoring purposes.
Proportion of MSM and FSW "reached" with HIV prevention programmes change over time?	Coverage	Programme data	National HIV and AIDS Monitoring and Evaluation Plan 2011-2015. (see note on 'reach' above)
Number of male and female condoms distributed to MSM and FSW change over time	Coverage	Programme data	National HIV and AIDS Monitoring and Evaluation Plan 2011-2015
Number of MSM and FSW who received an HIV test and who know their results change over time	Coverage	Programme data	National HIV and AIDS Monitoring and Evaluation Plan 2011-2015
NGO intensity of service delivery (e.g. peer community member ratios, number of condoms distributed per community member, percentage of target population met monthly) and use (% of pop seeking services in STI clinics) routinely monitored and reported.	Intensity	Programme data	Intensity and coverage core indicators must be agreed on by partners for standardized reporting by partners to allow aggregation.
Client satisfaction	Quality	client interviews/FGDs with FSW/MSM	Structured client interviews will provide quantitative information about client satisfaction with service experience. This can be further contextualized with qualitative interview data with clients.
Core service quality measures (awareness of and adherence to written service protocols, frequency and types of commodity stock outs, frequency of supervision, qualifications of supervisors, type of supervision, provider knowledge scores, positive provider attitudes, type and frequency of provider training (pre- and post-service), self-reported provider confidence scores (on a range of service provision skills)	Quality	Observations from service delivery assessments, provider interviews	Like intensity and coverage, partners must agree on a core set of service quality measures to allow for standardized reporting and aggregation of data. Quality measures should emphasize confidentiality, MARP friendliness, and client satisfaction by consensus of stakeholders in defining quality for MARP programmes.
Programme costs per service provided and/or per population "reached" per project area. Costs can be calculated separately for distinct programme elements (e.g., DICs, peer educators, etc.) in order to provide the cost per population "reached" by the programme in each programme area.	Cost	Programme data	Costs can include staff time, capital costs, and supply/commodity costs.

Supplemental Table 3. Outcome Indicators, Measures, and Source Questions

This table provides outcome indicators, measures, and survey source questions to be used in a trend analysis to help answer the secondary question: Are there changes in behavioural outcomes and HIV prevalence and incidence over time?

Outcome indicator	Measure	Source question on IBBSS 2011 questionnaire
HIV prevalence	HIV prevalence	Q1022/1037 (self-report) + biomarker data 2011 GHMS Q811/812 (self-report) +biomarker data 2011 FSW IBBSS
Condom use at last sex with paying partner (FSW) (0/1)	Condom use/consistency	Q411/501 2011 FSW IBBSS
Condom use at last sex with non-paying partner (FSW) (0/1)	Condom use/consistency	Q412/602 2011 FSW IBBSS (note Q602 not worded exactly like question for paying partner)
Number of paying partners in last month (FSW)	Multiple partners	Q402 2011 FSW IBBSS but asks about past week not past month (as specified in NSP for MARPs 2011). Suggest maintaining question to enable trend analysis.
Number of nonpaying partners in last month (FSW)	Multiple partners	Q402 2011 FSW IBBSS but asks about last week not past month. Q601 but asks number of current non-paying partners, no time frame specified. Again, NSP for MARPS specified timeframe of a month, but keeping the question about past week will enable trend analysis.
Condom use at last sex with male partner (If had a partner in last six months) (MSM) (0/1)	Condom use/consistency	Q616c, Q617c 2011 GHMS
Condom use at last insertive sex with male partner in last six months (MSM) (0/1)	Condom use/consistency	See Q616c 2011 GHMS
Condom use at last receptive sex with male partner in last six months with male partner (MSM) (0/1)	Condom use/consistency	See Q617c 2011 GHMS
Condom at last sex with female partner (if had female partner in last six months) (MSM) (0/1)	Condom use/consistency	Q614c,Q615c 2011 GHMS
MSM reporting consistent condom use during anal sex with man during last 3 months	Condom use/consistency	Q704 but no timeframe. Q616C and Q617C can be used to get in last six months. Not available for last three months.
Had anal sex with >1 male partner in last 6 months (men)	Multiple partners	Q616/617
Correctly identify ways of preventing sexual transmission of HIV and reject major misconceptions about HIV transmission (MSM & FSW)	HIV Knowledge and attitudes	Section 10 2011 GHMS Section 8 and 10 2011 FSW IBBSS
Know HIV status in last (timeframe needed) (being tested and receiving results) (MSM & FSW) (0/1)	Health Seeking	Q1017/1021/1036 2011 GHMS. Q 809/810 asks about having a test. Q 811/812 asks if they will report status. No question explicitly asks if they know status from 2011 FSW IBBSS
Can name a place to receive HIV testing and counselling (MSM & FSW) (0/1)	Health Seeking	Q1016 2011 GHMS Q815 2011 FSW IBBSS (asks if they know a place, but not to name the place)
Receiving treatment if HIV + (treatment as prevention) (MSM & FSW) (0/1)	Health Seeking	Q1025/1026 2011 GHMS Q 813 2011 FSW IBBSS
Receiving care services if HIV + (MSM & FSW)	Health Seeking	This is an indicator from OP. However “care services” is not defined. Not asked in 2011 FSW IBBSS Q1024 of the 2011 GHMS asks if you have seen a provider about your HIV (presumably ever, not necessarily currently).
% MSM/FSW who report attending DIC	Health Seeking	Section 14 2011 GHMS Not available in 2011 GHMS
% MSM/FSW who report contact with peer educator	Health Seeking	Section 14 2011 GHMS Q1103 2011 FSW IBBSS
Been treated for other STI (than HIV) in last 12 months (0.1)	Health Seeking	Q905/906/908/909 2011 GHMS Q707/710/715 2011 FSW IBBSS

