Quantification report on family planning commodities for the period January 2014 to December 2018

March 2014

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Quantification report on family planning commodities for the period January 2014 to December 2018

Mali

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March 2014

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ACRONYMS AND ABBREVIATIONS

AMPPF	Malian Planned Parenthood Association (Association Malienne pour la Protection et la Promotion de la Famille)
CHW	Community Health Worker
CPR	Contraceptive Prevalence Rate
CSCom	Community Health Center
CSCRP	Strategic Framework for Growth and the Reduction of Poverty (Cadre Stratégique pour la Croissance et la Réduction de la Pauvreté)
CSREF	Reference Health Center (Centre de Santé de Référence)
CYP	Couple-Years of Protection
DHS	Demographic and Health Survey
DNP	National Population Directorate (Direction National de la Population)
DNS	National Directorate of Health (Direction National de la Santé)
DPLM	Division for the Prevention and Control of Malaria
DPM	Directorate of Pharmacy and Medicine
DRC	Cercle Distribution Warehouse (Dépôt Répartiteur de Cercle)
DRS	Regional Health Directorate (Direction Régionale de la Santé)
DSR	Division of Reproductive Health (Division de la Santé de la Reproduction)
DTC	Center Technical Director (Directeur Technique du Centre)
FCFA	Franc CFA, African Financial Community (Communauté Financière Africaine; BCEAO)
FP	Family Planning
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
INSTAT	National Institute of Statistics (Institut National de la Statistique)
IUD	Intrauterine Device
LMIS	Logistics Management Information System
LNSP	Laboratoire National de la Santé
MICS	Multiple Indicator Cluster Surveys
MSI	Management Systems International
PPM	People's Pharmacy of Mali (Pharmacie Populaire du Mali)
PNLT	National TB Control Program (Programme National de Lutte contre la Tuberculose)
PSI	Population Services International
RGPH	General Census of Population and Housing (Recensement Général de la Population et de l'Habitat)
SDADME	Essential Medicines Procurement Master Plan (Schéma Directeur d'Approvisionnement en Médicaments Essentiels)
SE-HCNLS	Executive Secretariat for the High Council for National AIDS Control
SIAPS	Systems for Improved Access to Pharmaceuticals and Services

SOPs	Standard Operating Procedures
STI	Sexually Transmitted Infection
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
USD	U.S. Dollars
WRA	Woman of Reproductive Age

EXECUTIVE SUMMARY

The promotion of family planning (FP) and access to desired contraceptive methods for women and couples are essential steps to ensuring the well-being and empowerment of women, while also supporting the health and development of communities. It provides opportunities to prevent high-risk pregnancies, which contribute to the high maternal mortality and morbidity rate or to disability. Family planning helps reduce infant mortality by preventing closely-spaced or poorly timed pregnancies. Family planning also reduces the risk of unintended pregnancies among women living with HIV, which reduces the number of babies and orphans who are infected. Male and female condoms offer dual protection against unintended pregnancies and sexually transmitted infections (STIs), including HIV. In addition, FP has long-term benefits, including empowering individuals, improving education and increasing productivity.

In Mali, the need to increase access to voluntary FP is based on rights intended to strengthen and accelerate efforts aimed at achieving the Millennium Development Goals and universal access to reproductive health to improve people's quality of life. The National Health Directorate, in partnership with the Directorate of Pharmacy and Medicine (DPM) and with support from several development partners (United Nations Population Fund – UNFPA, KfW, United States Agency for International Development – USAID, Management Systems International – MSI and Population Services International – PSI), is responsible for the FP program in Mali.

The fertility rate (Total Fertility Rate) has declined slightly, going from 6.70 in 1995 to 6.10 in 2012, according to the various editions of the Demographic and Health Survey (DHS) for Mali (1995/96, 2001, 2006 and 2012/13). The contraceptive prevalence rate (CPR) for all methods showed an increase, going from 7.90 in 1995 to 10.30 in 2012 and from 5 to 9.90 for modern methods exclusively, during the same period. However, according to the 2010 MICS (Multiple Indicator Cluster Survey), there is still unmet need in FP, estimated at 31% of women of reproductive age (WRA) who are married or living with a man.

The Government of Mali, through the Ministry of Health, is committed to ensuring the safety of reproductive health commodities for all Malians so that they are able to choose, obtain and use high-quality contraceptives and other reproductive health products, when and where they need them. One of the pillars of securing FP commodities is ensuring their continuous and optimal availability. A well-executed quantification of these commodities based on evidence is a vital link within the framework of commodity security because it ensures the necessary planning and mobilization of resources and provides the data and information for efficient procurement and distribution of commodities. A well-executed quantification can also reduce costs and waste, especially in a resource-limited setting.

A quantification exercise for FP commodities was conducted with technical assistance from UNFPA and USAID | SIAPS and participation from all key stakeholders with the goal of generating the forecasted requirements and a supply plan for the period 2014 to 2018. The results from this quantification exercise will be used in planning to mobilize and obtain financial resources for the quantification period. For purposes of comparison and validation, two forecasting methods were used for this exercise, the demographic/morbidity method and the consumption method. Forecasting of requirements was estimated for the entire country (public

sector and social marketing) for each method. The supply plan was developed for the two sectors.

After sharing the quantification results with the national committee for the coordination and monitoring of the management of essential medicines, the quantification results from the morbidity method were validated on 11 June 2014.

The main outputs and results from the quantification exercise (using the demographic method) for the period January 2014 to December 2018 are as follows:

- An increase of 1.70 points each year for CPR for WRA (15 to 49 years old) for modern methods, reaching 20.10 in 2018.
- The use of male and female condoms as well as implants is expected to increase over the quantification period, while the use of injectables, oral pills, the intrauterine device (IUD), and female and male sterilization will have experience an opposite trend.
- The total amount for the supply plan for the two sectors, using the demographic method, is estimated at USD 14,892,456 for the period 2014–2018.
- The procurement requirements for male condoms are only related to FP and do not take into account STIs.

Table 1 shows the details for the FP supply plan/amount of procurement per year and per commodity for the public sector and social marketing.

Table 1: Amount of supply per year and per commodity for the public sector and social marketing (USD)

Commodity	2014	2015	2016	2017	2018	Total
Microgynon pill	1,601,362	0	0	158,950	327,485	2,087,797
Microlut pill	69,982	14,408	23,298	45,763	51,140	204,593
Depo-Provera	974,192	288,960	395,632	445,075	497,414	2,601,273
Male condom	1,306,317	323,049	581,485	654,134	731,108	3,596,092
Female condom	130,499	4961	6260	7025	7847	156,593
CycleBeads	0	0	0	0	0	0
Jadelle implant	1,285,248	974,429	1,138,859	1,268,121	1,401,325	6,067,981
IUD	34,491	32,429	33,536	37,394	40,276	178,127
Total	5,402,091	1,638,237	2,179,070	2,616,462	3,056,596	14,892,456

Note: The requirements in terms of cost do not include the costs for male and female sterilization.

In terms of costs of procurement requirements, the implant ranks first with 40.7%, followed by the male condom (25.2%), injectables (17.5%) and pills (15.4%). The lowest percentages were observed for the IUD (1.2%) and CycleBeads (0%). Figure 1 presents the details.

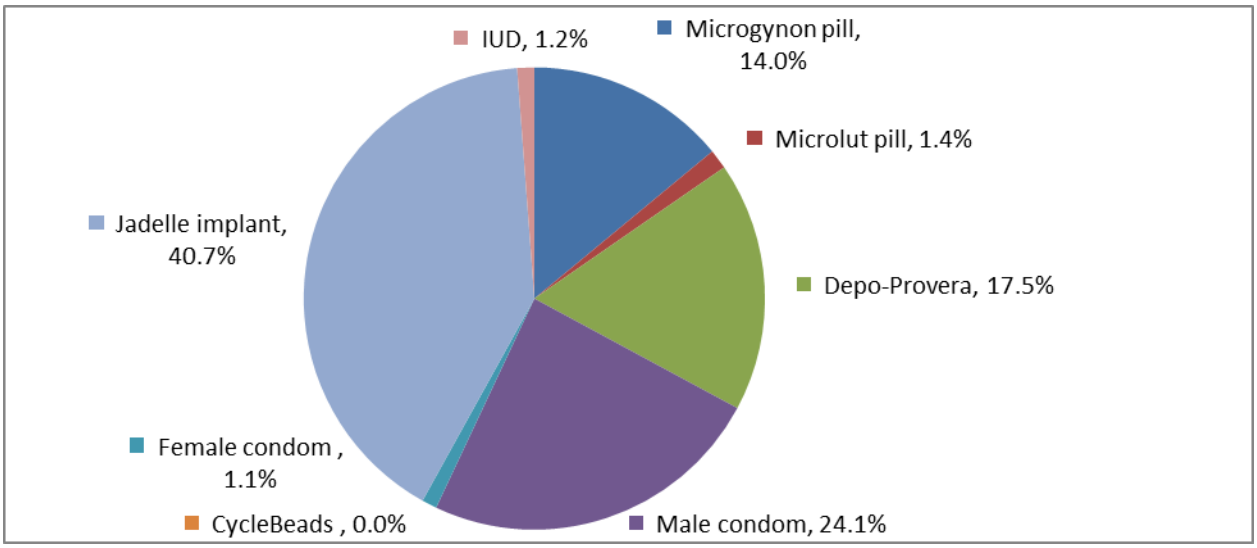

Figure 1: Procurement requirements per product and per year for the public and social marketing sectors

According to the strategic plan for FP in Mali, the CPR will be 20.10 in 2018. The potential impacts of this goal are presented in Figure 2. The estimations in the figure are for a five-year period from January 2014 to December 2018. These expected results are for all modern FP methods (except female and male sterilization): male condoms, female condoms, injectables, the pill, implants, IUD and CycleBeads.

