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GHANA: FINAL COUNTRY REPORT

MARCH 2007

This publication was produced for review by the United States Agency for International Development. It was prepared by the DELIVER project.

DELIVER
No Product? No Program. Logistics for Health

GHANA: FINAL COUNTRY REPORT

DELIVER

DELIVER, a six-year worldwide technical assistance support contract, is funded by the U.S. Agency for International Development (USAID).

Implemented by John Snow, Inc. (JSI) (contract no. HRN-C-00-00-00010-00) and subcontractors (Manoff Group, Program for Appropriate Technology in Health, and Crown Agents Consultancy, Inc.), DELIVER strengthens the supply chains of health and family planning programs in developing countries to ensure the availability of critical health products for customers. DELIVER also provides technical management of USAID's central contraceptive management information system.

Recommended Citation

DELIVER. 2007. *Ghana: Final Country Report.* Arlington, Va.: DELIVER, for the U.S. Agency for International Development.

Abstract

The Ministry of Health (MOH) in its medium-term health strategy ending 2001 identified the need to integrate the vertical supply systems for public-sector health commodities and make them more efficient. To support the MOH objective, DELIVER assessed the effectiveness of the four vertical supply chains (contraceptives, essential medicines, non-drug consumables, and vaccines) through process mapping to indicate all the steps required in moving supplies through the pipeline to the clients and, realizing the need for integration, went ahead to work with the MOH to develop an integrated supply system based on a scheduled delivery system throughout all levels. Standard operating procedures, a logistics management information system (LMIS), and a novel preprinted Requisition, Issue, and Receipt Voucher were developed to facilitate implementation of the new supply system. One thousand fifty-five personnel from regional and service delivery point levels have been trained to use it, in addition to 33 trainers who will support further training.

With the increasing demand for contraceptives and the limited resources of the partners, DELIVER has championed the concept of contraceptive security (CS); with the MOH and the Ghana Health Service, they have developed a national contraceptive security strategy for contraceptives. An Inter-Agency Coordinating Committee for Contraceptive Security (ICC/CS) has been established to coordinate and oversee the implementation of CS activities. As a result, from 2003 to 2006, through DELIVER's support to ICC/CS's advocacy, the needed financial resources were mobilized to fill the gap for contraceptives procurement.

In the area of HIV/AIDS, DELIVER has contributed to in-country programs by putting in place an LMIS for the HIV/AIDS test kits and antiretrovirals, in addition to providing support in forecasting, procurement planning, and pipeline monitoring. DELIVER has also supported the training of personnel at the various treatment, counseling, testing, prevention of mother-to-child transmission, and sentinel sites in logistics management of the commodities they use. With these in place, an April/May 2006 logistics indicators assessment of facilities showed that 17 percent of testing sites were out of stock for test kits during the day of the visit and 33 percent had experienced a stockout of test kits during the three months preceding the day of the visit for the two most common test kits used in the system (Determine and Rapi-test). To ensure that the vast range of HIV/AIDS commodities will be regularly available to the growing number of clients, DELIVER has assisted MOH to develop a National HIV/AIDS Commodity Security Strategy, which was approved by all the stakeholders in July 2006.

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CONTENTS

ACRONYMS

AED/GSCP	Academy for Educational Development/Ghana Sustainable Change Project
AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
ARV	antiretroviral
CA	cooperating agency
CHPS	Community Health Planning Services
CMS	Central Medical Store
CPR	contraceptive prevalence rate
CPT	contraceptive procurement table
CS	contraceptive security
CSEP	Country Strategic and Evaluation Plan
CYP	couple-years of protection
DANIDA	Danish International Development Agency
DFID	Department for International Development
DHMT	District Health Management Team
ECOWAS	Economic Community of West African States
EM	essential medicines
EU	European Union
FP	family planning
GDHS	Ghana Demographic and Health Survey
GHS	Ghana Health Service
GOG	Government of Ghana
GPRS	Ghana Poverty Reduction Strategy
GSMF	Ghana Social Marketing Foundation
HACS	HIV/AIDS Commodity Security
HIV	human immunodeficiency virus
ICC/CS	Inter-Agency Coordination Committee/Contraceptive Security
IR	intermediate results
LIAT	Logistics Indicator Assessment Tool
LMIS	logistics management information system
LSAT	Logistics System Assessment Tool

MDAs	ministries, departments, and agencies
MOH	Ministry of Health
NACP	National AIDS/STI Control Program
NGO	nongovernmental organization
PHRL	Public Health Reference Laboratory
PLWHA	people living with HIV/AIDS
PPAG	Planned Parenthood Association of Ghana
PRB	Population Reference Bureau
RH	reproductive health
RHCS	reproductive health commodity security
RIRV	Requisition, Issue, and Receipt Voucher
RMS	Regional Medical Store
SDP	service delivery point
SOP	standard operating procedure
SSDM	Stores, Supplies, and Drug Management
STI	sexually transmitted infection
SWAp	sector wide approach
TA	technical assistance
TOT	training of trainers
UNAIDS	United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
UNICEP	United Nations Children's Fund
USAID	U.S. Agency for International Development
WHO	World Health Organization

ACKNOWLEDGMENTS

DELIVER would like to thank the institutions and individuals that contributed to DELIVER's work throughout the duration of the project.

USAID Ghana provided continued support during the five years of the DELIVER project. This financial and technical support has been the reason for the success of the health commodity logistics program in Ghana.

The Ghana Ministry of Health (MOH) has fully endorsed the DELIVER program and provided various types of support and guidance to ensure that the program responds to the Ministry of Health/Ghana Health Service (GHS) objectives. DELIVER thanks the Procurement and Supply directorate of the Ministry of Health; the Stores, Supplies, and Drug Management directorate; the Public Health Directorate and National AIDS Control Program of the Ghana Health Service; and the Ghana AIDS Commission for their continued collaboration. Special thanks to Messer's Samuel Boateng of the MOH, Dr. George Amofah and K. Addai-Donkoh of the GHS, who were DELIVER's principal contacts within the government health machinery in Ghana. Mrs. Veronica Bekoe of the Public Health Reference Library, Dr Gloria Quansah Asare of the Reproductive and Child Health Unit, and Dr. Nii Akwei Addo of the National AIDS/STI Control Program deserve our thanks for their demonstrated leadership, which was instrumental in achieving the results described in this report.

The United Nations Population Fund, the Department for International Development, the World Health Organization, World Bank, the United Nations Programme on HIV/AIDS, the Japan International Cooperation Agency, the Academy for Educational Development, Family Health International, the Policy Project, the Population Council and other U.S. cooperating agencies working in Ghana have all greatly contributed in resources and technical input to developing and implementing the contraceptive security and the HIV/AIDS Commodity Security plans. Through the Inter-Agency Coordinating Committee for Commodity Security they all have provided critical advice and resources to bridge the funding gap of commodity requirements for the MOH.

EXECUTIVE SUMMARY

For some time, Ghana managed and distributed public-sector health commodities through the operation of four vertical supply chains, which were judged by the Ministry of Health (MOH) to be ineffective. In its medium-term strategy, which ended in 2001, the MOH noted the need to improve the efficiency of health commodity supply chains to address the nation's public health goals. The U.S. Agency for International Development (USAID)-funded DELIVER project has since then proposed and implemented numerous supply chain improvements (especially in procurement management, storage, and distribution) with the aim of reversing the observation of the Ghanaian health authorities and fulfilling the USAID strategic objective of improved health status.

The DELIVER project has worked in Ghana since 2002 to meet targets set under the intermediate results (IR):

- IR1: access to health services expanded
- IR3: quality of health services improved and
- IR4: institutional capacity to plan for and manage health program needs strengthened.

The USAID objective meets the expectation of the Ghana Poverty Reduction Strategy to the effect that improving the health status of citizens is necessary for poverty reduction; and reproductive health and HIV/AIDS are priority challenges that must be addressed under the overarching pillars of good governance, human resource development, and private-sector development that guide all interventions in the strategy.

DELIVER's objectives in Ghana are to meet the above-mentioned intentions of USAID and the Government of Ghana and are to—

1. strengthen contraceptive security (CS)
2. strengthen the national HIV/AIDS program.

A major development of DELIVER's intervention is the new integrated supply chain system operationalized in 2002 to augment the previous vertical chains for contraceptives, medical consumables, and essential drugs. Standard operating procedures (SOPs) and a logistics management information system (LMIS) system were developed to facilitate implementation of the new system and by July 2006 1,055 people had been trained nationwide, including 33 trainers. The SOPs describe key activities in the stores and supply operations, with responsibilities for personnel at the regional and service delivery point levels. Some of the characteristics of the new system include—

- a scheduled delivery system throughout all levels
- elimination of the district stores to shorten the supply chain
- institution of the district role of support and advocacy
- a preprinted Requisition, Issue, and Receipt Voucher
- operation on a full supply of commodities basis
- a regularly updated price list
- document system performance monitoring.

This system has helped increase the availability of contraceptives and essential drugs such that the use of modern methods of contraception reached 19 percent in 2003, compared with 13 percent in 1998. The 2006 Logistics Indicator Assessment Tool results show that, on average, 21 percent and 26 percent of facilities were out of stock during the day of the visit, respectively, for contraceptives and essential medicines (EM). During the last six months, 38 percent of health facilities (hospital and health centers) had experienced a stockout of at least one of the sample list of 12 tracer medicines. Thirty-four percent of health facilities (hospitals and health centers) had experienced a stockout of at least one of the three popular contraceptives in Ghana (Lo-Femenal, Depo-Provera, male condom) during the past six months. For EM and contraceptives, stockouts normally occurred once, irrespective of the product or institution. These data now serve as a baseline for further work.

DELIVER, together with the various stakeholders in reproductive health commodity distribution, annually prepares forecasts of the various commodities required in the country and corresponding procurement plans (contraceptive procurement tables) for these commodities. DELIVER and the stakeholders, through the Inter-Agency Coordination Committee/Contraceptive Security (ICC/CS), present the results to the partners to obtain their financial commitments.

During the term of the program, DELIVER has championed the concept of commodity security; with the MOH and the Ghana Health Service (GHS), they have developed a commodity security strategy for contraceptives and HIV/AIDS commodities. The program has also helped establish coordinating bodies to oversee the implementation of activities for the continuous availability of commodities as needed for both clients and users. It is worth noting that from 2003 to 2006, through its planning and support to ICC/CS's advocacy, DELIVER has always mobilized the necessary financial resources for the procurement of contraceptive commodities.