Supplemental Table 4. Budget Template

SALARY								
Personnel	Role/position	Annual or Monthly Salary or Daily Rate (C)	Year 1 Time allocation in months, weeks, days (D)	Year 2 Time allocation in months, weeks, days (E)	Year 3 Time allocation in months, weeks, days (F)	Fringe (G)	Health insurance (H)	Salary subtotal*
Name	(describe)							formula: [C*D+(C*1.035)*E +(C*1.07123)*F)]+ G+H
	PI/research lead							
	Co-PI(s)							
	Research assistant							
	Other researcher							
	Statistician							
	Geospatial specialist							
	Data manager							
	Clinical researcher							
	Translator							
	Data collectors (multiple)							
	Study implementation manager/ data collection & entry supervisor							
	Data entry staff (for double data entry)							
	Data analyst							
	IT support							
	Support staff/ administrative							

*the 1.035 and 1.071225 is COLA or Cost of living adjustment (3-4% additional salary each year after the first year)

INTERNATIONAL TRAVEL (to/from Accra)			
	$ Amount (B)	Quantity (C)	Travel subtotal
Airfare		# trips	B*C
Lodging		# nights	B*C

M & IE		# days	B*C	
Visa		# visas	B*C	
Ground Trans.			B	
Misc. Exp.			B	

OTHER				
	$ Amount (B)	Quantity (C)	Quantity (D)	Other subtotal
Domestic transportation for data collection (air/car rental + fuel/public transport)		# flights/cars /trips	# days	B*C*D
Printing		pages		B*C
Publication costs		pages		B*C
Communications (phone, fax, internet)				
Computers		# computers		B*C
Software		# programs		B*C
Copies		pages		B*C
Costs to present results at meeting (travel, conference registration, perdiem)				

MEETINGS (Local dissemination, etc)			
	$ Amount	Quantity	Other subtotal
Transportation		# people	B*C
Venue rental		# days	B*C
Food and drinks		# days	B*C
Hotel rooms		# nights	B*C
Materials (flip charts, pens)			
INDIRECT COSTS (organizational)			
'Indirect costs' range widely, usually 10%-50% of total project costs			