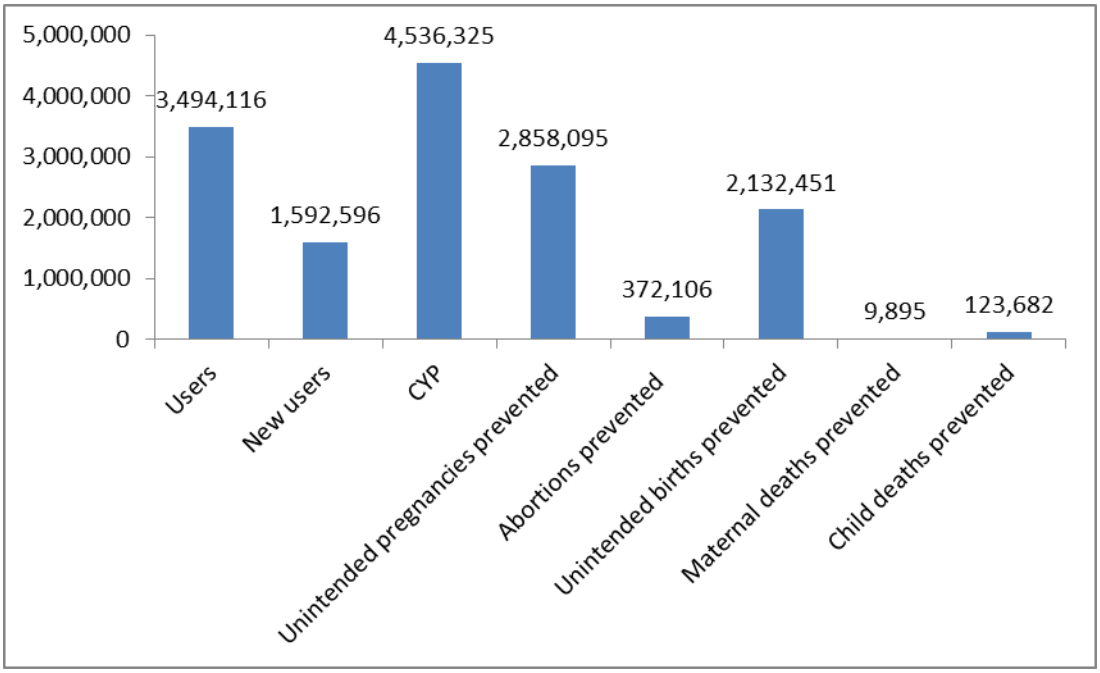

Figure 2: Estimated results of the implementation of FP in Mali for 2014 to 2018

INTRODUCTION

Country overview

Geographic data

Mali is a landlocked country of 1,241,238 square kilometers, located in the Sudano-Sahelian zone of West Africa. It shares 7000 kilometers of borders with Algeria in the north, Niger and Burkina Faso in the east, Côte d'Ivoire and Guinea in the south and Senegal and Mauritania in the west. From south to north, 25% of Mali's territory lies in the Sudano-Guinean zone, 50% in the Sahelian zone and 25% in the Sahara Desert. The climate is dry with a dry season and a rainy season that lasts, on average, five months in the south and less than one month in the north. Rainfall is between 1300–1500 millimeters in the south while the average is about 200 millimeters in the north.

The drainage system in Mali comprises the Niger (for 1700 km) and Senegal (for 800 km) Rivers and their tributaries, which flow through the southern and central part of the country.

Socio-economic data

The level of growth for the gross domestic product (GDP) was always lower than the forecasts in the Strategic Framework for Growth and the Reduction of Poverty (CSCRP). Specific growth rates were 4.3% in 2007, 5% in 2008, 4.5% in 2009 and 5.8% in 2010 compared to an annual forecast of 7%.[1] It should be noted that the GDP totaled FCFA 5024.3 billion in 2011 and FCFA 5239.3 billion in 2012 at market prices.

The country's level of debt is very high. At the end of 2010, the estimated accumulated public debt is FCFA 1225 billion, or 26% of GDP. This figure amounted to 112% of GDP at the end of the 1990–2000 decade. Debt servicing went from FCFA 47 billion in 2009 to FCFA 49 billion in 2010, including FCFA 35 billion in principal and FCFA 14 billion in interest.[2] The outstanding public debt also rose 20%, going from FCFA 908 billion in 2009 to FCFA 1089 billion in 2010, or 23.5% of GDP compared to 21.5% in 2009.

Mali is among the least developed countries and a beneficiary of the Heavily Indebted Poor Countries Initiative. The poverty incidence is declining; it fell from 55.5% in 2001 to 47.4% in 2006 and to 43.6% in 2010.[3] Poverty has an impact on living conditions, particularly for education and child health. According to results from the 2010 Short-form Integrated Household Survey:

[1] Government of Mali, Strategic Framework for Growth and the Reduction of Poverty, 2012–2017 (CSCRP 2012-2017), adopted 28 December 2011, page 17.
[2] CSCRP 2012–2017, page 20.
[3] National Institute of Statistics (INSTAT): Results from the Enquête Légère Intégrée auprès des Ménages (Short-form Integrated Household Survey; ELIM) 2010.

- The gross enrollment ratio and the net enrollment ratio are, respectively, 75.4% and 54.3% for primary school. There has been virtually no change compared to 2006 when it was 74.5% and 55.2%.
- Access to drinking water and basic sanitation facilities (latrines) greatly depends on people's economic situation. The access rate to drinking water has remained stable, and even declined, going from 78.3% in 2006 to 72.4% in 2010.[4]
- The percentage of the population with access to improved sanitation facilities (pit latrines) is 76% in 2010 while 19% of households have no latrines (27% in rural and 5% in urban settings). Only 5% of households use flushing sanitation facilities.

Cultural data

There are about twenty ethnic groups living in Mali. According to the General Census of Population and Housing (RGPH) 2009, Bambara is the first language for 46% of the population. It also indicated that the majority of those surveyed belong to the Muslim religion (94.8%). Christians (2.4%) and animists are marginally represented.

Demographic data

The population of Mali numbered 14,528,662 in 2009, according to the survey results.[5] There are 7,204,990 men (or 49.59%) and 7,323,672 women (or 50.41%). The urban population accounts for 22.54% compared to 77.46% rural.

The education level remains low in Mali for secondary and higher education with 12.4% and 4.8%, respectively. Some 82.9% of Malians have completed the primary level.

Fertility is still very high with a total rate of 6.6. Teen pregnancy is high: 188 for1000 women between 15 and 19 years old, rising to 283 for 1000 women between 20 and 24 years old and reaching the maximum of 292 for 1000 women between 25 and 29 years old and dropping to 25 for 1000 women ages 45 to 49 years old, according to the DHS 2012/2013.

The population of young people ages 10 to 24 years old is 4,462,053, or 30.71% of the total population, according to final results from the 2009 RGPH. Children under 5 (0 to 4 years old) account for 18.06%. Life expectancy at birth was 55.6 years.

According to estimates by the National Population Directorate for the needs of the West Africa Economic and Monetary,[6] total population went from 14,528,662 in 2009 to 16,317,996 in 2012.

[4] CSCRP 2012–2017.

[5] National Institute of Statistics (INSTAT): *Recensement Général de la Population et de l'Habitat, 2009 : Résultats définitifs tome 1 : série démographique (General Census of Population and Housing: Final Results, volume 1: Demographic Series)* - November 2011.

[6] MEF - DNP: Population des cercles et communes 2007–2012: besoins Union Économique et Monétaire Ouest Africaine. (Population of *cercles* and communes 2007–2012: West Africa Economic and Monetary Union Needs.)

Family planning in Mali

Family planning helps individuals and couples plan for and have the desired number of children by spacing their births through the use of contraceptive methods. Family planning is done through using contraceptive methods. The promotion of FP and access to desired contraceptive methods for women and couples are essential to ensuring the well-being and empowerment of women, while also supporting the health and development of communities. Family planning provides opportunities to prevent high-risk pregnancies, which can increase maternal mortality and morbidity/disability. According to the World Health Organization, it has been demonstrated that women who have more than four children are at an increased risk of maternal mortality.

In Mali, the infant mortality rate is estimated at 58 per 1000 live births (or 35 newborn deaths for live births and 23 postnatal deaths per 1000 births). Infant mortality went from 96 per 1000 (DHS 2006 IV) to 58 per 1000 (DHS V 2012/13); maternal mortality remains high in the DHS 2006, or 464 maternal deaths per 100,000 live births with about 49% of deliveries assisted by trained staff.

Family planning helps decrease maternal and infant mortality by reducing the rates of unintended pregnancies and the need for unsafe abortions. Family planning reduces infant mortality by preventing closely-spaced or poorly timed pregnancies. Family planning reduces the risk of unintended pregnancies among women living with HIV, which, in turn, decreases the number of babies and orphans who are infected. Male and female condoms offer dual protection against unintended pregnancies and sexually transmitted infections (STIs), including HIV. The long-term benefits of FP are the empowerment of individuals, improved education and increased productivity.

In Mali, there are laws, particularly “Law No. 02-044 of 24 June 2002 on reproductive health,” giving women the right to access to FP. Moreover, the April 2003 version of the National Population Policy document set the goal of “raising contraceptive prevalence for modern methods from 8.2% in 2001 to 30% in 2025.” This occurred within the context of the goal to “contribute to the gradual control of fertility in Mali” to ensure all married and unmarried women and adolescents are authorized to use FP if they desire.

Building the capacities of health workers results in promoting the delivery of FP services. Community health workers and volunteers have been integrated into the system in order to bring FP services closer to users. Thus, these workers all offer barrier methods, pills and injectables (method initiation).

Although all these laws and documents promote the availability of family planning services, the results show limited progress in the field. According to the DHS 2012/13, the total fertility rate is 6.1 children per woman, and modern contraceptive prevalence increased from 6% in 2006 to 10% in 2012–2013. Among WRA (age 15 to 49 years old), 21.3% state they no longer want children.