In the area of HIV/AIDS, DELIVER has contributed to in-country programs by putting in place an LMIS for HIV/AIDS test kits and antitretrovirals (ARVs), in addition to providing support in forecasting, procurement planning, and pipeline monitoring to the country's HIV/AIDS program. DELIVER has also supported the training of personnel at the various treatment, counseling, testing, prevention of mother-to-child transmission, and sentinel sites in logistics management of the commodities they use. With the LMIS in place, an April/May 2006 logistics indicators assessment of facilities showed that 17 percent of testing sites were out of stock for test kits during the day of the visit and 33 percent had experienced a stockout of test kits during the three months preceding the day of the visit for the two most common test kits used in the system (Determine and Rapi-test). This assessment now serves as baseline for further work.

To promote country ownership and program continuation at all levels, DELIVER trained six central-level staff in the Supply Chain Logistics for Commodity Security course. All of these individuals are in high-level positions with responsibility for logistics management, which, coupled with the exposure DELIVER has provided while performing technical assistance duties, has transferred knowledge and capacity to many additional central-level staff.

Through DELIVER, USAID is meeting its aim of improving health status by increasing the use of contraceptive products that are now easily available from most health and social services facilities. For HIV/AIDS, there is an LMIS in place to ensure the ready availability of test kits and ARVs in the various sites where they are needed. Personnel to manage these commodities and essential drugs have benefited technically and acquired skills in forecasting, procurement planning, and pipeline monitoring by participating in DELIVER programs and activities. Most have also had direct training in logistics management, and DELIVER has also supported the training of trainers to continuously provide logistics capability and skills to the remainder of responsible MOH/GHS staff.

However, some weaknesses need to be addressed and considered for the future, such as resource mobilization to implement both CS and HIV/AIDS commodity security strategy plans to secure continued availability of commodities, effectiveness of the integrated supply chain, and scheduled delivery in all 10 regions, and improvement of monitoring and supervision.

PROGRAM BACKGROUND

COUNTRY CONTEXT

Ghana is the third largest member of the Economic Community of West African States (ECOWAS) (population 21,377,000) (BUCEN 2002) and is a major trading partner with its neighbors. Its political, economic health outlook is relatively stable compared with its neighbors in the West Africa subregion. In February 2003, its Parliament approved the Ghana Poverty Reduction Strategy (GPRS), which acted as a conduit for continued development assistance and, perhaps more importantly, outlined a medium-term strategy for promoting economic growth and reducing poverty.

Ghana's per capita gross national income was U.S.$2,170[1] in 2001.[2] While this figure is low according to World Bank classifications, it is double the average for West Africa and is behind only Gambia and Cape Verde among ECOWAS countries. In 2000 its public-sector expenditure on health as a percentage of gross domestic product was 8 percent, the highest among ECOWAS countries. Public-sector expenditure on health as a percentage of the total was 59.6 percent, with private-sector health expenditures accounting for the remaining 40.4 percent (World Health Organization [WHO] 2001).

The 2003 Ghana Demographic and Health Survey indicated that the total fertility rate had continued to decrease from 6.4 in 1988 to 4.4 in 2003, as shown in figure 1. Compared with other countries in sub-Saharan Africa, fertility is lower only in Gabon, Zimbabwe, and South Africa (where data are available). From 1998 to 2003 the rate of fertility decline showed indications of a plateau, with the decline amounting to 0.2 percent over the period.

In somewhat of a contrast to the slowing decline of fertility, use of modern methods of contraception among married women increased significantly from 13 percent in 1998 to nearly 19 percent in 2003, as seen in figure 2. Use of any method increased from 22 percent to 25 percent during the same period, indicating modern method use among new users. The latest figures confirm a trend seen since 1988, when use of modern methods stood at 5 percent. Although the contraceptive prevalence rate (CPR) has slowed somewhat over the past five years, the use of modern methods has nearly doubled since 1993 (Ghana Demographic and Health Survey [GDHS] 2003). While Ghana is a leader in the subregion in prevalence of contraceptive use, unmet need for contraception remains significant (34 percent; GDHS 2003). The increase in demand for contraceptives (59.2 percent in 2003) is noteworthy.

The percentage of women receiving antenatal care from a health professional showed a slight increase from 89 percent in 1998 to 92 percent in 2003. The rate of medical-assisted deliveries rose from 40 percent in 1988 to 47 percent in 2003. Overall, the GDHS figures indicate a steady increase in these indicators. Other factors linked to good reproductive health (RH) outcomes are maternal and infant mortality.

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[1] All dollar amount are U.S. dollars unless specified otherwise.

2 Gross national income in purchasing power parity.

Figure 1. Ghana Total Fertility Rate: 1983–2003

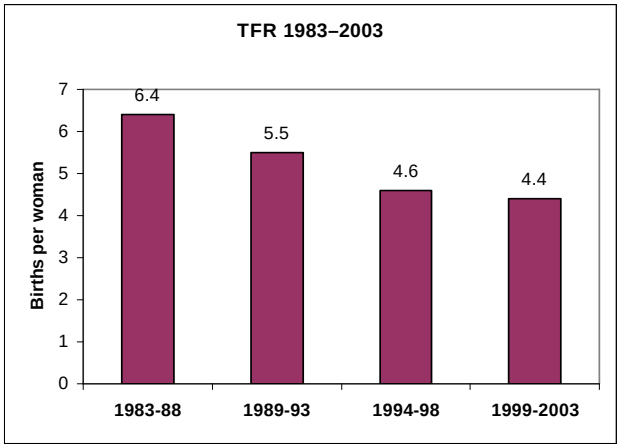
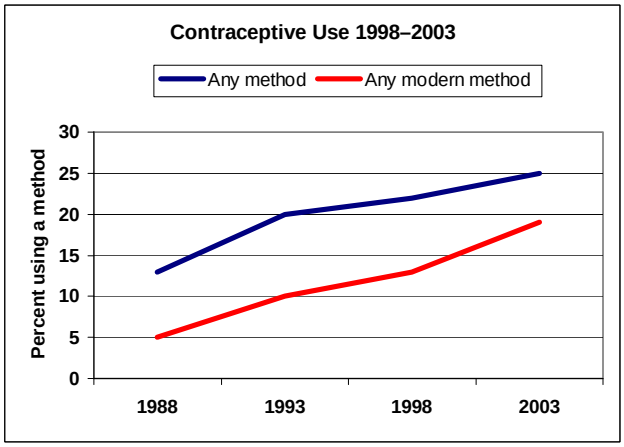


Figure 2. Ghana CPR: 1988–2003



The Ghana maternal mortality ratio was 590 (out of 100,000) in 2001. This rate was lower only in Cape Verde (190), and was much lower than the average rate for West Africa, which stands at 1,100 (Population Reference Bureau [PRB] 2002). The infant mortality rate in Ghana also steadily declined from 77.2 in 1988 to 64 (per 1,000 live births) in 2003 (GDHS 2003).

The growing prevalence of HIV infection in West Africa is another factor of concern. However, the median HIV prevalence rate for Ghana decreased from 3.6 percent in 2003 to 3.1 percent in 2004 and 2.7 percent in 2005 (NACP 2005). This figure remains below the 5 percent threshold figure considered as a general epidemic (UNAIDS 2000; Ghana Demographic and Health Survey 2003). Among subpopulations, the HIV prevalence rate for females aged 18–24 is 3.9 percent, compared with males in the same age group at 1.8 percent (PRB 2003).[3]

KEY PLAYERS AND ROLES

- In the health sector, the Ministry of Health (MOH) is the lead government institution in charge of setting the policies that govern health delivery in Ghana. The public sector is also the main provider of health services in Ghana. Agencies allied to the MOH that deal with logistics include Ghana Health Services (GHS), NACP, the Ghana AIDS Commission, and the Central Medical Stores (CMSs).
- The private for-profit sector exists and provides services for the richest segment of the population.
- Nongovernmental organizations (NGOs) such as the Ghana Social Marketing Foundation (GSMF) and the Academy for Educational Development/Ghana Sustainable Change Project (AED/GSCP) provide subsidized products. The Planned Parenthood Association of Ghana (PPAG), the International Planned Parenthood Federation affiliate, is a major NGO providing family planning (FP) services in the country.
- The MOH is assisted by bilateral and multilateral partners. In the area of reproductive health and health commodities logistics, the MOH main partners include the U.S. Agency for International Development (USAID), the Department for International Development (DFID), WHO, the United Nations Population Fund (UNFPA), and the United Nations Children's Fund (UNICEF). These organizations provide technical assistance and funding for products according to their comparative advantages.

[3] Upper Bound populations only.

- USAID is a long-term partner and has developed a new country strategy plan 2004–2010 to assist the MOH. Along with USAID, assistance is provided by a number of U.S. cooperating agencies (CAs) such as DELIVER. The main U.S. cooperating agencies implementing the bilateral programs are AED/GSCP, in charge of behavior change communication and the social marketing program; the Academy for Educational Development/Strengthening HIV/AIDS Response Partnerships, implementing HIV activities; Quality Health Partners/EngenderHealth, in charge of quality health; and the Population Council/Community Health Planning Services (CHPS)-Technical Assistance in charge of implementing the CHPS program.
- UNFPA is another major donor of contraceptives and also a procurement agency for reproductive health products (especially contraceptives). It has procured contraceptives for Ghana using World Bank credit and Government of Ghana (GOG) funds.
- The Global Fund provides funding to fight AIDS, tuberculosis, and malaria. The Fund supports scaling up of care and other activities, including voluntary counseling and testing and prevention of mother-to-child transmission, test kits, and antiretroviral (ARV) drug purchases both for the public and private sectors and NGOs.
- The United Kingdom's Department for International Development supports the Ghana AIDS Commission's activities to strengthen the capacity of the GOG to coordinate, monitor, and evaluate AIDS programs, including condom supply and distribution. It was involved in supplying condoms until 2006 for all family planning and HIV/AIDS prevention programs.
- The World Bank supports the implementation of the GOG's National Strategic Framework on HIV/AIDS through the "GARDFund."
- Donors such as the World Bank, the European Union (EU), the Danish International Development Agency (DANIDA), DFID, and the Royal Neederland Embassy participate in the sector wide approach (SWAp) and contribute to common basket funding for the health sector. The GOG is now moving from SWAp to the Multi-Donor Budgetary Support.

KEY CHALLENGES

Although the GOG commits a great deal of effort and resources to improve the health system, it still faces important challenges. In the logistics area, an assessment has shown that the logistics system functions relatively well and many accomplishments have been noted; however, some important issues remain that must be addressed by the MOH. Key among these is a logistics system with numerous vertical management systems in place and supplier-driven, non-value-added steps that are not customer friendly. Furthermore, the system does not have measurable standards to determine its capacity to meet supply chain objectives and customer requirements.