XIII. Appendices

A. Ghana Evaluation Plan Road Map

B. On-going M&E Activities in Ghana Mapped to the Public Health Questions Approach

C. Ghana MARP HIV Prevention Programme Logic Model

A. Ghana MARP Evaluation Roadmap (revised 01 August 2012)

#	Activity Description	National Lead	Partner Support	TIMELINE					Actual and Expected Outputs
				2011	2012	2013	2014	2015	
1	**Verify, complete, and update the information in Table 1**								
1.1	Verify, complete, and update the information under "ongoing M&E activity" and "anticipated results" columns	GAC and key national M&E experts	MEASURE Evaluation will faciliate this discussion during March meeting and revise Table in Evaluation Plan		Mar				**Actual:** Table mapping M&E activities to the Framework revised and updated 3 April 2012
1.2	Clarify whether "questions, gaps, and additional information needs" are important and relevant to national stakeholders. Stakeholders must also decide how any additional information will be obtained (who will fund it, who will do it, and when will it be done).	GAC and key national M&E experts	MEASURE Evaluation will faciliate this discussion during March meeting and document decisions and revise Table in Evaluation Plan. Additional discussion planned for June, 2012 meeting.		Mar, June				**Acutal:** Questions defined at March 2012 meeting and documented in meeting report. **Expected:** Evaluation Plan discussion in June 2012 will allow partners to determine how additional informaiton will be obtained.
2	**Refine the MARP Logic Model**								
2.1	Identify the main programme impact pathways and any gaps in inputs, activities, outputs, or outcomes	GAC and key national M&E experts	MEASURE Evaluation will faciliate this discussion during March meeting and revise Logic Model for Evaluation Plan		Mar				**Acutal:** the Logic Model has been developed based on the information in the NSP and OP
3	**Map the MARP M&E System to the completed Logic Model**								
3.1	Identify any gaps in data collection mechanisms in function of completed logic model (e.g., desired outcomes in the logic model that wouldn't be captured by current IBBSS activities, or desired outputs that are not currently part of routine programmatic data collection efforts)	GAC and key national M&E experts	MEASURE Evaluation will faciliate this discussion during March meeting and document recommendations for Evaluation Plan. Actions to fill gaps will be discussed at meeting in June 2012.		Mar; June				**Expected:** Evaluation Plan will outline data collection needs, and how to fill gaps in data collection will be determined in June, 2012 meeting
4	**Refine MARP M&E Plan based on completed Logic Model**								
4.1	Articulate outcome evaluation questions of interest	GAC and key national M&E experts	MEASURE Evaluation will faciliate this discussion during March meeting and document questions in Evaluation Plan		Mar				**Actual:** Research questions were identified in March meeting.
4.2	Create new indicators and indicator reference sheets for outputs and outcomes	GAC and M&E TWGs							**Actual:** The national M&E plan includes the relevant indicators, and reference sheets are being developed.
4.3	Determine lead institution and funding sources to fill in data gaps	GAC and M&E TWGs	TBD		June				**Expected:** At June meeting
4.4	Incorporate any additional activities identified through this process into the MARP Operational Plan to ensure implementation (including estimated costs).	GAC and M&E TWGs	TBD (GAC to fill in)		July+				**Expected:** Post-June meeting