Unmet need for FP remains enormous. According to the MICS (2010), there continues to be 31% of contraception needs to cover, including 22% for birth spacing and 9% for limiting the number of children. This rate varies according to region with 35% in Bamako and Koulikoro, 34% in

Sikasso and Kidal compared to 22% in Tombouctou and Gao. Unmet need is nearly identical in urban (32%) and rural (30%) settings.

Needs for birth spacing are higher among young women (28% for women 15 to 19 years old) than for older women (7% for those 45 to 49 years old). Regarding needs for limiting births, the rate is higher among older women than younger women.

Hence, the 2014–2023 Ten-Year Health and Social Development Plan was also included as a priority in promoting FP in an effort to "Reduce Maternal and Newborn Mortality" (Sub-program of strategic priority objective No. 1). With the goal of increasing contraceptive prevalence (CPR) to 30% in 2025, and since FP is integral to reproductive health, the Government of Mali through the National Health Directorate developed the 2014–2018 strategic reproductive health plan. This plan included the development of a national action plan to strengthen the repositioning of FP as one of its priorities.

For Reproductive Health Commodities Security, a strategic plan (2011–2015) was developed to ensure a sustainable management and supply system for reproductive health products to increase the quality and availability of these products. "There is product security when each person can chose, obtain and use high-quality reproductive health products every time that he or she needs them."

Reproductive health assumes that people are able to have a responsible, satisfying and safe sex life; that they have the capability to reproduce and the freedom to decide if, when and how often to do so; and that they are able and free to use birth control methods that are legal. This is consistent with the right to information on fertility regulation and the use of contraceptive methods of their choosing that are at once safe, effective, affordable and acceptable.

With support from partners, the government through the Ministry of Health is committed to ensuring the safety of reproductive health for all Malians, and ensure that all Malians are able to choose, obtain and use high-quality contraceptives and other reproductive health products, when and where they need them.

Supply chain management system for FP commodities

The Government of Mali is committed to promoting birth spacing, particularly through opening FP service facilities and the provision of contraceptives as a FP method. Family planning commodities should follow the procurement and management system described in the Essential Medicines Procurement Master Plan (SDADME). Thus, the supply chain for FP commodities in Mali is identical to the one for other essential medicines.

Family planning commodities are purchased through various sources and funding mechanisms, such as the Government of Mali, UNFPA, USAID and KfW.

The procurement agency (People's Pharmacy of Mali, or PPM) is responsible for receiving, storing and distributing all FP commodities for the public sector, including those bought by donors (Figure 3).

PSI, MSI and the Malian Planned Parenthood Association (AMPPF) receive and distribute commodities for social marketing. Commodities for social marketing are repackaged, and some carry brand names different than those used in the public sector. Therefore, in social marketing Depo-Provera becomes Confiance, the male condom is called Protector Plus, the female condom is called Protective and Microgynon is called Pilplan D. It is important to highlight that donors, USAID, UNFPA and KfW provide FP commodities to the Government of Mali for free.

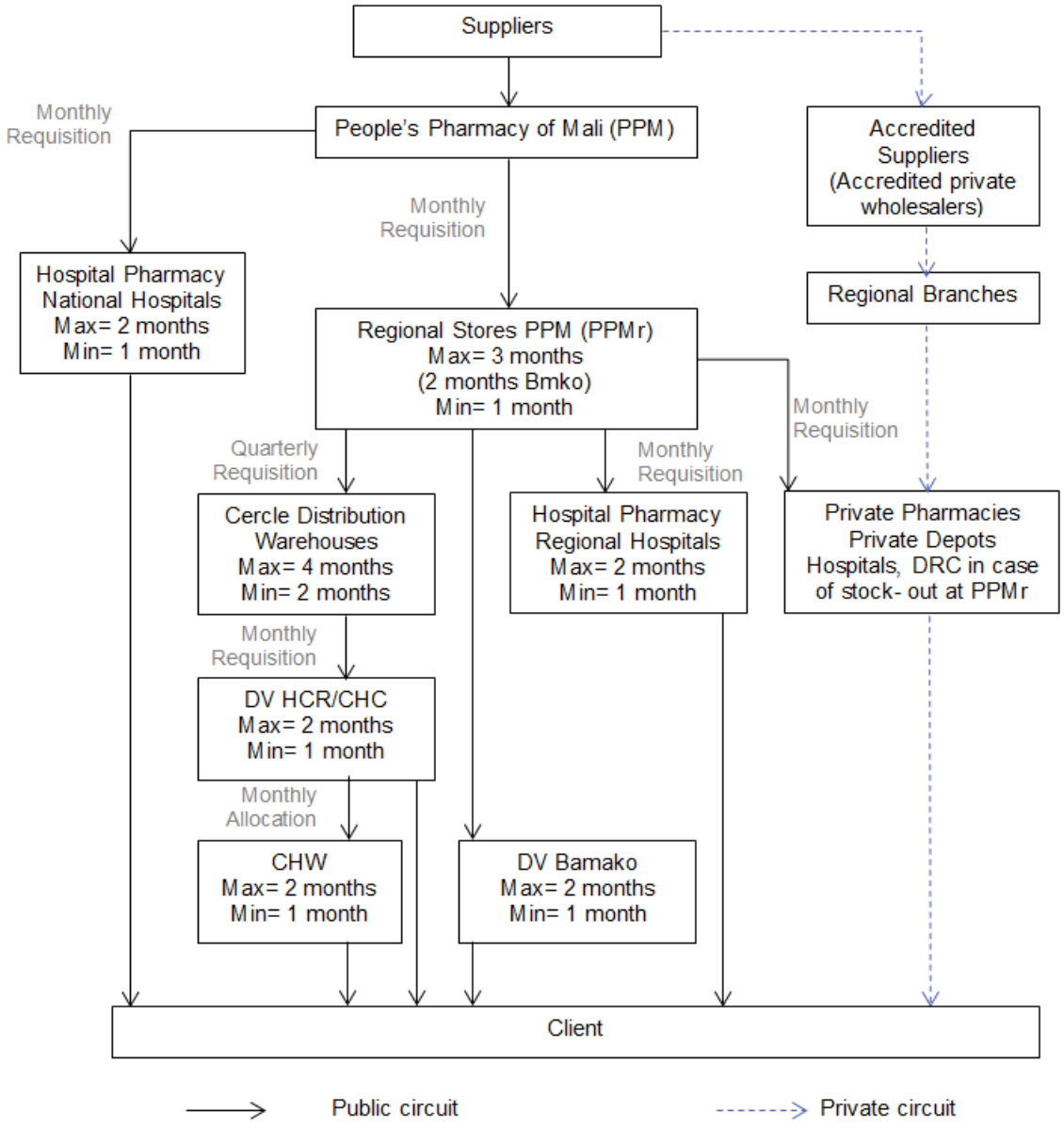

Figure 3: Contraceptive distribution circuit: the private circuit is the social marketing sector

The information circuit for the supply chain for contraceptive commodities is described in the diagram below from the Standard Operating Procedures (SOPs) Manual. Logistics data must be sent to the central level. Figure 4 traces the information circuit from one level to another and between actors in the logistics management information system (LMIS) to promote more effective decision-making at all levels of the health system.

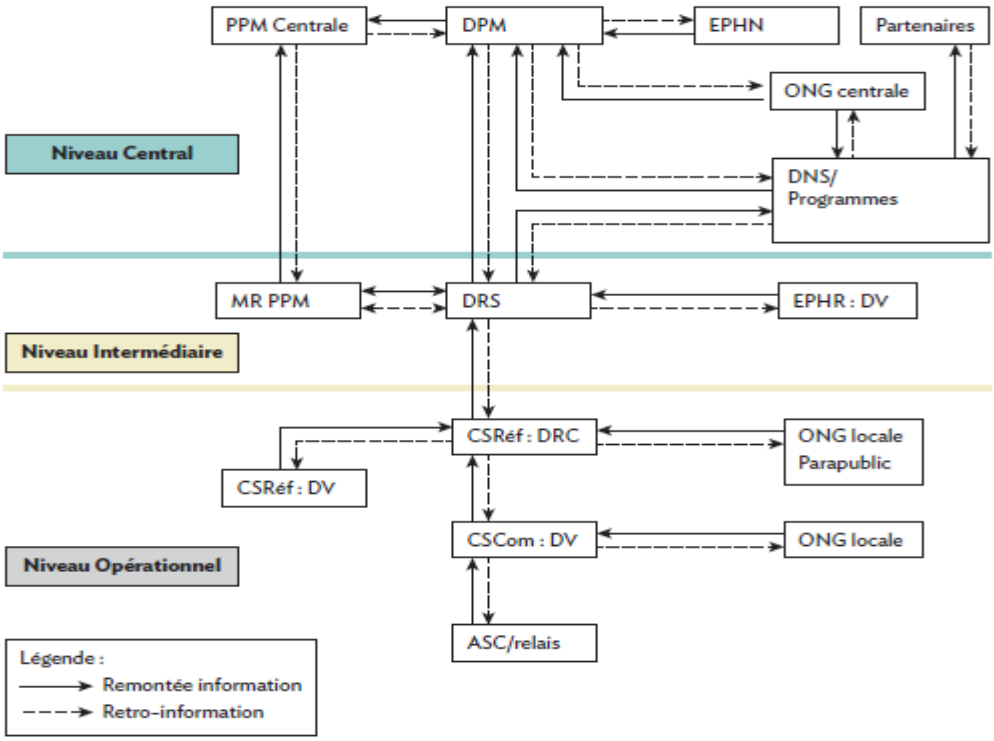

Figure 4: LMIS information circuit in Mali (SOPs)

Figure 4 shows that the logistics data are sent from the lower level to the higher level through the implemented LMIS and according to the schedule below:

- Community health workers (CHWs)/volunteers send the inventory management report on or before the 5th of each month to the Center Technical Director (DTC) of the Community Health Center (CSCom) during CHW procurement at the CSCom.

- The CSCom and reference health center (CSREF) distribution warehouses send the inventory management report on or before the 10th of each month to the Cercle Distribution Warehouse (DRC) Manager of the CSREF during procurement for the CSCom and CSREF distribution warehouses.