There is limited capacity of Ghanaians to fulfill the following essential logistics conditions: forecasting, financing, procurement, and distribution of products. The MOH is most concerned about the gap in funding for contraceptives due to the unpredictability of funding for these commodities. Funds for public-sector commodities have traditionally been provided through several sources, including the MOH budget and bilateral and multilateral donors such as UNFPA, USAID, and DFID. For example, in 2002 USAID supplied 78 percent of the total couple-years of protection (CYP) generated from donated supplies in the preceding three years. In addition, the cost recovery system has not been able to recover enough revenue to cover a significant portion of product needs.

In the domain of procurement, the government has the capacity to procure essential medicines but has been using external agencies for its contraceptive procurement apart from what it receives from donors.

For product delivery, the MOH fears possible negative effects of decentralization and integration on the performance of the contraceptive logistics system.

In the area of HIV/AIDS, procurement is delayed due to long lead times that create shortages of products at treatment sites. Causes of extended lead times include bureaucratic tardiness in signing contracts, communication breakdown, and inability of service personnel to respond to procurements issues such as availability of funds.

Weakness of the supply chain relates to unreliable transportation and inadequate storage conditions, poor forecasting skills of staff, and limited capacity to analyze logistics management information system (LMIS) data to inform decision making. The foreseen increase in HIV/AIDS patient numbers is a problem in view of the limited capacity of the health system to manage the growing number of patients and, therefore, an extended number of treatment facilities.

Laboratory capacity is still inadequate at various levels of the system and therefore is unable to support the HIV/AIDS program to achieve successful results.

GOALS AND OBJECTIVES

The objectives and strategies proposed by DELIVER are responses to priorities identified by the MOH and USAID. They support GPRS interventions such as equity, access, and efficient services to ensure continued and increasing impact on improving health status while addressing issues of sustainability.

DELIVER OBJECTIVES

DELIVER objectives in Ghana are twofold:

1. strengthen contraceptive security
2. strengthen the national HIV/AIDS program.

RELATIONSHIP TO USAID AND CLIENT OBJECTIVES

The DELIVER objectives contribute to USAID's strategic objective of *improved health status*; specifically, DELIVER helps achieve the following USAID intermediate results (IR)—

- IR2: access to health services expanded
- IR3: quality of health services improved
- IR4: institutional capacity to plan for and manage health program needs strengthened through support of long-term contraceptive security planning and implementation, and provision of technical assistance to improve contraceptive, essential drug, and STI/HIV commodity logistics at the national level and in target districts.

DELIVER also contributes to the strategic objectives to reduce HIV transmission and mitigate the impact of HIV/AIDS, especially IR4—strengthen institutions for HIV programming by providing commodity security and supply chain management.

USAID has developed its health strategy based on the GPRS, in which it is stated that Ghanaians believe that improving the health status of the poor is crucial to poverty reduction. To achieve higher health status for its population, Ghanaian authorities focus on standardizing the quality of basic health care to ensure access to good-quality services, and have identified reproductive health and HIV/AIDS as priority areas. MOH leadership views human resource development as key to achieving all health program expected results.

DELIVER'S ROLE IN RELATION TO OTHER ORGANIZATIONS

DELIVER's objectives in Ghana make it possible for other organizations, including other donor programs, to benefit from its expertise. Therefore, DELIVER plays a very important role in helping to coordinate all activities of programs dealing with RH products, and supply chain management in the public and NGO sectors. DELIVER collaborates with other organizations to share its expertise and leverage resources to strengthen logistics systems in Ghana. These organizations include UNFPA, DFID, EU, and DANIDA, as well as national organizations mentioned earlier in this report.

SUMMARY OF INTERVENTIONS

DELIVER focuses its interventions related to the above-mentioned objectives in six major areas:

1. Improve reliability of health commodity distribution.
   - Document and disseminate standard operating procedures of the MOH integrated logistics system.
   - Improve MOH delivery and warehouse management systems.
   - Improve logistics management of contraceptives and condoms at GSMF, particularly improving monitoring of their stock situation.
2. Improve capacity to monitor and estimate commodity requirements.
   - Work with counterparts to prepare contraceptive procurement tables.
   - Continue monitoring of the contraceptive stock situation at the central level for all programs.
3. Improve capacity for financing health commodities.
   - Review the pricing structure of health commodities and disseminate findings.
   - Develop resource projections for health commodities and provide follow-on assistance in policy for developing a financial sustainability strategy plan.
   - Advocate among donors for increased financing for contraceptives.
   - Support the Inter-Agency Coordination Committee/Contraceptive Security (ICC/CS) in promoting contraceptive security and achieving progress in the 14 priority areas in ensuring CS in Ghana. (Ghana National Contraceptive Security Strategy: 2004–2010, May 2004)
4. Improve capacity to procure health commodities, including contraceptives.
   - Establish contraceptive procurement systems and procedures and orient MOH staff to procure contraceptives on the international market.
5. Improve capacity to monitor and evaluate logistics system performance.
   - Work with MOH counterparts in annual and mid-term reviews of progress in implementation of the integrated system and development of action plans to address problems.
   - Conduct annual Logistics System Assessment Tool (LSAT) assessments and end-of-project Logistics Indicator Assessment Tool (LIAT) survey. (The baseline LIAT was conducted under a separate core-funded activity—the decentralization study.)
6. Assess logistics management capacity at the national level and pilot facilities for ARVs, HIV test kits, and lab commodities.
   - Assist the Joint Commercial Marketing Society Project/PharAccess International in designing or adapting a system to forecast, stock, and manage ARVs, HIV test kits, and related laboratory commodities for the private antiretroviral therapy (ART) sites.
   - Assist Family Health International/MOH/GHS-NACP in designing or adapting a system to forecast, stock, and manage ARVs and related laboratory commodities in ART and testing sites.
   - Develop and implement the LMIS for HIV/AIDS Commodities (ARVs and test kits).
   - Assess the Ghana Laboratory Logistics System and Services.

SUMMARY OF DELIVER FUNDING AND STAFFING

Since May 2002 DELIVER has maintained an office in Accra to support its technical assistance activities included in the Country Strategic and Evaluation Plan (CSEP).

STAFFING

DELIVER (Ghana Office) started with a half-time regional logistics advisor who continued providing technical assistance to Family Health and AIDS Prevention/West and Central Africa project countries (Cameroon, Ivory Coast, and Togo). He became a full-time resident logistics advisor for Ghana in January 2003 and an administrative assistant was hired to support him. A driver was hired in October 2003 to facilitate numerous in-country travels. As the program expanded, a full-time program officer was hired in August 2005 to complete the current team.

In-country staff are assisted from the headquarters in Washington by a Coordinator for Country Programs, a Country Team Leader for management and technical backstop, and a country coordinator for financial and operational backstops. A team of advisors in various technical areas based in Washington collaborate on an as-needed basis for the implementation of the DELIVER Ghana program.

FUNDING

Since the start of the project, DELIVER Ghana has received $3,841,000 in funding.

PROGRAM RESULTS

ELEMENT I: IMPROVED LOGISTICS SYSTEM

INTEGRATED SUPPLY CHAIN: CONTRACEPTIVES, ESSENTIAL DRUGS, AND NON-DRUG CONSUMABLES

In 2002, the MOH operated more than four vertical supply chains for the management and distribution of health commodities to its public-sector health institutions. As part of the five-year program of work, the MOH identified the need to integrate the vertical supply chains and make them more efficient. To support the MOH objectives, DELIVER assessed the effectiveness of the four vertical supply chains—contraceptives, essential medicines, non-drug consumables and, vaccines—using a process mapping of all steps encountered in delivering health commodities to clients from points of procurement. The results showed that hundreds of action steps were required to move supplies through the system (from forecasting to dispensing at the service delivery point [SDP]), leading to frequent shortages of the products at the facilities.

Recommendations from the assessment confirmed that management of three supply chains could be integrated: essential drugs, non-drug consumables, and contraceptives.

DELIVER assisted in the design of an integrated supply chain. The new integrated system is shorter and the district stores have been eliminated in the pipeline. The district level now serves as a program support and advocacy unit and will focus its efforts on supporting the health facilities to improve client care. A scheduled delivery system from Central Medical Stores (CMSs) to Regional Medical Stores (RMSs) and from Regional Medical Stores to the health facilities was proposed.

There are a number of requirements for the new integrated supply chain to work. These requirements include—

- Use of standardized, preprinted Requisition, Issue, and Receipt Vouchers (RIRVs) to manage commodities distribution: The RIRVs contain the standardized, preprinted list of the health commodities that are supplied through the public-sector distribution system. This unique single voucher replaces the numerous individual data capture materials (separate requisition, issue, and receipt vouchers; invoices) that led to the higher number of steps and inefficiencies in logistics transactions. It also serves as a reporting form since it contains two key logistics data (consumption and stock on hand). The RIRV was tested in the Central and Eastern regions before a final version to be used in all regions was approved and produced.

- Development of a Standard Operating Procedures Manual for ordering, shipping, receiving, storing, and distributing health commodities: The manual has been produced and describes key activities in store operation with responsible persons at regional and SDP levels. It has now become the MOH official document that guides the flow of commodities and logistics information. Training materials were also developed to help guide training of staff in the use of the SOPs. All staff in the logistics system are required to be trained in the use of the SOPs. A team of three trainers from each of the 10 regions and three staff from the central level were trained in SOPs to handle the roll-out training in the regions. Apart from the 33 trainers, USAID through DELIVER has supported training for 193 staff managing the commodities in the regions. As of July 2006, 1,022 of 2,500 staff members managing health commodities in the supply chain (pharmacists, store managers, and family planning coordinators and service providers) had been trained, with financial support from USAID through DELIVER (193 persons) and MOH/GHS (829 persons).

- Renovation and equipment of the warehouses: The Regional Medical Stores play a key role in supplying commodities to SDPs. The Central Medical Stores deliver the commodities to the RMSs. To make the stores at these two levels more efficient, RMSs have been equipped with metallic shelves and CMSs have been renovated to facilitate loading and unloading of truckloads of commodities. All stores have been reorganized to provide better storage conditions and, thus, improved quality of stock during the duration of storage.
- A transportation study was completed and recommendations were made that only 3.5-ton covered trucks be used for commodity distribution in the regions instead of the seven-ton trucks currently used for general services at the regional level because of the size of the loads and desired security, and the nature of roads to the SDPs.
- A pharmaceutical pricing study was conducted and recommendations were made to inform policy options for drug margins, procurement distribution, and financial management. Furthermore, a new pricing structure is proposed for contraceptives and condoms based on recommendations from an ability-to-pay contraceptive study.