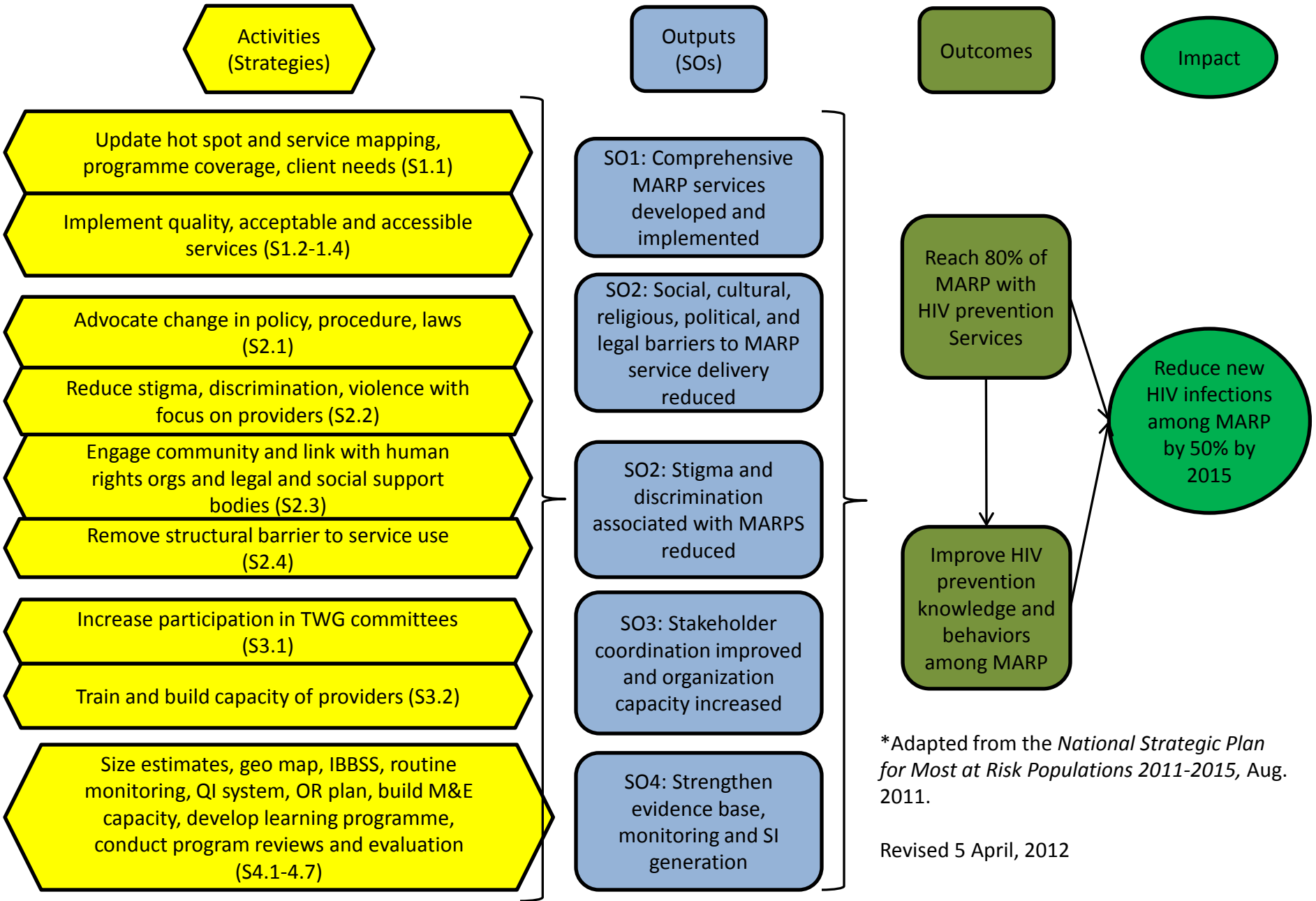
5	**Continue existing M&E processes**								
5.1	Finalize population size estimates	GAC and M&E TWGs	FHI360, RIPS, Noguchi, WAPCAS, WIYO, Prolink, CDC, UCSF, SPDPH		April-Aug				**Expected** from existing FSW and MSM IBBSS studies
5.2	Define programme “reach” for each MARP group	GAC and M&E TWGs	(GAC to fill in)						**Expected:** The definition of programme "reach" was started in March and needs to be contineud at a subsequent meeting. An assessment is needed to understand whether the existing reporting systems will be susfficient to collect information about reach.
5.3	Set programme targets for each MARP group	GAC and M&E TWGs	(GAC to fill in)		Sept +				**Expected** follow IBBSS study results
6	**Conduct service mapping exercises**								
6.1	Assess what interventions programme partners are implementing and where	GAC and M&E TWGs	MEASURE Evaluation		July				**Expected:** Support from USAID and MEASURE Evaluation through an 'know your response' tool pilot assessment.
6.2	Document partners’ current programme “reach” using available indicators	GAC and M&E TWGs	Implementing partners		X	X	X	X	**Expected:** From routine systems. Identify regular reporting time frame.
6.3	Use this information to geographically map current programmes’ interventions and “reach” and link this information with hot spots information and size estimates from IBBSS.	GAC and M&E TWGs	TBD						TBD
7	**Conduct a Process (Performance) evaluation so that at midterm recommendations can be made to meet 2015 goals: are we on track to meet the national goal of 80% MARP reached with comprehensive services?**								
7.1	Evaluation protocol development with research questions, study design and methods	GAC	MEASURE Evaluation (USAID) funded and led with local research partner with input from GAC and other implementing partners		Mar-Dec				**Expected:** Revise SOW based on MSA work and then Protocol and IRB approved
7.2	Data Collection	GAC	"			Jan-Feb			
7.3	Data analysis	GAC	"			Apr-May			
7.4	Report writing / refining based on feedback	GAC	"			June			**Expected:** results interpretation workshop
7.5	Report submission, validation, and dissemination (for use)	GAC	"			July			**Expected:** final report to inform GAC action plan
8	**Design a national programme evaluation**								
8.1	Produce an Evaluation Plan document with key research questions, design and methods, main measures and data sources, preliminary analysis plan, estimated budget, and needed roles and responsibilities	GAC	MEASURE Evaluation will draft Evaluation Plan and present at June meeting		June				**Expected:** Draft for meeting week of 24 June, 2012
8.2	Share draft plan for comments and feedback		"		May				
8.3	Final Plan submission, validation, and dissemination (for use)		"		Aug-Sept				**Expected:** final evaluation plan