- The CSREF DRCs send the inventory management report on or before the 15th of the first month of the next quarter to the Pharmacist of the Regional Health Directorate (DRS).

- The hospital pharmacies send the inventory management report on or before the 10th of the first month of the next quarter to the DRS.
- For program medicines, the DRSs send the inventory management report on or before the 20th of the first month of the next quarter to the DPM.
- For essential medicines, the DRSs send the inventory management report on or before the 30th of the first month of the next quarter to the DPM.

Specifically for Bamako:

- The CSComs send the inventory management report on or before the 10th of each month to the CSREF for their communes.
- The CSREFs send the inventory management report on or before the 15th of the first month of the next quarter to the DRS of the District of Bamako.

Scope of the quantification

The quantification is national and deals with both the public and private sectors. The period covered is 2014 to 2018. The quantified commodities are listed in Table 2.

Table 2: Quantified commodities

Commodity	Unit/packaging
Duofem/Microgynon Fe (0.15 mg levonorgestrel + 0.03 mg ethinyl estradiol, 75 mg ferrous fumarate)	Cycle
Ovrette/Microlut	Cycle
Confiance/Depo-Provera (150 mg medroxyprogesterone acetate) injection suspension	Vial
Male condoms	Unit
Female condoms	Unit
CycleBeads	Unit
Implant/Jadelle	Set
IUD (TCu 380A)	Unit

This quantification took into account the following parameters: client needs, losses for forecasting as well as costs (procurement and shipping) of commodities, due dates for upcoming deliveries, stock on order, available and usable inventory, delivery lead time for shipments by suppliers and maximum and minimum stock levels for the supply and procurement plan.

The forecasted requirements and the supply and procurement plan are established for each of the sectors (public and social marketing). The other products needed to administer injections and insert implants and any other supplies and consumables required for the insertion of long-term and permanent FP methods as well as drugs for procedures for long-term methods are not taken into account in this quantification. However, these commodities are available in the supply chain for essential medicines.

Objectives

General objectives

- Strengthen the knowledge and skills of the quantification subcommittee members on the quantification process.
- Quantify family planning commodities for the period 2014 to 2018, using the appropriate tools (Reality Check and PipeLine).

Specific objectives

- Understand the quantification process for pharmaceutical products
- Identify the challenges and offer solutions to strengthen the quantification process for pharmaceutical products in Mali
- Learn how to use Reality Check and PipeLine to estimate requirements and to plan procurement of FP commodities.
- Apply the newly-acquired knowledge and skills to quantify family planning commodities for 2014 to 2018
- Produce forecasts and establish a supply plan for the FP commodities listed above for the period 2014 to 2018.

The results from this quantification exercise will be used for planning and mobilization of financial resources for the period 2014 to 2018 and to set estimated requirements for markets in the short term.

PROCESS AND METHODOLOGY FOR QUANTIFICATION

The steps described in Table 3 were used for the 2014 quantification exercise for contraceptive commodities.

Table 3: Steps and process

Steps	Involved structures	Activity details	Dates
Active collection of logistics data	DPM/DRS/UNFPA	• Annual consumption data for 85% of health centers and in the central and regional warehouses for the public sector • Distribution data for regional and central warehouses for the private sector (social marketing) • Data on available and usable stock	November/ December 2013
Technical Committee meeting	Technical Committee for the coordination and monitoring of the management of essential medicines and commodities (CTCSGME)	• Presentation of the quantification process for FP commodities to the CTCSGME by the DPM	22 January 2014
Document review	DPM, SIAPS	• RGPH 1987, 1998, 2009 • Population Forecast 2009, Mali DNP/INSTAT • UN population database, (http://esa.un.org/wpp/unpp/panel_population.htm), United Nations Department of Economic and Social Affairs, Statistics Division • DHS 1995/96, 2001, 2006, 2012/13 • MICS, 2009–2010 (Bamako, Mali, 2011) • Local Health Information System Annual Report (Annuaire Système Local d'Information Sanitaire; 2008, 2009, 2010, 2011, 2012) • FP Action Plan, 2014–2018 • Contraceptive Procurement Tables Report (CPT, 2012) • Report on physical inventory of contraceptives (DPM, December 2013) • Ordering guide for reproductive health products, USAID DELIVER • SDADME	25–28 March 2014

Steps	Involved structures	Activity details	Dates
Discussions with various stakeholders/experts	UNFPA, PSI, MSI, PPM, DPM, FP Program, DNS/DSR, AMPPF	• Understand and validate the data and get additional data/information	5–14 March 2014
Quantification consultation workshop	CTCSGME FP quantification group	• Orientation on the quantification process, methods and tools • Training on quantification tools for FP (Reality Check and PipeLine) • Organizing, analyzing and comparing data and information • Defining assumptions	5–11 March 2014
	CTCSGME	• Understanding and validating the data and get additional data/information • Explaining and validating the assumptions for missing data	12 March 2014
Quantification of FP commodities	FP quantification group	• Forecasting with Reality Check (morbidity) • Supply plan with PipeLine • Comparing consumption (calculated and earlier) • Review of data and assumptions • Finalization of quantification	12–14 March 2014

Main data used and data sources

The main documents, data and data sources that were collected and examined for the quantification of FP commodities are listed in Table 4.

Table 4: Key data with respective sources

Description of data	Sources
Number of WRA 15–49 years old	RGPH 1998, 2009 DNP/INSTAT 2009 forecast
Percentage of WRA among females	DHS 1995/96, 2001, 2006, and 2012/13 and MICS 2010
Percentage of sexually active WRA	Agreed-upon assumptions
Total CPR (modern methods)	2014–2018 FP Plan
Method mix/CPR by method	Adjusted 2013 consumption
Brand mix	2013 Consumption (health center)
Source mix	Adjusted 2013 consumption

Workshop proceedings

The quantification workshop took place 4–14 March 2014 at the Salam Hotel. Central structures within the Ministry of Health and partners working in contraception took part in this activity (see list in Annex 3). Two events were highlighted in the opening ceremonies. In her speech, the USAID representative reiterated USAID's commitment to support the Government of Mali in the area of FP. The Director of Pharmacy and Medicines, who presided over the opening ceremonies asked participants to be diligent in achieving the workshop objectives. The following activities were conducted during this workshop.

Training

The training sessions involved the Technical Committee and the contraceptive quantification group. One day was devoted to an orientation on the quantification process, methods and tools for the Technical Committee for the coordination and monitoring of the management of essential medicines and commodities for programs. During this day, tools for forecasting (Reality Check, Quantimed and QuanTB) and for the supply plan (PipeLine) were presented. The other training sessions for the contraceptive quantification group were devoted to the Reality Check and PipeLine tools.

Organization of data

This was done during the preparatory stage of the workshop, held at the DPM (25–28 March) and during the quantification workshop. It consisted of:

- Organizing data/information
- Analyzing and comparing data/information
- Defining the assumptions

Consultation workshop

The available data and information was compiled, analyzed and prepared for discussions during a consultation workshop held on 12 March 2014. Objectives for this workshop were to:

- Understand and validate the data and get additional data/information
- Explain and validate the assumptions for missing data

The majority of stakeholders involved in FP activities took part in this consultation workshop (see list of participants in Annex 3). After the workshop, discussions were held with PSI specifically for clarification on data collected from this organization.

Forecasting

The analyzed and organized data and assumptions were entered into the forecasting tool. During the consultation workshop and discussions with relevant partners, the method based on demographic/morbidity data was selected as the main forecasting method. However, the consumption-based method was also used to compare the various results.

The demographic/morbidity method was selected as the main forecasting method because:

- Data for the demographic method for forecasting are relatively more reliable because they are primarily based on surveys.
- The program aims to lower fertility rates and unmet needs while increasing the contraceptive prevalence rate and people's use of family planning methods.
- Data on consumption/distribution to clients are not complete and have some shortcomings in quality. The LMIS for essential medicines (including FP commodities) is still in its startup phase.

A modified and simplified version of Reality Check was used for the forecasting method based on demographic data. Excel was used to do the forecasting using the consumption method.

Supply plan

The supply plan was developed using the PipeLine tool. The main assumptions and results are in the corresponding sections and presented with the quantification results.

QUANTIFICATION RESULTS

Key assumptions

Demography/morbidity-based method

Population

The 2009 Population Forecast for Mali—by the National Population Directorate (DNP)/National Institute of Statistics (INSTAT)—was used as the basis for calculating the number of women of reproductive age (15 to 49 years old).

For this exercise, using the demographic method, a consensus was reached during the consultation workshop to adopt the assumption that all women of reproductive age are sexually active. It was also decided that all women of reproductive age have access to health services in general and to FP in particular.

Table 5 presents the total population, the female population and population of WRA by year.

Table 5: Total and female populations

Population	Total projected population in 2009: INSTAT	RGPH 1976; 1987; 1998; 2009	2009 female population projection: INSTAT	Percentage of females	Number of women age 15 to 49 years old (WRA)	Percent of women age 15 to 49 years old (WRA)
1987		7,696,348				
1998		9,810,911				
2009		14,528,662	7,323,672	50.41%	3,189,905	
2010	15,369,809		7,691,028	50.04%	3,481,552	45.27%
2011	15,839,538		7,921,347	50.01%	3,585,741	45.27%
2012	16,318,897		8,156,619	49.98%	3,697,826	45.34%
2013	16,808,242		8,397,010	49.96%	3,816,899	45.46%
2014	17,308,179		8,642,791	49.93%	3,941,859	45.61%
2015	17,819,147		88,941,53	49.91%	4,072,233	45.79%
2016	18,341,245		9,151,156	49.89%	4,197,056	45.86%
2017	18,874,286		9,413,711	49.88%	4,327,994	45.98%
2018	19,418,097		9,681,688	49.86%	4,465,076	46.12%

Contraceptive prevalence rate

Based on the CPR in the DHS (2012/13) and the MICS 2010, the upward and downward trends were highlighted in order to calculate the total CPR for the 2014–2018 quantification period.