FORECASTING

Forecasting was done once a year and reviewed after six months to estimate the contraceptive requirements for the country, including the MOH and the NGO sector. Requirements were estimated for all MOH stakeholders, including UNFPA and DFID. Estimations were made for three years (the current year and the next two years) based on consumption over the previous two years. PipeLine software was used to perform procurement planning and schedule shipments. Forecasting was done by a trained national team with minimal assistance from DELIVER. Staff from each of the programs managing contraceptives and condoms were trained and are using PipeLine software to manage the shipments.

PROCUREMENT

Even though procurement of essential drugs has been carried out by the MOH Procurement Unit, it does not have experience in procuring products that have traditionally been donated, such as contraceptives and condoms for STI and HIV/AIDS prevention. UNFPA is the procurement agent for contraceptives for MOH. DFID uses Charles Kendall Partners Limited for condom procurement for all of the programs in Ghana.

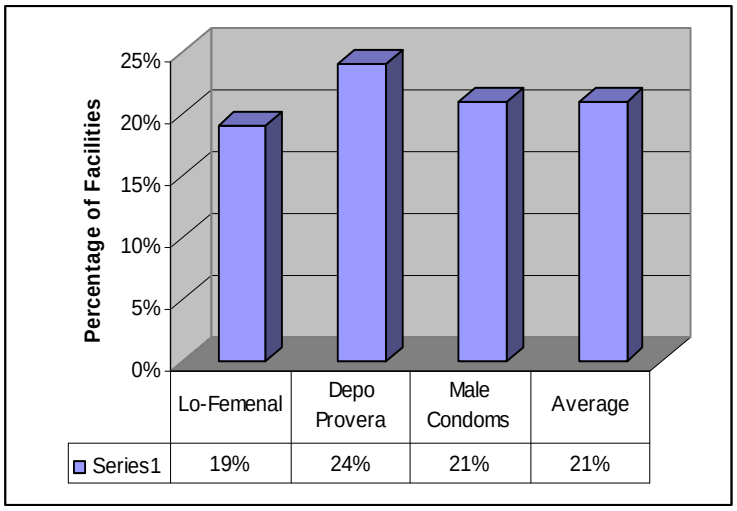
DELIVER assessed the capability of the Procurement Unit of the MOH and GHS to do its own procurement of contraceptive commodities and identified resource improvements required for efficiency in this activity.

CURRENT LOGISTICS INDICATORS

LIAT and LSAT assessments were carried out in April–May 2006 and show the following results:

- For the three popular contraceptives in Ghana (Lo-Femenal, Depo-Provera, and male condoms), LIAT results show:
  - *Lo-Femenal* was available in 81 percent of facilities (hospitals and health centers) on the day of the visit.
  - *Depo-Provera* was available in 76 percent of the facilities.
  - *Male condoms* were available in 79 percent of the facilities.

Figure 3. Percentage of Facilities with Contraceptive Stockouts on Day of Visit



In general, the availability of contraceptives (figure 3) is better than that of essential medicines at the facilities. An average of 21 percent of the health facilities were out of stock for contraceptives during the day of the visit, while 26 percent of health facilities were out of stock for essential medicines and 17 percent of testing sites were stocked out of test kits.

During the six months prior to May 2006, 34 percent of the facilities visited had stocked out of at least one of the contraceptives Lo-Femenal, Depo-Provera, and male condoms, while 38 percent had stocked out of essential medicines such as amoxicillin, injectable procaine penicillin, oral rehydration solution of salts (ORS), tablets of ferrous sulphate, and fumarate.

Thirty-three percent of testing facilities had experienced a stockout in at least one of the test kits used in the public sector (Determine or Rapi test) during the three months prior to May 2006.

The LSAT indicated that an LMIS structure was in place for most commodities, resulting in improved forecasting and procurement. Family planning and HIV/AIDS programs offered the best practices to be emulated.

There are policies, guidelines, and structures to ensure proper inventory control, and training programs are frequently conducted by the Stores, Supplies, and Drug Management (SSDM) and Pharmacy Units of the GHS to ensure their use. All of the warehouses have been reorganized and equipped to support the integrated supply and scheduled delivery systems (which were put in place with DELIVER's assistance), and there are policies, guidelines, and coordinating bodies in place for financing and donor coordination.

SUPPLY CHAIN MANAGEMENT OF HIV/AIDS COMMODITIES

DELIVER provided technical assistance to design an efficient supply chain and LMIS forms for managing the antiretroviral (ARV) drugs and test kits in both the public and private sectors. The LMIS forms and guidelines produced were distributed to all ART and testing sites. A training curriculum was developed by DELIVER. All functional ART site staff (pharmacists, physicians, counselors, store keepers) and the laboratory technicians at the testing sites were trained in the management of ARV drugs

and test kits. In total, 171 laboratory technicians were trained in test kit LMIS and 95 ART staff received training in ARV LMIS.

As a result of these interventions, the HIV/AIDS commodities LMIS is functioning well and is instrumental in making available to NACP such information as ARV drugs used; number of people living with HIV/AIDS (PLWHA) under treatment, by regimen; number of test kits used; and stock situation to support ARV drugs and test kits forecasting and quantification. (See figure 4.)

DELIVER also provided technical assistance to forecast and review ARV drug and test kit requirements and develop procurement plans. These activities were done with MOH staff, who are now capable of performing these tasks with limited technical assistance.

In addition to contraceptive/essential drugs logistics and HIV/AIDS commodity logistics, DELIVER assisted the MOH in assessing the laboratory logistics situation and provided recommendations for its improvement.

ELEMENT II: IMPROVED HUMAN CAPACITY IN LOGISTICS

DELIVER has developed human capacity for supply chain management in Ghana at all levels so that the program and others can get people who have the right tools and skills for its operations. The approaches used to develop human capacity included (1) training staff at all levels of the system in all components of a logistics system; and (2) providing facilitative supervision coupled with on-the-job training. Manuals, training curricula, and a monitoring tool have been developed for this purpose. Human capacity development encompasses essential drugs, contraceptives, and HIV/AIDS products.

TRAINING IN SOPS

The Standard Operating Procedures Manuals were developed as a result of the assessment that recommended the merger of the three supply chains and the development of the scheduled delivery system. Staff at all levels needed to be trained in the operating procedures of the new logistics system.

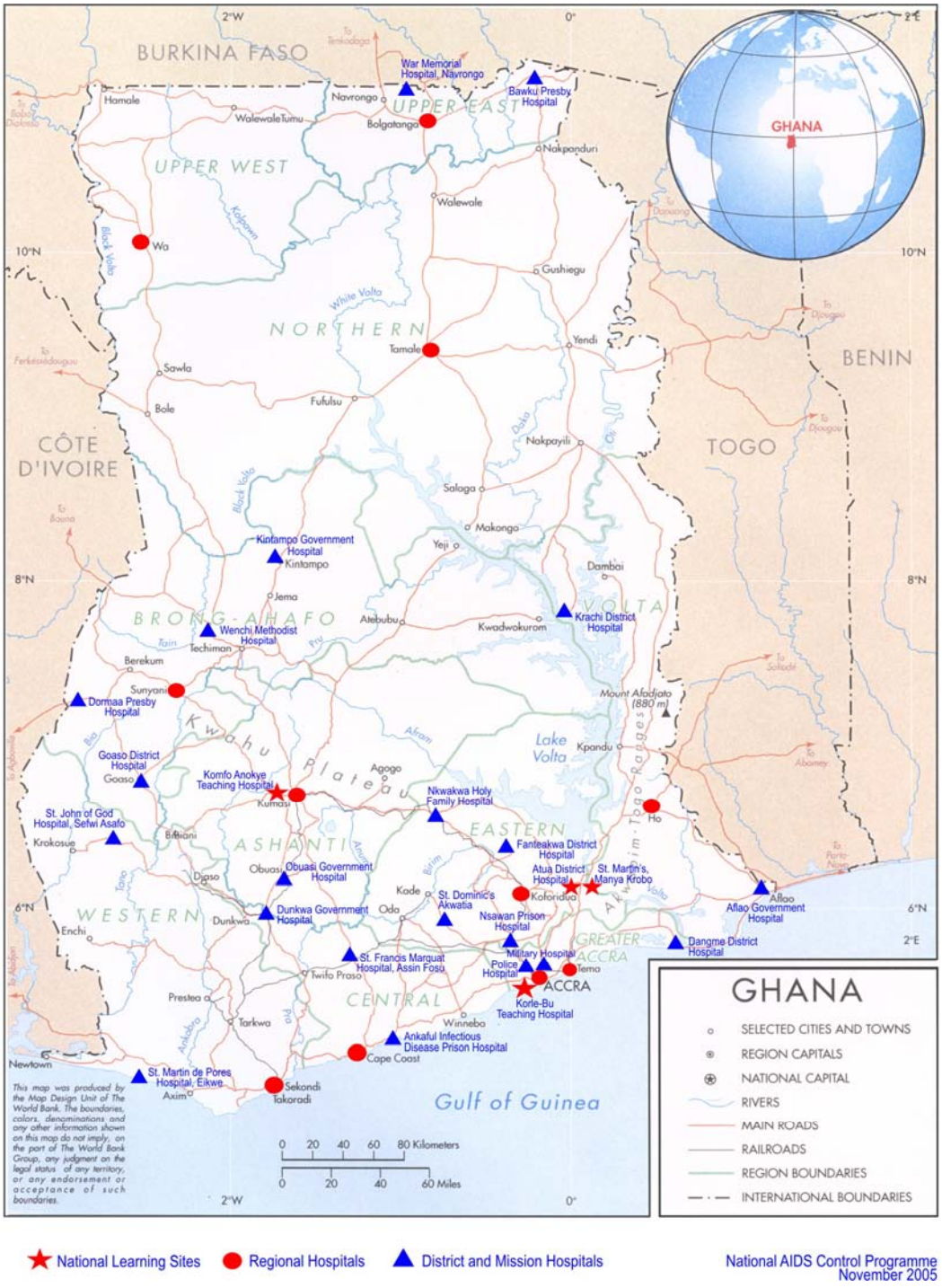
With assistance from DELIVER, 1,055 staff have been trained and are now able to use their skills to operate the system at their assigned levels. Subsequent supervision visits have shown that 65 percent of staff trained are performing their duties satisfactorily.

TRAINING IN SUPPLY CHAIN LOGISTICS FOR COMMODITY SECURITY

This training was of critical importance for the staff to enable them to estimate commodity requirements, do procurement planning, manage the health commodities logistics system, and serve as resource persons in logistics management for the Ghana programs.