B. On-going M&E activities in Ghana mapped to the public health questions approach

Public health question step	**Ghana on-going or *planned* M&E activity**	**Anticipated results**	**Questions, gaps, additional information needs**
1. Know your epidemic: What is the size and nature of the problem?	• IBBSS with MSM and FSW (2011) • *Triangulation analysis (planned)*	• Size estimates • Denominator for coverage estimates • Populations defined • National estimate of HIV prevalence • Behavioural data	• Will the IBBSS methods used be replicable over time? Will sample sizes be sufficient for statistical tests? • Will study methods yield HIV incidence? • Population size estimates could be presented on a national map showing distribution and numbers of MSM and FSW
2. Determinants: What are the contributing factors?	• IBBSS with MSM and FSW (2011) • Project SEARCH study: KAP, risk behaviours, HIV needs of young (18-20 years) FSW (2011-12) • Project SEARCH study: Transactional sex among female post-secondary education students in Kumasi (2011-12) • *Triangulation analysis (planned)*	• Measures of direct determinants: exposure, infectiousness, biologic susceptibility • Understanding of the social determinants	• Identify what formative or qualitative studies are needed to help interpret or fill in IBBSS results such as providing a deeper understanding about psychosocial, economic and other contextual determinants; facilitators and barriers to health-seeking behaviours and their relation to HIV risk perceptions; behaviours in sexual networks (see meeting reports for specific questions) • HIV and behavioural data from IBBSS could be combined in models to predict trends about epidemic (and estimate changes under different assumptions about behaviour change and health care use and treatment)
3. Know your response: Identify which interventions can work	• MARP Strategy 2011-2015 (2011) and Operational Plan • Logic model prepared from MARP strategy and OP • *Service availability mapping (planned)*	• Guidelines and Operational Plan • Defined comprehensive programmes informed by international evidence and guidelines • Defined minimum packages of services with which each MARP should be reached	• Targets for impact, outcome and coverage indicators • Output indicators and standardized forms for data collection, reporting and aggregating • Priority OR questions (meeting reports for questions)

4. Input monitoring: What interventions and resources needed?	• GOALS exercise (resource analysis) (2011) • MARP strategy 2011-2015 (2011)	Key activities and resources needed defined	What is the funding gap for planned activities and current obligations- PEPFAR, GFATM, etc.? What is the implication for planned activities and targets?
5. Quality monitoring: What activities are we doing? Are we doing them right?	• MARP Strategy 2011-2015 (2011) • MARP Operational Plan (2011-draft) • Programme process monitoring (by implementing partners) • Data quality assessment of routine health information system • Community based M&E systems assessment •	• Key activities defined • Routine programme monitoring indicators and data collection, analysis, reporting, and use systems. • Quality standards and tools	• Are there doubts about data quality? Are these data analysed and used to improve programmes? Do programme monitoring data need to be harmonized? • Conduct service quality assessments and client satisfaction surveys/assessments
6. Monitoring outputs and coverage: Are we implementing the programme as planned?	• Routine programme monitoring • Methods to avoid double counting (UID) • Process evaluation 2012 • *Operational definition of person "reached" by programme (planned)*. • *Process evaluation 2012 (planned)*	• Routine programme data and aggregation on regular basis • Combine with pop size estimates for coverage • Define "reached" by programme	• Assess coverage indicators and trends • Process evaluations: Are services available in the right place and are the reaching the target population (geographic and individual coverage)? Are services acceptable to clients? Are we implementing our services as planned? What is the capacity of programmes to provide services? Are programmes linking with other services? Are current programme activities of sufficient quality, coverage and uptake to reach 80% of MARP?
7-8. Outcome and impact monitoring and evaluation: Are interventions making a difference?	*IBBSS with MSM and FSW (2014 planned)*	Trends in outcomes (knowledge, attitudes, practices, and behaviour) and impact (STI and HIV prevalence and incidence) among target population	• Are outcomes positively changing as desired: behaviours, HIV incidence, etc.? • Are changes observed in outcomes likely the results of the programme? (Outcome evaluation. Study design needed) What programme components are contributing the most to outcomes? Are they cost-effective? • What is the optimal mix of services? Which combination of services best affects changes in outcomes? • Is the programme having an effect on HIV in the general population?