Examining the different sources of data generates different rates of increase for total CPR for the modern methods:

- Using the district warehouse distribution and the population of women of reproductive age from the FP action plan, there is an average increase in CPR of 4 points per year, while the CPRs obtained through the same distribution data and the projected population of women of reproductive age results in an annual increase of 4.7 points.

- With the adjusted data from the Statistics Yearbooks (health information system) the annual increase for CPR is 1.14 points.

- When taking into account the 2018 goal for the national FP action plan, the calculated CPR shows a 2.04 point increase if data from the DHS 2012/13 are considered as those from 2013 and 1.70 points if the same data are from 2012.

- With the data from the health information system, the average annual increase in CPR is 1.14 points for modern methods.

Due to this difference and based on the past trends for other similar countries in the world, it was decided for this exercise to use an annual increase of 1.70 points for total CPR for the quantification period. Therefore, the CPR for all modern methods combined will increase from 9.90% in 2012 (DHS 2012) to 20.10% in 2018 (future goal of the national FP action plan).

Table 6: CPR for all modern methods

Modern methods and the FP plan goal	DHS 2012	Average annual increase or decrease in CPR	2013	2014	2015	2016	2017	2018
All modern methods	9.90%	1.70%	11.60 %	13.30 %	15.00 %	16.70 %	18.40 %	20.10 %

CPR by contraceptive method (for modern methods)

The disaggregation of CPR by contraceptive method was done using data from various sources. Thus, the 2011 and 2013 distribution data from the districts, data from the 2012 Statistical Yearbook, data from the DHS 2012/13 and consumption data from health facilities were used.

The percentages obtained using the consumption data were used because they are close (except for female sterilization) to those observed when using data from specific stakeholders (AMPPF and MSI) in the field. Data from the DHS 2012/13 were used for female sterilization. The percentage for female condoms was inferred from the figure used for female sterilization.

Table 7: Contraceptive prevalence rate by contraception method

Method	Percentage
Pills	11.00
Injectable	14.47
Male condom	16.38
IUD	17.08
Implant	38.16
Female sterilization	1.01
CycleBeads	1.88
Female condom	0.01
Total	100.00

Disaggregation of contraceptive prevalence by brand for pills

Two types of pills are used in Mali; they are:

- Microlut for post-partum women
- Microgynon for all other targeted women

Distribution data from the last seven years (2007 to 2013) and the 2013 consumption data for the two sectors (public and social marketing) were used to calculate the percentage use for each of these pills.

The average distribution for districts for 2007–2011, the average distribution from 2007 to 2013, the average distribution for the central warehouse and the 2013 consumption data for health facilities showed different percentages. The consensus during the quantification consultation workshop was to use the percentages obtained using the 2013 consumption data for health facilities. This choice was further supported by the fact that the percentage for Microlut is 21.86%. This commodity is used by breastfeeding mothers, and the percentage of pregnant women is approximately 22.7% of women of reproductive age, according to the Statistical Yearbook (2012).

Table 8: Percentage of use of pills by brand

Pills	2013 Consumption (health center)
Microgynon	78.14
Microlut	21.86

Table 9: Percentage of women of reproductive age and pregnant women

Characteristic	Statistical Yearbook 2012
% of pregnant women (of the total population)	5.0
% of pregnant women (15–49-years-old age group)	22.7

CYP factor and discontinuation rate for 12 months

The couple-years of protection (CYP) factors for the various commodities listed in Table 10 are the ones selected by the country; the rates have been taken from the Reality Check, version 2, User's Guide, 2010.

Table 10: CYP factor and discontinuation rate for 12 months

Method	Discontinuation rate for 12 months	Mali: CYP factor
Male condom	50%	Divided by 120
Female condom	50%	Divided by 120
Duofem/Microgynon	50%	Divided by 15
Ovrette/Microlut	50%	Divided by 15
Injectable/Depo-Provera	50%	Divided by 4
IUD	28%	Multiplied by 4.6
Implant	28%	Multiplied by 3.8
CycleBeads	40%	Multiplied by 2

Disaggregation by sector (public sector, social marketing)

The share for each sector (public and social marketing) by contraceptive method was determined using the quantities of distributed commodities at the district warehouse level in 2011 and 2013. The same exercise was done using consumption data in addition to data from the DHS 2012/13 and from the 2012 quantification conducted by the DPM. Different results were obtained. Thus, the consensus was to take the average of the results by source and by commodity, and then to adjust the resulting percentages.

Table 11: Disaggregation by sector (public sector, social marketing)

Source	Microgynon	Microlut	Depo-Provera	Male condom	Female condom	IUD kit	Implant	CycleBeads
Public (%)	27.99	65.20	28.48	2.50	10.00	26.45	35.18	45.56
Social marketing (%)	72.01	34.80	71.52	97.50	90.00	73.55	64.82	54.44

Consumption method

The forecasting method based on consumption was used as an alternative to the morbidity/demographic method and for comparison despite shortcomings noted in the consumption data. For this method, the following assumptions and considerations were identified:

- The data used for this method were consumption data for the public sector and distribution data for social marketing. The same assumptions for disaggregation by source, used for the forecasting based on the demographic method, were applied to calculate requirements per sector (public and social marketing).

- The consumption report and data from the December 2013 physical inventory were examined and compared to estimate the requirements based on consumption and distribution.

- For male and female condoms, it was not possible to distinguish between condoms used for contraception and those used for protection against STIs. Hence, it was decided to treat these data as representing contraception use.

Table 12 summarizes the main forecasting assumptions based on the consumption method.

Table 12: Key assumptions for forecasting using the consumption method

No.	Commodities	Key assumptions
1	Depo-Provera	• Consumption data for 2013 collected during the physical inventory • For all these commodities, the average growth was calculated by using quantities (2014–2018) obtained for each commodity, by applying the demographic or morbidity method. The annual growth rate of increase per year was determined by commodity; this has resulted in an average growth rate of 13%, which was applied to all products for each year. • A physical inventory was conducted in 85% of facilities, hence the reporting rate has been adjusted.
2	Microgynon pill	
3	Microlut pill	
4	Jadelle implant	
5	IUD	
6	Male condom	
7	Female condom	
8	CycleBeads	

Additional assumptions for losses and the supply plan

Loss rate

The loss rates for each commodity listed in Table 13 were selected by taking into account the experiences of other countries.

Table 13: Loss rate

Commod-ities	Depo-Provera	Male condoms	Female condoms	Microgynon	Microlut	IUD (TCu 380A)	Jadelle implant	Cycle Beads
Loss rate (%)	5	10	15	5	5	5	5	**5**

Supply plan

Assumptions were also defined for this step of the quantification exercise. Table 14 shows the minimum and maximum stock levels for health facilities and distribution warehouses and the desired inventory level for the program.

Table 14: Maximum and desired stock levels, according to the SDADME

Level	Minimum stock level	Maximum stock level
Central warehouse	6 months	12 months
Regional warehouse	1 month	3 months
District warehouse	2 months	4 months
Health center	1 month	2 months
National	10 months	21 months
Delivery interval for the central warehouse		6 months
Desired stock levels for the program		19 months

Table 15 indicates the estimated lead time taking into account the various stages of planning and the processes for commodity procurement. The delivery lead time includes four important components or steps, as follows:

- Planning time: time required to complete the forecasting and supply plan as well as to obtain approval for the requisition
- Ordering time: time period needed to place orders for commodities with quantities and delivery dates in accordance with the supply plan
- Shipping time: time for transporting commodities from the manufacturing/supplier site to the PPM or other purchasers
- Receiving time: time needed for obtaining products in the procurement agency that are ready for distribution and use

Table 15: Delivery lead time

	Delivery time (month)				
Vendor	**Order planning**	**Order dispatch**	**Expedition of port delivery**	**Delivery: port to receiving**	**Total delivery time**
USAID/DELIVER	0.5	1	4	1	6.50
UNFPA	0.5	4	1	1	6.50
KfW/PSI					6.00
GOM/PPM	3	3	0.75	0.25	7.00

Commodity prices

It is assumed that the price for each commodity remains constant. Information on the prices have been provided by USAID, UNFPA and PSI/KfW. For most commodities, the prices provided by USAID are nearly identical to those defined by UNFPA. The prices noted in Table 16 are those of USAID/DELIVER and do not include shipping costs.

Table 16: Commodity costs

Commodity	**Unit/packaging**	**Unit price USAID/DELIVER**
Duofem/Microgynon	Cycle	USD 0.27
Ovrette/Microlut	Cycle	USD 0.23
Confiance/Depo-Provera	Vial	USD 0.99
Male condoms	Unit	USD 0.03
Female condoms	Unit	USD 0.55
CycleBeads	Unit	USD 0.23
Jadelle implant	Set	USD 8.50
IUD (TCu 380A)	Unit	USD 0.56

Shipping and other logistics costs

For all partners, the commodity costs do not include shipping costs. Table 17 gives the shipping cost per partner.

Table 17: Shipping cost per partner

Partner	**Shipping cost**	**Purchase cost**	**Distribution cost**	**Total**
USAID/DELIVER	12%	0%	0%	12%
UNFPA	12%	0%	0%	12%
KfW/PSI	31%	0%	0%	31%
GOM/PPM	12%	0%	0%	12%

Quantification results

Results from the demographic/morbidity method

Number of users

The number of users for each method was calculated using the CPR by method, taking into account the percentage by type of pill and the population of WRA. Table 18 gives the estimated number of users by method and by year. Table 19 presents the specific discontinuation rate and the number of new users per year.