A total of six key people at the central level in the MOH and GSMF attended the DELIVER international Course on Supply Chain Logistics for Commodity Security. After the training, all of them were appointed to higher management positions in the health commodities logistics system (Head of CMS, Head of the Procurement Unit/MOH, National HIV/AIDS Commodities Logistics focal person, Head of the Procurement/SSDM, Information & Logistics Manager/RCH-GHS, and Warehouse Manager/GSMF).

Figure 4. Current and Planned ARV Sites in Ghana with ARV Scale Up to Districts



In addition to the formal training, the Ghanaian counterparts received hands-on training in forecasting and procurement planning during the annual contraceptive procurement table preparation that has been taking place since 2004. Staff of MOH and GSMF are now able to prepare forecasts and do procurement planning. They are also able to manage the logistics information systems and shipments using PipeLine software developed by DELIVER.

TRAINING IN ARV AND HIV TEST KITS QUANTIFICATION AND ARV/TEST KITS LMIS

Selected MOH/GHS staff at the central level also received ARV drug and test kit quantification training. Building on the previous training in supply chain for commodity security, selected staff received on-the-job training by DELIVER staff from both Washington and the Ghana program. The training was given during three quantification exercises. The HIV/AIDS commodity manager from NACP, the ARV drugs Procurement Manager from the Procurement Unit, and the Chief Biologist managing the national stock of test kits at the Public Health Reference Laboratory (PHRL) were the principal beneficiaries of the training in ARV drugs and test kit quantification. They are now able to forecast and review antiretroviral drug and test kit requirements and develop procurement plans with minimal technical assistance. Staff from the 21 existing ART sites (95 persons) have been trained in the ARV drug LMIS and are now able to correctly calculate monthly order quantities of ARV drugs needed and use the appropriate logistics information management system forms to order their supplies.

Staff from 163 testing sites (171 persons) were also trained in the HIV test kit LMIS using a job aid and a curriculum developed by DELIVER staff from both Washington and the Ghana office. As a result of these trainings and subsequent transfer of skills to the job by trained staff, the HIV/AIDS commodities LMIS is functioning well and appropriate data are collected in a timely fashion to allow management decision making.

CAPACITY BUILDING IN CONTRACEPTIVE PROCUREMENT

As mentioned earlier, up until now, contraceptive procurement has been carried out by donors. As part of the new integrated supply chain, there is a need to integrate contraceptive procurement into the general procurement service within the MOH. DELIVER has provided the needed technical assistance to orient the Procurement Unit on general contraceptive requirements and mechanisms to procure contraceptives on the international market, and the Procurement Unit of the MOH is now deemed capable of contraceptive procurement using MOH budgetary funds.

SUPERVISION

Supervisory monitoring visits were regularly made to all levels to help staff achieve the desired logistics performance. A monitoring tool was developed and served to carry out supervision done from the central level to the regions and from the regions to the districts and SDP levels. Internal supervision within each level was also carried out. Staff strengths were highlighted and recognized, and weaknesses were identified and addressed during the monitoring visits. A total of 25 monitoring visits were carried out to the CMSs, PHRL, RMSs, District Health Management Teams (DHMT), health facilities, ART sites, and testing sites.

ELEMENT III: IMPROVED RESOURCE MOBILIZATION FOR CONTRACEPTIVE SECURITY

With the CPR increasing from 13 percent to 19 percent in five years, and unmet needs estimated at 23 percent and the obvious threat of HIV/AIDS to the citizenry of Ghana, it appears that the resources to keep pace with the quantities of contraceptives and condoms needed by the programs are dwindling. Estimation of product requirements in the short and medium term shows a gap, and there is need for the Ghana program to mobilize enough resources to pay for contraceptives and HIV products to bridge that gap. Currently, the SWAp and some bilateral and multilateral programs such as USAID, DFID, UNFPA, and The Global Fund are providing contraceptives, ARV drugs, and test kits. DFID committed until 2006 to provide the estimated levels of condoms for prevention of STI and HIV/AIDS. The MOH, with

technical assistance from DELIVER and participation of all stakeholders, developed two key strategies to mobilize resources—a contraceptive security strategy and an HIV/AIDS commodity security (HACS) strategy.

CONTRACEPTIVE SECURITY STRATEGY

DELIVER worked with the MOH and its stakeholders to implement Ghana's contraceptive security strategy plan, which focuses on the following main objectives:

- Provide a conceptual approach and define the practical steps required to achieve contraceptive security in Ghana. Contraceptive security ensures that all men, women, and youth can choose, obtain, and use contraceptives, including condoms for the prevention of STIs and HIV/AIDS, whenever they need them.
- Improve availability of quality, affordable contraceptive products and services.
- Strengthen public-private partnership in the supply and delivery of contraceptive products and services.
- Achieve sustainable financing of contraceptive products and services.
- Implement reliable and efficient systems for the supply of contraceptive products and services.
- Ensure national capacity to monitor and evaluate the progress on the attainment of CS targets.

Table 1 shows the main interventions related to each of these objectives.

Table 1. Ghana CS Priority Issues Under the Five Strategic Pillars of the MOH/POW

Quality	Financing
• Maintaining standards • Improving acceptability of products to client • Improving equipment at service delivery points • Rationalizing the range & availability of products • Improving gender & age access* • Reducing barriers to access • Improving physical access • Improving provider attitudes & personal biases	• Rationalizing pricing structure • Improving market segmentation • Diversifying and expanding financing base • Quantifying funding gaps, need, and commitment • Improving forecasting and procurement capacity • Rationalizing brand and method mix • Improving advocacy within GOG for contraceptives
Monitoring & Evaluation	**Partnerships**
• Developing data collection tools • Launching an monitoring and evaluation (M&E) plan • Quarterly and annual reporting • Regular meetings of ICC/CS and Implementation Units	• Strengthening coordination mechanisms with partners • Expanding coordination with other sectors, market segmentation, and rationalization • Expanding use of private & civil partnerships • Improving inter-ministerial collaboration
Efficiency	
• Improving supply chain efficiency • Improving procurement planning & systems • Decreasing length of time for port clearance	

*Originally considered under the Access pillar at the initial Sogakope CS Workshop in May 2002.

The Interagency Coordination Committee for Contraceptive Security plays a key role in coordinating stakeholders' interventions to ensure availability of resources. ICC/CS activities are managed and coordinated by the Director of Public Health/GHS with assistance from DELIVER staff for organization of quarterly meetings and provision of secretarial support.

Donor and stakeholder collaboration has greatly contributed to improving resource mobilization. Some illustrative examples of improved mobilization of resources include—

- From 2003 to 2006 through ICC/CS advocacy with support from DELIVER, the MOH Ghana was able to mobilize enough funds for contraceptives and condoms purchased through donor collaboration. There was no funding gap from 2003 to 2006. For 2006, USAID, DFID, UNFPA, and MOH covered the funding gap.
- DELIVER provided assistance to MOH/GHS and UNFPA/Ghana in the preparation of the proposal to submit to UNFPA/New York to solicit EU TRUST funds to purchase contraceptives for Ghana and support the operation of the integrated supply chain. As a result, the MOH Ghana received EU funds for reproductive health commodity security (RHCS) through UNFPA ($1 million) to purchase contraceptives for 2006. The $1.35 million requested to strengthen the integrated supply chain was approved by UNFPA and released to GHS before the end of 2006 to train more staff on the SOPs in the regions. Part of these funds will be used to purchase appropriate vehicles to support commodity delivery to the health facilities in order to make the integrated supply chain and the scheduled delivery system operational in all 10 regions.
- Through ICC/CS advocacy and since 2003, the MOH has included a line in its budget for contraceptive procurement. For example for the year 2005, the MOH spent $1.8 million for contraceptives (from the health fund). As shown in table 2, GOG contributed in 2003 and 2004 MOH funds for contraceptive procurement.

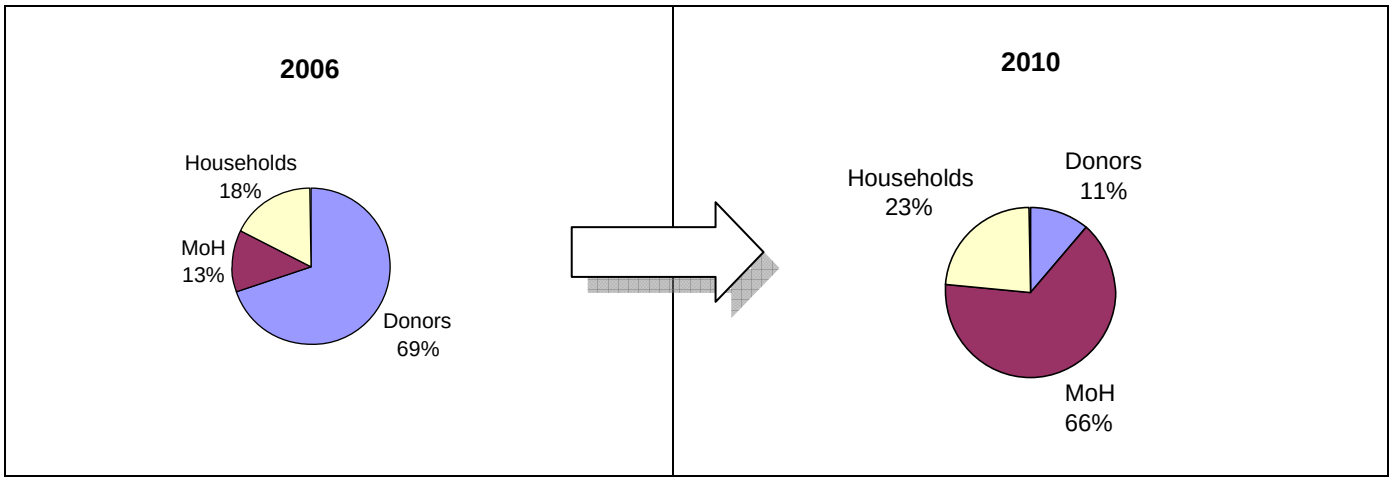
Table 2. Ghana Contraceptive Funding Sources, 2003–2006 (in $millions)

Supplier	2003	2004	2005	2006
USAID	$2.57	$2.55	$1.72	$3.9
DFID	1.55	1.86	0.9	0.5
UNFPA	0	0	0	1.0
MOH (GOG +SWAp)	**1.57***	**0.66***	**1.86**	**1.0**
TOTAL	$5.69	$5.07	$4.48	$6.4

*Of MOH total figures, GOG contributed $235,000 in 2003 and $280,000 in 2004.