C. Ghana MARP HIV Prevention Programme Logic Model



*Adapted from the *National Strategic Plan for Most at Risk Populations 2011-2015,* Aug. 2011.

Revised 5 April, 2012

Logic Level	Description	Indicators	Data Source	Data Availabile
Activities	Strategic Objectives (SO) and strategies	*Activities, deliverables, and Indicators (i.e., outputs) are clearly stated in the MARP Operational Plan Framework 2011-2013* [4]	"Responsible" party named in OP.	
Outputs		Number of male and female condoms distributed to general population and MARP[1]	Program monitoring reports	Monthly; Quarterly
		Number of MARP who received an HIV test and who know their results (by type MARP)[1]	IBBSS 2011; IBBSS TBS ~2014	IBBSS 2011 forthcoming
		Number of most-at-risk- populations reached[1],[3] with HIV prevention programs	Program monitoring reports	Monthly; Quarterly
Outcome (Goal)	Reach 80% of MARP with HIV prevention Services	% MARP reached with HIV prevention programs[1,2]	IBBSS 2011; IBBSS TBS ~2014	IBBSS 2011 forthcoming
Outcome (Knowledge)	Improve HIV prevention knowledge and behaviors among MARP	% MARP both correctly identify ways of preventing the sexual transmission of HIV *and* who reject major misconceptions about HIV transmission[1]	IBBSS 2011; IBBSS TBS ~2014	IBBSS 2011 forthcoming
Outcomes (Behavior)	Improve HIV prevention knowledge and behaviors among MARP	% FSW (and male SW) reporting use of condom with most recent client[1]	IBBSS 2011; IBBSS TBS ~2014	IBBSS 2011 forthcoming
		% FSW report using condom with every client in last month[4]		
		% FSW report using condom with NPP at last sex[4]		
		% HIV+ FSW/MSM receive care services[4]		
		% HIV+ FSW/MSM receive ART[4]		
		% MSM have anal sex with >1 male partner last 6 mo[4]		
		% MSM, FSW had HIV test and know results last 12 mo[1]	IBBSS 2011; IBBSS TBS ~2014	IBBSS 2011 forthcoming
		% MSM report condom use the last time they had anal sex with male partner[1]	IBBSS 2011; IBBSS TBS ~2014	IBBSS 2011 forthcoming
		% MSM reporting consistent condom use during anal sex with male during last 3 mo, by age[4]		
Impact	Reduce new HIV infections among MARP by 50% by 2015	% MARP HIV infected (disagg. By type, age and sex)[1]	IBBSS 2011; IBBSS TBS ~2014	IBBSS 2011 forthcoming
		% newly HIV infected		
=	Information gap			

[1]From the *National HIV and AIDS Monitoring and Evaluation Plan 2011-2015* , July 2011

[2]Defined in the M&E Plan as "nummber of MARP who know where to go to receive a HIV test and where given condoms in the past 12 months over total number of respondents surveyed"

[3]This definition of reached in the M&E plan reads "Number of MARP who have received a basic package HIV prevention services"

[4]From the National Strategic Plan for Most at Risk Populations 2011-2015 (August, 2011), pages 35-7