Table 18: Total number of users

Method	2014	2015	2016	2017	2018
Microgynon pill	45,082	52,532	60,284	68,498	77,201
Microlut pill	12,640	14,721	16,886	19,180	21,611
Depo-Provera	75,868	88,388	101,415	115,218	129,844
Male condom	85,880	100,055	114,803	130,431	146,990
Female condom	53	61	70	79	89
CycleBeads	9855	11,484	13,179	14,975	16,878
Jadelle implant	200,062	233,095	267,464	303,883	342,471
IUD	89,546	104,331	119,714	136,014	153,286

Table 19: Number of new users

Method	Discontinuation rate for use of contraceptive methods	2014	2015	2016	2017	2018
Microgynon pill	0.50	26,048	29,991	34,018	38,356	42,952
Microlut pill	0.50	7300	8401	9526	48,471	12,021
Depo-Provera	0.50	43,828	50,454	57,221	64,511	72,235
Male condom	0.50	49,613	57,115	64,776	73,030	81,775
Female condom	0.50	30	35	39	44	50
CycleBeads	0.40	4862	5571	6289	7068	7893
Jadelle implant	0.28	78,410	89,050	99,636	111,309	123,676
IUD	0.28	35,096	39,858	44,596	49,820	55,356

Forecasting results using the demographic/morbidity method

Based on the forecasting assumption above and using the modified version of Reality Check (a forecasting tool), the following quantities and costs per commodity were calculated. The forecasted requirements include client demand and losses. However, the calculations do not include the available and usable stock, ordered stock and other parameters within the supply plan.

Tables 20 and 21 indicate the forecasted requirements for contraceptive commodities, with quantity and cost estimates for the two sectors (public sector and social marketing). Tables 22 and 23 show the same thing for the public sector. Tables 24 and 25 identify requirements in terms of quantities and costs for social marketing. The cost for national requirements obtained using this method is USD 10,813,269.

Table 20: Forecasted national requirements for quantities, including losses

Commodity	2014	2015	2016	2017	2018	Total
Microgynon pill	710,037	827,376	949,469	1,078,839	1,215,918	4,781,639
Microlut pill	199,084	231,858	265,957	302,089	340,373	1,339,360
Depo-Provera	318,644	371,229	425,942	483,917	545,347	2,145,079
Male condom	11,336,156	13,207,229	15,154,058	17,216,933	19,402,720	76,317,096
Female condom	7253	8430	9653	10,950	12,324	48,609
CycleBeads	5105	5849	6603	7421	8288	33,266
Jadelle implant	82,331	93,502	104,618	116,874	129,859	527,184
IUD	36,850	41,850	46,826	52,311	58,123	235,961

Table 21: Total amount for national requirements with losses (USD)

Commodity	Unit	Unit price	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	0.27	218,234	254,270	291,765	331,496	373,594	1,469,358
Microlut pill	Cycle	0.23	22,792	26,554	30,468	34,615	39,010	153,439
Depo-Provera	Set	0.99	315,458	367,517	421,683	479,078	539,893	2,123,628
Male condom	Unit	0.03	359,356	418,669	480,384	545,777	615,066	2,419,252
Female condom	Unit	0.55	3989	4636	5309	6022	6778	26,735
CycleBeads	Unit	0.23	1174	1345	1519	1707	1906	7651
Jadelle implant	Set	8.50	699,812	794,768	889,254	993,429	1,103,805	4,481,067
IUD	Kit	0.56	20,636	23,436	26,222	29,294	32,549	132,138
Total			1,641,450	1,891,195	2,146,604	2,421,418	2,712,601	10,813,269

Table 22: Forecasted requirements for quantities, including losses, for the public sector

Commodity	Unit	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	256,723	299,084	343,160	389,863	439,349	1,728,178
Microlut pill	Cycle	71,819	83,670	96,000	109,066	122,910	483,465
Depo-Provera	Set	90,750	105,726	121,308	137,820	155,315	610,919
Male condom	Unit	283,404	330,181	378,851	430,423	485,068	1,907,927
Female condom	Unit	725	843	965	1095	1232	4861
CycleBeads	Unit	2326	2665	3008	3381	3776	15,156
Jadelle implant	Set	28,964	32,894	36,805	41,116	45,685	185,463
IUD	Kit	9747	11,069	12,385	13,836	15,374	62,412

Table 23: Forecasted requirements for costs, including losses, for the public sector (USD)

Commodity	2014	2015	2016	2017	2018	Total
Microgynon pill	69,315	80,753	92,653	105,263	118,624	466,608
Microlut pill	16,231	18,909	21,696	24,649	27,778	109,263
Depo-Provera	89,842	104,669	120,095	136,441	153,762	604,809
Male condom	8984	10,467	12,010	13,644	15,377	60,481
Female condom	399	464	531	602	678	2674
CycleBeads	535	613	692	778	868	3486
Jadelle implant	246,194	279,599	312,839	349,488	388,319	1,576,439
IUD	5458	6199	6936	7748	8609	34,951
Total	436,958	501,672	567,452	638,614	714,014	2,858,711

Table 24: Forecasted requirements for quantities, including losses, for social marketing

Commodity	Unit	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	551,550	642,656	737,452	837,899	944,331	3,713,888
Microlut pill	Cycle	29,029	33,824	38,813	44,100	49,702	195,468
Depo-Provera	Set	227,894	265,503	304,634	346,098	390,032	1,534,161
Male condom	Unit	11,052,752	12,877,048	14,775,207	16,786,510	18,917,652	74,409,169
Female condom	Unit	6528	7587	8688	9855	11,091	43,748
CycleBeads	Unit	2779	3184	3595	4040	4512	18,110
Jadelle implant	Set	53,367	60,608	67,813	75,758	84,175	341,721
IUD	Kit	27,103	30,781	34,440	38,475	42,750	173,550

Table 25: Forecasted requirements for costs, including losses, for social marketing (USD)

Commodity	2014	2015	2016	2017	2018	Total
Microgynon pill	148,918	173,517	199,112	226,233	254,969	1,002,750
Microlut pill	6561	7644	8772	9967	11,233	44,176
Depo-Provera	225,615	262,848	301,588	342,637	386,132	1,518,819
Male condom	350,372	408,202	468,374	532,132	599,690	2,358,771
Female condom	3590	4173	4778	5420	6100	24,062
CycleBeads	639	732	827	929	1038	4,165
Jadelle implant	453,618	515,169	576,414	643,940	715,487	2,904,628
IUD	15,178	17,237	19,287	21,546	23,940	97,188
Total	1,204,492	1,389,523	1,579,152	1,782,804	1,998,587	7,954,557

Supply plan using results from the demographic method

Tables 26 and 27 present details on what commodities to purchase in terms of quantity and costs per year for the public sector. Tables 28 and 29 provide the same information for social marketing. The cost for quantities to be purchased from January 2014 to December 2018 for the public sector is estimated at USD 4,248,432, and the cost for social marketing for the same period is USD 10,644,023. The quantities of commodities mentioned in the column under 2014 for Tables 26 and 28 have already been ordered.

Annexes 1 and 2 provide details for each commodity, data on the quantity to order, the delivery lead times, the expediting status and the amount starting from January 2014 for the two sectors. The figures may change after the update with actual consumption, available stock and other adjustment parameters.

Table 26: Quantities per commodity and per year for the supply plan for the public sector

Commodity	Unit	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	2,473,440	0	0	0	0	2,473,440
Microlut pill	Cycle	218,640	0	45,000	126,492	141,350	531,482
Depo-Provera	Set	905,200	0	0	0	0	905,200
Male condom	Unit	7,027,200	0	0	0	0	7,027,200
Female condom	Unit	148,137	0	0	0	0	148,137
CycleBeads	Unit	0	0	0	0	0	–
Jadelle implant	Set	39,500	32,077	42,022	46,857	51,784	212,240
IUD	Kit	6000	11,634	14,149	15,773	15,773	63,329

Table 26 shows that the quantities ordered in 2014 for some products (Microgynon, Depo-Provera and male and female condoms) could cover requirements until 2018. There are no procurement requirements for CycleBeads for the public sector.

Table 27: Cost per commodity and per year for the supply plan for the public sector (USD)

Commodity	2014	2015	2016	2017	2018	Total
Microgynon pill	747,968	0	0	0	0	747,968
Microlut pill	64,902	0	11,592	32,584	36,412	145,490
Depo-Provera	946,422	0	0.00	0.00	0	946,422
Male condom	224,147	0	0	0	0	224,147
Female condom	125,571	0	0	0	0	125,571
CycleBeads	0	0	0	0	0	0
Jadelle implant	376,040	305,373	400,049	446,079	492,984	2,020,525
IUD	2352	7297	8874	9893	9893	38,309
Total	2,487,403	312,670	420,516	488,556	539,288	4,248,432

Table 28: Quantities per commodity and per year for the supply plan for the public sector

Commod-ity	Unit	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	2,968,514	0	0	525,629	1,082,953	4,577,096
Microlut pill	Cycle	15,120	55,933	45,444	51,161	57,176	224,834
Depo-Provera	Set	32,200	260,606	356,811	401,402	448,606	1,499,625
Male condom	Unit	27,733,200	9,614,543	17,306,088	19,468,259	21,759,170	95,881,260
Female condom	Unit	8000	8054	10,163	11,404	12,739	50,360
CycleBeads	Unit	0	0	0	0	0	–
Jadelle implant	Set	95,505	70,279	77,606	268,420	95,414	607,224
IUD	Kit	51,242	40,071	39,321	43,848	48,443	222,925

Table 28 shows that the quantities ordered in 2014 for Microgynon could cover needs until 2016. There are no procurement requirements for CycleBeads for the entire quantification period.

Table 29: Amount per commodity and per year for the supply plan for social marketing (USD)

Commodity	2014	2015	2016	2017	2018	Total
Microgynon pill	853,394	0	0	158,950	327,485	1,339,829
Microlut pill	5080	14,408	11,706	13,179	14,729	59,103

Depo-Provera	27,769	288,960	395,632.04	445,074.54	497,414	1,654,850
Male condom	1,082,170	323,049	581,485	654,134	731,108	3,371,945
Female condom	4,928	4961	6260	7025	7847	31,022
CycleBeads	0	0	0	0	0	0
Jadelle implant	909,208	669,056	738,809	822,042	908,341	4,047,457
IUD	32,139	25,133	24,662	27,501	30,383	139,819
Total	2,914,688	1,325,567	1,758,555	2,127,906	2,517,308	10,644,023

Results from the consumption method

Forecasting needs using the consumption method

The planned quantities and amounts for commodities have been calculated based on the assumptions cited above and using an Excel spreadsheet. This forecast includes client needs without adjustments with the reporting rate and the number of days of stockouts and losses. It does not take into account the available and usable stock at the end of the period, ordered stock and other parameters within the supply plan. Tables 30 and 31 identify the total forecasted requirements in quantities and costs, respectively, for the public sector. Tables 32 and 33 provide the same information for social marketing.