- With DELIVER's assistance with advocacy through the ICC/CS and provision to stakeholders of long-term procurement plans and information about contraceptive funding gaps, DFID assistance for condom procurement for GSMF has been extended from 2006 to 2008.
- DELIVER has assisted in designing a financial sustainability plan to help fill the foreseen financial gap for 2007–2010. The financial option adopted by all stakeholders is "slower donor phase out and increased role by the MOH." The implications of this option are (1) the main donors for contraceptives gradually phase out but continue assuming a supportive role, and (2) the share of household financing is increased by increasing contraceptive prices for clients for both public and social marketing sectors to generate additional revenue for the MOH, as suggested by the ability to pay for contraceptives study. The MOH will negotiate with main donors USAID, UNFPA, and DFID to delay phase out while they work to escalate their role in financing. This option has the MOH funding 66 percent by 2010 (see figure 5). The financial plan takes into account the current and potential contributions of all stakeholders and the MOH proportion of the Ghana national budget.

Figure 5. Illustrative Ghana Financial Sustainability Strategy: 2006–2010 Option to Gradually Decrease Donor Support and Increase MOH Role



HIV/AIDS COMMODITY SECURITY STRATEGY

As mentioned earlier in the challenges section, there are a number of issues plaguing the HIV/AIDS program related to procurement management, the supply chain, management of an increasing number of patients and scaling up of treatment, and financing of the procurement of HIV/AIDS commodities.

To address all of these issues, the MOH, with assistance from its stakeholders, has decided to develop a strategic plan for HIV/AIDS commodity security. The goal of this strategy is to ensure that patients and service providers can obtain and use HIV/AIDS commodities when and where they need them. The main objectives and related strategies of this plan include—

- Ensure the continuous availability of quality HIV/AIDS commodities through reliable procurement and an efficient logistics system in a cost-effective manner. The strategies to address this objective are—
  - Increase procurement management efficiency for HIV/AIDS commodities.
  - Strengthen supply chain management.
  - Strengthen monitoring and evaluation systems.
  - Develop human resource capacity.
- Ensure that sustained funding is available and the appropriate fiduciary systems are in place to provide a full supply of HIV/AIDS commodities to clients. The following strategies will help achieve this objective:
  - Increase resource mobilization for HIV/AIDS commodities from foreign partners; ministries, departments, and agencies (MDAs); GOG; and the private sector.
  - Coordinate the multiple procurement financing and donation mechanisms for HIV/AIDS commodities.
  - Increase capacity building at all levels for financial management and resource utilization.
  - Strengthen performance-based target setting and evaluation of standards.
  - Increase cost recovery of HIV/AIDS commodities (e.g., the increased use of patient/client financing where appropriate).

- Ensure that all persons living in Ghana, particularly PLWHA, have equitable access to quality HIV/AIDS commodities through sustained political commitment and policy implementation of government and other major stakeholders. To achieve this objective the following strategies are implemented:
  - Equitable access: Provide the regulatory framework for the procurement, distribution, and use of quality HIV/AIDS commodities.
  - Advocacy and commitment to HACS: Advocate continuously for the sustained commitment of political leadership at all levels, and actively involve MDAs, development partners, NGOs, and civil society in access to treatment, care, and support.
  - Decentralization: Define the framework for coordination and management of HIV/AIDS commodities in a decentralized environment.
- Ensure that quality, safe, and efficacious HIV/AIDS commodities are available for use. To achieve this objective the following strategies are implemented:
  - Quality products: Strengthen existing quality control regulatory mechanisms.
  - Research: Use research to improve safety, efficacy, and acceptability of commodities and services.

Although the HIV/AIDS commodity security strategy is at its inception, implementation of a number of interventions has started and is bearing good results. For example, strengthening supply chain management for HIV/AIDS commodities (including laboratory logistics), scaling up treatment, mobilizing resources, and building capacity in all aspects of the plan are well under way. With the ART scale up, the ARV drug supply chain was reviewed with the inclusion of the RMSs into the distribution system. All pharmacists and store managers at the RMSs were trained in the revised ARV drug LMIS.

ELEMENT IV: IMPROVED ADOPTION OF ADVANCES IN LOGISTICS

DELIVER carried out assessments and a number of studies to identify issues and bottlenecks in the functioning of the Ghana supply chain in general and the functioning of segments such as storage capacity, transportation effectiveness, cost recovery, readiness for initiating programs, and data quality. The most important studies and assessments are summarized below.

ASSESSMENT OF FOUR VERTICAL SUPPLY CHAINS

An assessment of four vertical supply chain programs identified the constraints within those systems using process mapping methodology. Proposed solutions were identified to integrate three of the supply chains—essential drugs, contraceptives, and medical consumables, which led to development of the SOPs and RIRVs, and renovation and refurbishment (equipment) of warehouses (CMSs and various RMSs).

TRANSPORTATION STUDY

The transportation study indicated the appropriate vehicle to support the scheduled delivery system (3.5-ton covered truck), and developed the route for each of the 10 regions for commodity distribution from RMSs to the facilities.

ABILITY TO PAY CONTRACEPTIVE STUDY AND MARKET SEGMENTATION ANALYSIS

DELIVER conducted a desk-based study on ability to pay for contraceptive products, and a market segmentation analysis. The results of the studies were presented at the ICC/CS meeting to donors, other CAs/NGOs, and policy makers involved in contraceptive security strategy implementation. Results showed that the public and social marketing sectors could raise prices of contraceptives and condoms to a

level that would still be affordable to the poor. The social marketing working group was created and its first meeting was organized by AED/GSCP. This provided a forum for strategy development and implementation of the studies' recommendations. DELIVER, GSCP, GSMF, the Ghana Registered Midwives Association, private commercial-sector representatives, and the MOH/RCH are members of this working group. The recommendations from these studies were used in the completion of the contraceptive financial sustainability plan.

PHARMACEUTICAL PRICING STUDY: POLICY ANALYSIS AND RECOMMENDATIONS

The MOH/GHS guidelines state that public facilities should buy first from the public sector and should mark up at a fixed 10 percent margin for RMSs and service delivery points. The MOH/GHS has been receiving reports of noncompliance with these guidelines within the public sector. RMSs and SDPs have reportedly increased their procurement from the private sector, while the considerable variations in drug prices indicate margins in excess of 10 percent. To examine these issues and determine options for a more efficient, effective, and equitable pharmaceutical pricing policy, DELIVER conducted a detailed pricing study. The results of the study showed—

- a surprising level of variation at CMSs, with some products being marked up more than 100 percent
- average RMS margin levels exceeding the prescribed 10 percent level in each region surveyed and considerable variation in margins for the same drugs sold by different RMSs
- considerable variation in the margins charged by SDPs for different drugs and between SDPs in different regions
- high and variable RMS margins that create a backlash effect in increasing regional differences in prices at SDPs while increasing the cost to the consumer, undermining the purchasing power of both SDPs and patients, and discouraging SDPs from procuring from the public sector.

These results were communicated to the MOH/GHS directorates at the Health Summit in April 2005 to influence policy decisions.

PREPARATION FOR THE MANAGEMENT OF ANTIRETROVIRAL DRUGS IN GHANA

This assessment was done to assist the MOH/GHS in identifying the logistical and clinical issues that need to be addressed to support the initiation and the expansion of ART services in Ghana. The assessment focused on two areas: logistical requirements for ensuring a reliable and consistent supply of quality ARV drugs, and infrastructure and personnel requirements necessary to ensure their safe and effective use by patients. The findings and recommendations from this assessment have been used to develop, implement, and expand the national ART program through the establishment of an efficient and effective logistics management system to support antiretroviral treatment services, including ARV drugs and HIV test kits.

The Site Readiness for Initiating Antiretroviral Therapy tool developed by DELIVER was one of four tools used for this assessment. NACP has adapted this tool and applies it for site accreditation.

ASSESSMENT OF THE GHANA LABORATORY LOGISTICS SYSTEM AND SERVICE

This assessment of the laboratory system was the initial step towards improvement of laboratory services and the design of a laboratory logistics information system. The objective of this assessment was to evaluate laboratory capacity and develop a plan for the systematic improvement of the laboratory system. It aimed at providing overall system recommendations rather than facility-specific interventions. Assessment teams surveyed 30 laboratories at various levels in seven of the 10 regions of Ghana. The *Assessment Tool for Laboratory Services* was used to gather the information in the field. The assessment results provide—

- a *snap-shot* view of the logistics systems for supplies for laboratories providing support for diagnosis of HIV and the treatment of AIDS
- review of the national laboratory policies, financing, forecasting and quantification of supplies, human resources, and information management systems that are in the current laboratory structure
- proposed recommendations for areas of improvement in the current laboratory system.

Some of the strengths of the Ghana laboratory logistics systems and services include the development of national laboratory policies and some technical standard operating procedures, adequate storage capacity, and stable laboratory infrastructure. Nonetheless, efforts need to be made in disseminating and applying the policies and procedures, designing and implementing appropriate inventory control and logistics management information systems, and developing guidelines for safe disposal and destruction of sharps and for postexposure prophylaxis.

This report contains recommendations and an implementation plan for strengthening national policy, finance structure, forecasting and procurement methodologies, human resource development, testing services, and quality assurance/quality control. It also provides specific recommendations for the design of a laboratory logistics system encompassing all aspects of supply chain management. This should be a collaborative effort with significant input from the field and substantial involvement of all stakeholders. It will require significant resource mobilization from the Government of Ghana, multiple donors, and the local community, and will necessitate coordination of donors, service providers, and system managers.

ASSESSMENT OF THE PPAG LOGISTICS SUPPLY CHAIN SYSTEM FOR CONTRACEPTIVES

The assessment was conducted to determine the overall logistics process efficiency and effectiveness of the PPAG supply chain system and make recommendations to reengineer the supply system. The assessment results showed that the system includes many non-value-added, required steps to move products across all tiers in the supply chain.

The study team recommended reduction of the pipeline by removing the zonal stores to streamline management of the supply chain.

ASSESSMENT OF LOGISTICS SYSTEM PERFORMANCE

A qualitative assessment of the logistics system was conducted using the LSAT in a group discussion format. Information was collected on the following components of the logistics system: organizational context, LMIS, product selection, forecasting, procurement, inventory control, warehousing and storage, transport and distribution, organizational support for the logistics system, product use, and finance/donor coordination/RHCS. The results were presented above in Element I and will help to improve logistics system performance.

A quantitative logistics assessment was also conducted by collecting data on commodity stock status, commodity management, forms, reordering procedures, transportation, etc. Data were collected in 155 facilities (CMSs, PHRL, RMSs, hospitals, and health centers). The adapted LIAT was used to collect the data. Some of the results of this study were presented above in Element I.

QUALITY ASSESSMENT FOR CYP INDICATOR

With technical assistance from DELIVER, an assessment was conducted in both public and social marketing systems to establish the level of accuracy of logistics data through the reporting system for calculating CYP. A total of 30 facilities were surveyed. Based on a plus or minus 5 percent accuracy rate, the data show that the dispensed-to-users data reported in the public system were, on average, 85 percent accurate at the SDP level. But the accuracy was lost when reports were aggregated at the level above, with 70 percent accuracy at the district level and 48 percent accuracy at the regional level. The confidence

of the data became lower and lower as they were transmitted through the system to the national level. The recommendations of this assessment are being implemented in order to improve the management of family planning data, especially in the public-sector system.

The results of these studies have been shared with all stakeholders of the MOH in Ghana. The recommendations of these assessments and studies have been used to improve contraceptive data management at all levels.

ELEMENT V: ESTIMATION OF USAID CONTRACEPTIVE NEEDS

Over the five years of the project work in Ghana, DELIVER Ghana consistently supported the estimation of USAID contraceptive needs. As mentioned in the previous sections, DELIVER trained MOH and social marketing program staff to estimate contraceptive requirements and, following that, provided them with minimal assistance to carry out this activity. Estimation is currently done not only for USAID requirements but for all funding agencies assisting the MOH. It is done through team meetings (CPT team) to analyze logistics, demographic, and statistics data; prepare forecasts; discuss issues with program managers; and select the most appropriate forecasts. Procurement planning is done with the Pipeline software for the current year and the following two years. The contraceptive procurement tables are generated and then sent to USAID and other agencies for procurement of the requirements for each agency after the presentation of the CPT results and funding requirements to the stakeholders through the ICC/CS meeting.

This exercise has proven to be extremely reliable and has allowed the MOH and the social marketing program to receive the necessary quantities of products to avoid stockouts. Contraceptive requirements have also been estimated for the medium term, which has allowed the MOH and its partners to plan ahead and budget for contraceptive security. DELIVER has had regular meetings with USAID/Ghana to discuss contraceptive issues (shipments, funding, etc.) and provide necessary advice when needed.

ESTIMATION OF REQUIREMENTS FOR HIV/AIDS PRODUCTS

As with the contraceptive products, the MOH also estimates the requirements for HIV/AIDS products. As stated earlier in the report, selected staff received training in estimating the quantities of HIV/AIDS products necessary to treat patients. Needs are currently estimated by a team composed of MOH/GHS and DELIVER staff. HIV test kits and ARV drugs quantification are done using ProQ and Quantimed software and spreadsheets.

ELEMENT VI: OPERATION OF AND SUPPORT FOR THE CENTRAL CONTRACEPTIVE MANAGEMENT INFORMATION SYSTEM

DELIVER/Ghana provides update information to the NEWVERN team to allow the team to update the database and information related to Ghana. Necessary comments have always been provided to the Central Contraceptive Management Information System's team on monthly CPT status reports.

LESSONS LEARNED AND FUTURE DIRECTIONS

- A considerable amount of work has been done over the last four years by the Ministry of Health and its stakeholders with assistance from DELIVER to improve the effectiveness and efficiency of the logistics system for HIV/AIDS commodities, contraceptives, and essential drugs. However, some work still needs to be done to complete the integrated logistics system. Operation of the new system has just started. It is important that the MOH receives further support to complete the implementation of the integrated system nationwide.
- A strategic plan for contraceptive security and a strategic plan for HIV/AIDS commodities security have been adopted by the MOH, and implementation of the two strategies has begun with staff trained by DELIVER. These policies focus activities for implementation to achieve better commodity security outcomes. However, the MOH needs to commit more staff and ensure that trained staff remain in the programs in order for proper implementation to continue.
- Coordination has proven to be key in mobilizing resources to ensure availability of products in the supply chain and, more importantly, at the SDP level. The MOH should find a mechanism to sustain coordination of stakeholders' activities and keep the ICC/CS operational. The ICC for HACS should be put in place as quickly as possible and learn from the ICC/CS experience.
- The DELIVER project, through estimation of product requirements and assistance to the ICC/CS, has provided reliable information that has helped to continuously leverage critical resources for the MOH logistics system.
- Financial resources are still very much needed to implement the MOH strategic plans, and long-term planning based on good forecasts is crucial to assuring commodity security.
- The MOH has demonstrated a significant level of commitment to improving the availability of products for Ghana and increasing the CPR and treatment of HIV/AIDS patients.
- Administrative bottlenecks can hinder the procurement of products and lead to stockouts (caused ARV drug stockout in the country during the last quarter 2005 and low availability of essential medicines at the CMS.
- Though USAID and its CAs have played a critical role in the improvement of the Ghana supply chain through capacity building, an efficient LMIS, supervision, and accurate forecasting and quantification, more technical assistance is needed in M&E, program management, advocacy, and resource mobilization in addition to forecasting and quantification.
- The Ghana Program can illustrate best practices for programs for other countries. For example, a delegation from the Ethiopia MOH visited Ghana to learn from their achievements in logistics management of public health commodities.

Based on lessons learned and constraints observed in the Ghana logistics programs, DELIVER recommends that the MOH/GHS—

- Reinforce the implementation/action plans for the CS strategic plan, taking into account the results of the LIAT and LSAT. An integrated supply chain based on the scheduled delivery of commodities to the lower levels should be functional in all regions to streamline distribution and improve the availability and the management of commodities at all levels.
- Mobilize resources to implement the HACS strategic plan.
- Reinforce advocacy to mobilize funding for contraceptive procurement for 2007 and beyond to secure availability of the products for family programs and STI/HIV/AIDS prevention programs in the country.
- Mobilize resources and develop action to implement the recommendations from the assessment of the laboratory logistics system and services to support the HIV/AIDS program.
- Improve monitoring and supervision of the health commodity logistics system.

A good implementation of the above plans with the required level of resources is key to making commodity security a reality in Ghana.

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APPENDIX 1

CS BRIEF

Ghana 2006

Contraceptive Security Brief	
Population (2003)	21,377,000 (BUCEN 2002)
Population growth rate	2.26% (DHS 2003)
Total fertility rate	4.4 (DHS 2003)
Women of reproductive age	5,188,111 (BUCEN 2002)
CPR (modern methods, married women)	19% (DHS 2003)
Unmet need Total demand	34% (DHS 2003) 59.2% (DHS 2003)
Source • Public sector • Private • Other	 41% (DHS 2003) 54% (DHS 2003) 2.4% (DHS 2003)
HIV/AIDS prevalence rate (adults)	2.7% (Ghana HIV Sentinel Survey Report 2005)
Health regions, districts, and SDPs providing reproductive health/family planning services	10 regions 110 districts (approx.) 900 MOH SDPs (approx.) GSMF uses distributors who supply pharmacies and retail outlets. Since June 2005, GSMF distributes only male condoms. Since June 2005, AED/GSCP is responsible for receiving and managing USAID products for the social marketing sector. AED/GSCP uses a pharmaceutical company named Vicdoris for distribution of USAID products through the outlets, pharmacies, bars, hotels, etc. PPAG served eight regions through 17 project sites and 1,500 CBS agents, full and part time. Currently, the number of the CBS agents has been reduced considerably since the CBS project was closed out in October 2003 due to the termination of USAID assistance to PPAG.

Forecasting	
1. Current method mix and projected trend (DHS 2003)	Pills: 29.4% IUDs: 4.8% Injectables: 28.9% Condoms: 17.1% Female sterilization: 10.2% Implants: 5.3% Other modern: 4.3%
2. Presentation and use of CPTs in management decision making	After the CPTs process was conducted in March 2006, final forecasts, procurement plans, and procurement gaps were presented by each of the programs—MOH/Reproductive and Child Health Unit/PPAG, GSMF, and AED/GSCP—at the ICC/CS meeting in which USAID-Accra and other donors participated. Results have been used to solicit donors to fulfill the unmet contraceptive gap for 2006 and 2007 and, in addition, served as the basis for financial sustainability plan development.
3. Assumptions related to data used in CPTs	• All partners use LMIS reports to complete PipeLine databases for CPTs. • While the social marketing programs use issue data, the other programs (MOH, GHS, PPAG), which are all facility based, use consumption data.
4. Sources and accuracy of data used in forecasting	• PipeLine software was used to calculate forecasts based on the trend of consumption data. Forecasts were compared to demographic data. • The rate of reporting from the lowest level was between 98 and 100%. However, the accuracy of the data dropped when data were aggregated at each level. • The 2005 forecast was highly accurate; for example, the male condom forecast for all programs was 92% accurate.
5. Role of technical assistance (TA)	• DELIVER supported the MOH, GSMF, and AED/GSCP in the preparation of their forecasts and procurement plans on a yearly basis, with review exercises after six months. The CPT preparation team, which included all of the above stakeholders, then presented the results to the ICC/CS for the donors to respond to identified needs in the three-year procurement plans. • In 2001, DELIVER carried out a process map of the MOH essential drug, vaccine, and contraceptive pipelines. As a result, DELIVER designed an agile, streamlined, integrated health commodity distribution system for contraceptives, essential medicines, and non-drug consumables. • DELIVER assisted the PPAG in 2002 in the design of its newly rented central warehouse space. • DELIVER will continue supporting the implementation of the CS strategy plan and playing a pivotal role in the ICC/CS.