Public sector

Table 30: Total quantity for national requirements without adjustments

Commodity	Unit	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	2,068,996	2,337,966	2,641,901	2,985,348	3,373,444	13,407,655
Microlut pill	Cycle	69,775	78,846	89,096	100,678	113,767	452,162
Depo-Provera	Set	749,957	847,452	957,620	1,082,111	1,222,786	4,859,926
Male condom	Unit	25,474,444	28,786,122	32,528,318	36,756,999	41,535,409	165,081,293
Female condom	Unit	3657	4132	4669	5276	5962	23,696
CycleBeads	Unit	12,189	13,774	15,565	17,588	19,874	78,990
Jadelle implant	Set	133,244	150,566	170,139	192,257	217,251	863,457
IUD	Kit	48,113	54,368	61,436	69,422	78,447	311,786

Table 31: Total cost of national requirements without adjustments (USD)

Commod-ity	Unit	Unit price	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	0.270	558,629	631,251	713,313	806,044	910,830	3,620,067
Microlut pill	Cycle	0.226	15,769	17,819	20,136	22,753	25,711	102,189
Depo-Provera	Set	0.990	742,458	838,977	948,044	1,071,290	1,210,558	4,811,327
Male condom	Unit	0.032	807,540	912,520	1,031,148	1,165,197	1,316,672	5,233,077
Female condom	Unit	0.550	2011	2273	2568	2902	3279	13,033
CycleBeads	Unit	0.230	2804	3168	3580	4045	4571	18,168
Jadelle implant	Set	8.500	1,132,574	1,279,808	1,446,183	1,634,187	1,846,631	7,339,383
IUD	Kit	0.560	26,943	30,446	34,404	38,876	43,930	174,600
Total			3,288,727	3,716,262	4,199,376	4,745,295	5,362,183	21,311,843

Social marketing

Table 32: Total quantity for planned requirements without adjustments

Commodity	Unit	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	145,073	163,932	185,243	209,325	236,537	940,111
Microlut pill	Cycle	40,577	45,852	51,813	58,549	66,160	262,951
Depo-Provera	Set	161,926	182,976	206,763	233,642	264,015	1,049,322
Male condom	Unit	634,636	717,139	810,367	915,715	1,034,758	4,112,615
Female condom	Unit	261	295	333	377	426	1692
CycleBeads	Unit	12,038	13,603	15,371	17,369	19,627	78,009
Jadelle implant	Set	47,617	53,807	60,802	68,707	77,638	308,571
IUD	Kit	6818	7705	8706	9838	11,117	44,185

Table 33: Total cost for planned requirements without adjustments (USD)

Commodity	Unit	Unit price	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	0.270	39,170	44,262	50,016	56,518	63,865	253,830
Microlut pill	Cycle	0.226	9170	10,363	11,710	13,232	14,952	59,427
Depo-Provera	Set	0.990	160,306	181,146	204,695	231,306	261,375	1,038,829
Male condom	Unit	0.032	20,118	22,733	25,689	29,028	32,802	130,370
Female condom	Unit	0.550	144	162	183	207	234	930
CycleBeads	Unit	0.230	2769	3129	3535	3995	4514	17,942
Jadelle implant	Set	8.500	404,745	57,362	516,819	584,005	659,926	2,622,858
IUD	Kit	0.560	3818	4,315	4,876	5509	6226	24,744
Total			640,240	723,471	817,523	923,801	1,043,895	4,148,929

Table 34: Total quantity for planned requirements without adjustments

Commod-ity	Unit	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	1,923,923	2,174,033	2,456,658	2,776,023	3,136,906	12,467,544
Microlut pill	Cycle	29,198	32,994	37,283	42,130	47,607	189,211
Depo-Provera	Set	588,032	664,476	750,858	848,469	958,770	3,810,604
Male condom	Unit	24,839,808	28,068,983	31,717,951	35,841,284	40,500,651	160,968,678
Female condom	Unit	3396	3837	4336	4900	5537	22,005
CycleBeads	Unit	151	171	193	218	247	981
Jadelle implant	Set	85,627	96,758	109,337	123,551	139,612	554,885
IUD	Kit	41,295	46,663	52,729	59,584	67,330	267,601

Table 35: Total cost for planned requirements without adjustments (USD)

Commodity	Unit	Unit price	2014	2015	2016	2017	2018	Total
Microgynon pill	Cycle	0.270	519,459	586,989	663,298	749,526	846,965	3,366,237
Microlut pill	Cycle	0.226	6599	7457	8426	9521	10,759	42,762
Depo-Provera	Set	0.990	582,151	657,831	743,349	839,984	949,182	3,772,498
Male condom	Unit	0.032	787,422	889,787	1,005,459	1,136,169	1,283,871	5,102,707
Female condom	Unit	0.550	1868	2110	2385	2695	3045	12,103
CycleBeads	Unit	0.230	35	39	44	50	57	226
Jadelle implant	Set	8.500	727,828	822,446	929,364	1,050,182	1,186,705	4,716,526
IUD	Kit	0.560	23,125	26,131	29,528	33,367	37,705	149,857
Total			2,648,487	2,992,791	3,381,853	3,821,494	4,318,289	17,162,914

Supply plan using results from the consumption method

Tables 36 and 37 present details on what commodities to buy in terms of quantity and cost, per year for the public sector. The same information is shown in Tables 37 and 38 for social marketing.

For the quantification period (January 2014 to December 2018), the estimated cost for supplying the country in contraceptive products is USD 30,069,558 (including USD 5,947,901 for the public sector and USD 24,115,657 for social marketing).

Annex 2 provides details for each product, data on the quantity to order, delivery lead times, expediting status and cost from January 2014. The figures may change after the update with actual consumption, available stock and other adjustment parameters.

Table 36: Supply plan/quantity to purchase per year for the public sector

Commodity	2014	2015	2016	2017	2018	Total
Microgynon pill	2,473,440					2,473,440
Microlut pill	218,640				16,352	234,992
Depo-Provera	905,200				176,006	1,081,206
Male condom	7,027,200					7,027,200
Female condom	201,122					201,122
CycleBeads		5660	17,719	20,019	22,661	66,059
Jadelle implant	76,969	62,065	70,131	79,254	89,539	377,958
IUD	6000		10,922	11,338	12,806	41,066

According to Table 36, the quantities ordered in 2014 could cover requirements until 2018 for Microgynon, Microlut and female condoms and until 2016 for Depo-Provera and male condoms.

Table 37: Supply plan/procurement costs per year for the public sector (USD)

Commodity	2014	2015	2016	2017	2018	Total
CycleBeads		1458	4,564	5157	5837	17,017
Female condom	125,571					125,571
Male condom	224,147					224,147
IUD	2352		6850	7111	8032	24,345
Depo-Provera	946,422				195,155	1,141,578
Jadelle implant	732,745	590,859	667,647	754,498	852,411	3,598,160
Microgynon pill	747,968					747,968
Microlut pill	64,902				4212	69,114
Grand Total	2,844,107	592,317	679,062	766,766	1,065,648	5,947,901

Table 38: Supply plan/quantity to purchase per year for social marketing

Commodity	2014	2015	2016	2017	2018	Total
Microgynon pill	2,968,514	3,635,526	2,833,517	3,201,822	3,618,095	16,257,474
Microlut pill	31,216	38,170	42,990	48,595	54,898	215,869
Depo-Provera	817,921	766,392	866,048	978,610	1,105,845	4,534,816
Male condom	47,733,200	36,272,200	36,583,251	41,339,059	46,713,124	208,640,834
Female condom	8000	0	1171	5652	6384	21,207
CycleBeads	0	0	0	0	0	0
Jadelle implant	163,661	118 680	126 102	142 517	161,015	711,975
IUD	74,882	60,539	60,803	68,717	77,672	342,613

The supply plan shows that for social marketing, CycleBeads will not be purchased until 2018 and that the quantities of female condoms purchased in 2014 could also cover 2015.

Table 39: Supply plan/procurement costs per year for social marketing (USD)

Commodity	2014	2015	2016	2017	2018	Total
Microgynon pill	853,394	1,099,383	856,856	968,231	1,094,112	4,871,975
Microlut pill	9227	9833	11,074	12,518	14,142	56,793
Depo-Provera	898,977	849,775	960,274	1,085,083	1,226,161	5,020,270
Protector Plus	1,754,170	1,218,746	1,229,197	1,388,992	1,569,561	7,160,666
Female condom	4928		721	3482	3933	13,064
Jadelle implant	1,558,053	1,129,834	1,200,491	1,356,762	1,532,863	6,778,002
IUD	46,966	37,970	38,136	43,099	48,716	214,887
Total	5,125,714	4,345,541	4,296,749	4,858,167	5,489,487	24,115,657

ANALYSIS OF THE QUANTIFICATION

Fertility and population rates

The fertility rate has dropped significantly and is still declining in Mali (DHS II, DHS III, DHS IV and DHS V). Based on the trend observed between 2001 and 2012, it is estimated that the fertility rate will decrease from 6.10 in 2012 to 5.73 in 2018. This decrease is fully in line with that observed during earlier years: 6.80 in 2001 (DHS 2001) and 6.60 in 2006 (DHS 2006).

The population of Mali is expected to increase, from 14.5 million in 2009 to 19.4 million in 2018 (DNP/INSTAT, 2009). The corresponding estimations for WRA are 3.19 million and 4.46 million, respectively. Women of reproductive age account for approximately 22.7% of the total population on average, for the quantification period.