Procurement	
1. Existence and role of the Procurement Unit	• The Reproductive and Child Health Unit of the MOH determined the quantities to be ordered by USAID and UNFPA, usually with the assistance of DELIVER. However, as the integration process moves ahead, the responsibility for determining order quantities and the issuance of contraceptives will move to the Central Medical Stores. • In 1998, the MOH established a Procurement Unit that is currently responsible for the procurement of essential medicines (EM) and non-drug consumables. This unit is now coordinating the procurement of contraceptives and EM. Currently, the GOG uses UNFPA as a procurement agent for contraceptives. As part of the CS strategy plan, DELIVER has provided TA to the MOH to develop procedures and mechanisms to purchase contraceptives at the international market and include contraceptives in their procurement system. • PPAG does not have a procurement unit and is receiving no commodities from USAID. The program started getting its supplies from the Ghana MOH in October 2003.
2. Stock status analysis over one-year period	The commodity availability in health facilities is further detailed below in Supply System, point 4. For over 89 facilities assessed using the LIAT in April–May 2006, 21% had a stockout for one contraceptive on the day of the visit and 34% of facilities had had a stockout during the previous six months (stock availability indicators, Ghana LIAT, April–May 2006 results).
3. Contraceptive supplier situation	Until recently, USAID was the only donor for GSMF; USAID support to GSMF ended in May 2005.. DFID has agreed to supply all condoms from 2002 to 2008, except Protector Plus. Since June 2005, AED/GSCP as been in charge of receiving and managing USAID products for distribution in the social marketing system in Ghana. Currently, GSMF distributes only male condoms provided by DFID. DFID provided male condoms to MOH and PPAG from 2002 to 2006. UNFPA is a major donor of contraceptives in Ghana but is not consistent with funding. Recently, UNFPA direct financing support for commodity procurement ceased. For 2002 and 2003, UNFPA procured contraceptives for the MOH using health funds (basket funds). In 2006, UNFPA planned to provide to MOH 750,000 vials of Depo-Provera, 180,000 cycles of Microgynon, and 13,000 cycles of Micronor, using EU TRUST Funds for RHCS. In 2006 MOH provided (using UNFPA as a procurement agent) the following contraceptives (Jadelle, Norigynon, female condoms, and some of the Depo-Provera needed). These products were made available to PPAG by the MOH. In 2004, DELIVER conducted an ability to pay for contraceptive study and market segmentation analysis. The findings and recommendations were presented at the ICC/CS meeting. The whole market group was formed to discuss the recommendations related to the pricing increase. AED is also using the study results to develop a strategy to address unmet needs. GSMF is engaged in commercial distribution of condoms for profit to sustain its operations. GSMF used part of the contraceptive income ($456,000) to purchase products in 2004 through USAID (MAARD). One of USAID's objectives in Ghana has consistently been to increase prevalence of modern methods and increase access of those with limited ability to afford modern methods. A key strategy toward this objective has been the donation of contraceptives to the public sector and support to social marketing. USAID supplied a total of $10.7 million in contraceptives to Ghana from 2003 to 2006.

4. Historical, current, and future role of USAID as a contraceptive donor	In 2006 USAID will supply a total of $3.9 million in contraceptives for both MOH and social marketing, GSMF, representing 61% of the total requirement for contraceptives for Ghana in 2006. USAID has supplied $1.6 million this year for the 2006 requirement and part of 2007 contraceptives orders for the social marketing program (AED/GSCP) and MOH. Data from the 2006 CPTs showed that USAID supplied 100% of IUDs and Norplant, 98% of pills, and 17% of Depo-Provera through the social marketing system.
Financing	
1. Commodity funding mechanism (i.e., basket funding, cost recovery, local public funds, etc.)	USAID uses direct program funding to the social marketing program and the MOH. DFID has made an important contribution by providing condoms from June 2002 through 2006, and now extended to January 2008 for GSMF. These condoms are funded through a separate HIV/AIDS initiative, not through basket funds. After the current shipments in orders for MOH and GSMF, DFID direct contribution to condom procurement will end. World Bank credits are now used to procure products that were traditionally funded by UNFPA, and UNFPA plays the role of contraceptives procurement agent for MOH.
2. Current and future donor contributions in the commodity financing plan over the next five years	In March 2006 DELIVER and all programs reviewed the projections from 2006 to 2008; the total requirement for contraceptives for all programs would increase to approximately $18.9 million: MOH/PPAG ($9.7 million); GSMF ($1.8 million), AED/GSCP ($7.4 million). The donor funding breakdown for contraceptives in 2006 is: USAID 60%; DFID 8%; UNFPA 15%, and Health Funds (MOH) Procured 16%. (Source: Ghana 2006 CPTs report). There was no funding gap for 2006. USAID is planning to phase out of contraceptives from 2007. The GOG contribution for contraceptive procurement has steadily increased over the years and in 2006 amounted to $1 million. A recent forecast (March 2006) of Ghana's need for contraceptives revealed no gap in the contraceptive funding for 2006. There was no funding gap for 2005.

	The GOG spent for 2004 $1.5 million from the health funds and $280,000 from GOG funds to purchase contraceptives. After all of the condom shipments currently ordered arrive, (2006 for MOH and January 2008 for GSMF), DFID will also phase out direct funding of programs. DFID will participate in the Multi-Donors Budget Support. UNFPA mentioned a possibility to access EU TRUST funds to purchase contraceptives during the next four years, from 2007 and beyond. The funding gap determined during the last CPT exercise (March 2006) is as follows: 2006, $0.0; 2007, $5.5 million; 2008, $6.5 million. To meet the growing demand and avoid future contraceptive shortages, the MOH decided to develop a financial sustainability plan for contraceptive procurement, with TA from DELIVER. This plan, as part of the implementation of the CS strategy plan, is in progress. ICC/CS members have adopted the option to increase the role of MOH by gradually decreasing donor support.
3. USAID/Mission intervention strategies	With the USAID/Accra's budget reduction, it is very keen on keeping contraceptive security on the policy table and getting other donors interested in family planning products. USAID has developed a new Country Strategy Plan 2004–2010 to assist the MOH. The USAID/Ghana's SO7 is *improved health status*,, with intermediate results of: • IR1: individuals and communities empowered to adopt positive health practices • IR2:access to health services expanded • IR3:quality of health services improved • IR4:institutional capacity to plan for and manage health program needs strengthened. The strategic objective for HIV/AIDS is HIV transmission reduced and HIV*/AIDS impact mitigated*, with: • IR1:improved prevention program • IR2:improved treatment, care, and support programs • IR3:improved enabling environment for HIV/AIDS programs • IR4:institutions strengthened for HIV/AIDS programming. The Mission's priorities in reproductive health are: supporting a shift in the contraceptive method mix toward long-term and permanent methods; developing a greater reliance on private-sector provision of FP services, and changing sexual behavior to slow the spread of HIV/AIDS. USAID also supports strengthening the capacity of the public, private, and NGO institutions in Ghana to manage FP and STI programs. A central objective of the population program in Ghana has been to increase prevalence of modern methods and to increase access of those with limited ability to afford modern methods. USAID is now providing support for HIV/AIDS programs in the form of HIV test kits and ARVs. Given the special nature of this range of commodities, USAID through Deliver project provides support to the MOH to put in place the logistics systems to manage the HIV/AIDS commodities (ARVs and test kits) in both the public and private sectors. The HIV/AIDS commodity LMIS has been implemented and is functioning well. The future plan is to integrate these commodities into the general integrated supply chain that is used to manage other health commodities.

Supply Systems	
1. Length of the pipeline	The reengineering of the contraceptive supply chain is attempting to reduce the length of the MOH's pipeline to 12 months in 2003 with the implementation of the scheduled delivery system from the high level to the lower level. The current pipeline for each program is: MOH, 12 months (CMS→RMS→SDP) GSMF and AED/GSCP, 12 months (plus distributors and retailers) PPAG, 12 months <u>For HIV/AIDS commodities</u>: Test kits: PHRL→Region→testing sites (12 months) ARVs: CMS→RMS→ART sites (14 months)
2. Major institutions involved in RH/FP activities	MOH, GSMF (PPAG involvement terminated October 2003 with USAID but continues to work by getting products through MOH), AED/GSCP.
3. LMIS status (level of efficiency)	An assessment of the MOH system conducted in May 2006 using LSAT showed the following results: *Logistics management information system*: LMIS structure is in place, with improved forecasting and procurement capacity. *Forecasting*: Systems and structures exist to support forecasting. Family planning and HIV/AIDS programs offer best practices that can be emulated. *Inventory control procedures:* • existence of policies, guidelines, and structures • use of consumption data for reordering • training programs run frequently (SSDM and Pharmacy Unit). *Warehousing and storage*: Integrated warehouse and storage are in place in all 10 regions. All RMSs were equipped and warehouses were reorganized to support the integrated and scheduled delivery system.. *Transport and distribution*: Clearly defined distribution route is in place, with well-trained drivers (also trained in planned preventive maintenance). Needs assessment for vehicle types and quantities has been completed. An integrated supply chain with scheduled delivery system from the RMS to the facilities is in place for trial in three of 10 regions. CMSs/RMSs have the basic infrastructure to commence scheduled delivery of commodities *Financing/donor coordination:* • Policies, guidelines, and coordinating bodies are in place and being adhered to. • There is a strong government commitment to procure commodities.
4. Commodity availability at SDPs	An assessment of the monitoring indicators for year 2006 conducted in April–May 2006 revealed the information displayed in the table below.

Table 3. Stock Availability Indicators, Ghana LIAT, April–May 2006 (DELIVER)

Product (unit)	Percentage of facilities with product stockout	
	Stockout on day of visit	***One or more stockouts in past six months***
Inj. Depo-Provera	24	40
Low-dose OC pill (Lo-Femenal)	19	22
Male condoms	21	41
Average	**21**	**34**

Major Issues

Implementation of the integrated supply chain (contraceptives, essential medicines, and non-drug consumables) is in process. Five regions have already integrated the three products but only three of the five have started delivery to the facilities. When the proposed changes take place in all regions, the distribution system will be more efficient and is expected to perform at a level that will improve contraceptive security. Among other things, the length of the pipeline is shortened, and ordering and delivery are more reliable. But the process is falling behind schedule due to delay in some activities, especially obtaining the recommended vehicle to support the delivery of the commodity to the facilities and training in the regions on SOPs for all staff managing the health commodities in the supply chain. As part of the implementation of the CS strategy plan, GHS/SSDM has submitted a proposal to UNFPA to get EU TRUST funds to support the implementation of the integrated supply chain. The proposal was approved and UNFPA will soon provide $1.3 million to GHS to strengthen the supply system: training of staff in the regions and purchasing vehicles for commodity distribution to the facilities would be covered by these funds.

USAID is planning to phase out its donations of contraceptives in 2007. DFID is also planning to phase out its funding for contraceptives and condoms next year for the MOH and in January 2008 for social marketing. The main issue is whether the MOH is ready to take over from those two main donors from year 2007. That is why as part of the implementation of the CS strategy plan, DELIVER is providing TA to MOH/GHS to develop a financial sustainability plan for contraceptives as a response to the growing demand for contraceptives and to avoid future shortages in the country. Various options were presented to the ICC/CS members and the consensus was on the option to increase the role of the MOH by gradually decreasing donor support. One of the implications for this option is to increase the household share of financing by revising the pricing structures for both private and public sectors. The GHS/PHD is working with the donors to clarify their commitment/intention for contraceptive procurement from 2007 and beyond. This information will help to finalize the financial sustainability plan to incorporate into the next MOH Program of Work 2007–2011.

For more information, please visit www.deliver.jsi.com.

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