Figures 5 and 6 provide details on the trends and forecasts, respectively, for the Total Fertility Rate and the population.

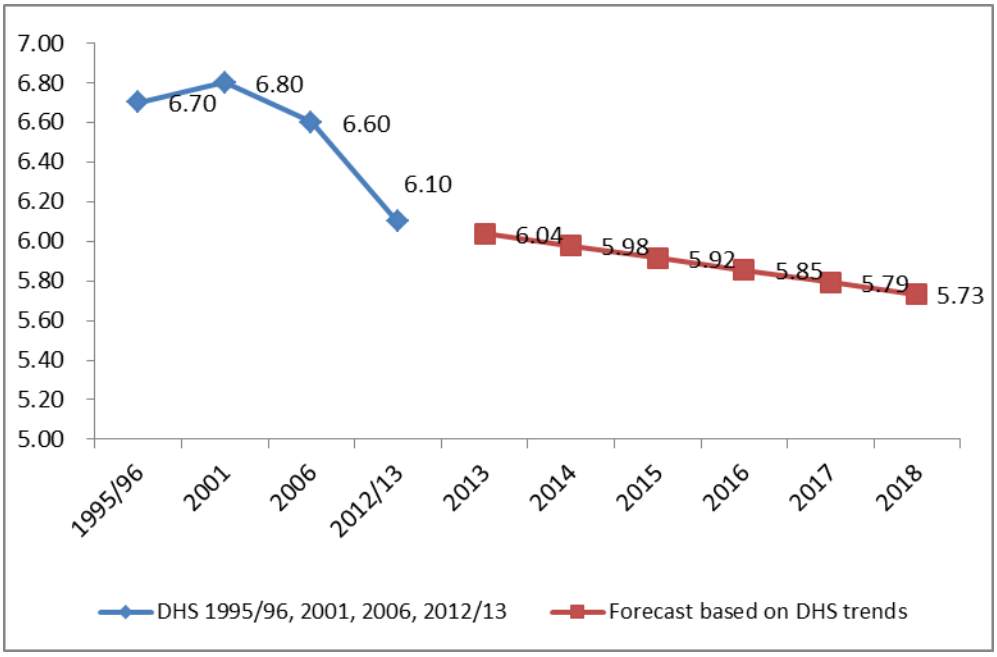

Figure 5: Trends and forecast for the fertility rate in Mali

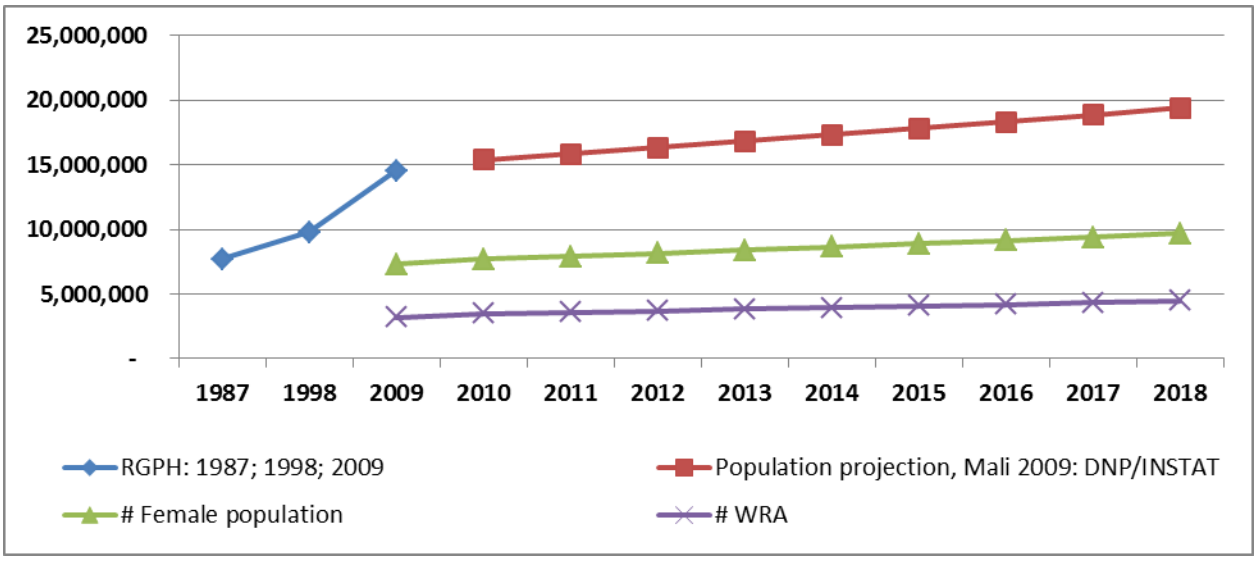

Figure 6: Trend/forecast for population in Mali

Contraceptive prevalence rate

Overall, contraceptive prevalence has increased in Mali, going from 5.0% in 1995 to 9.90% in 2012 for modern methods. The corresponding figures for all methods combined (including traditional methods) were 7.90% in 1995 and 10.30% in 2012. For the same period, there was a significant decrease in traditional methods, going from 2.9% in 1995 to 0.40% in 2012 (DHS I–IV; MICS 2010).

Based on data from the DHS 2012/13, with the assumption that these data are from 2012 and using 20.1% as the FP program goal for CPR for modern methods in 2018, an average annual increase of 1.70% is calculated over the course of the forecast period. This increase is over three-times higher than that obtained using studies/surveys conducted in Mali (DHS I–IV; MICS 2010), with an overall increase of 10.2% from 2012 to 2018. This goal seems ambitious, but it is hoped that ongoing monitoring and evaluation of CPR data as well as the trend for commodity use will result in adjustments. Improved collaboration between the various actors is also essential to overcoming challenges.

The annual increase in the use of long-term and permanent FP methods was estimated at 0.96% for the forecast period. Using the consumption/distribution data from 2013, the percentage increase in CPR for long-term and permanent FP methods was estimated at 56% for all modern methods for the forecast period.

This is an advantage for Mali because the CYP is high if clients are on long-term and permanent methods and fewer clients are on short-term methods. However, according to past data from surveys (DHS and MICS), the long-term and permanent methods only account for 6.5%, 6.3% and 30.3% of all modern methods for the years 2006, 2010 and 2012, respectively (DHS 2006, 2012/13 and MICS 2010). This trend shows a significant increase in the use of these methods, but the magnitude does not match the trend indicated by consumption data. The percentage for

the range of methods (method mix) obtained using the consumption data in 2013 was applied during the forecast period.

Based on this trend, the CPR for traditional methods is estimated at 0% starting from 2015. Figure 7 shows past and projected trends for CPR by group of FP methods

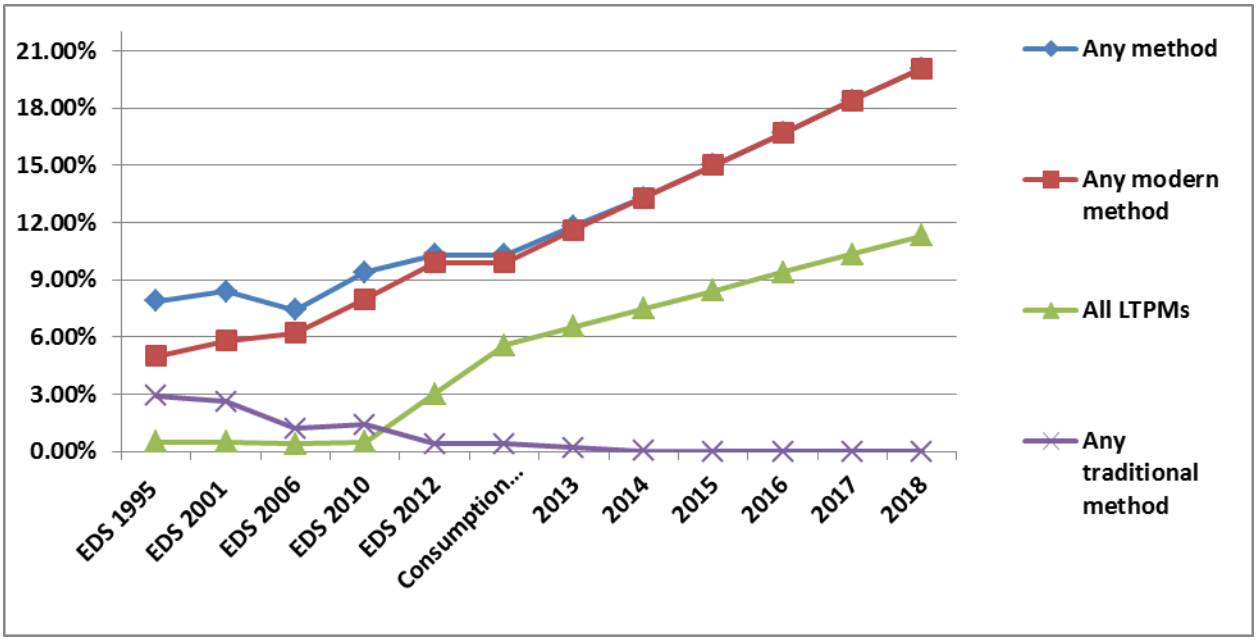

Figure 7. Past and projected trends by group of FP methods

Combination of modern FP methods (method mix)

The 2013 consumption/distribution data and the forecast show that the implant (38.2%) is the most frequently used modern FP method, followed by the IUD (17.1%), male condoms (16.2%) and injectables (14.5%). The female condom (0.01%) is the least used method. However, according to data from the DHS 2012/13, the injectable (40.4%) is the most commonly used modern FP method, followed by oral contraceptives (27.3%) and implants (25.3%). The female condom (0%) is still the least used method.

For this quantification exercise, the percentage for each FP method obtained using 2013 consumption data was applied with slight adjustments. Figures 8 and 9 show the details on trends for the method mix for modern FP methods based on the 2013 consumption data. The percentages for use of all modern methods were assumed to remain constant during the quantification period, while those for the traditional methods are expected to decrease to 0% in 2015.

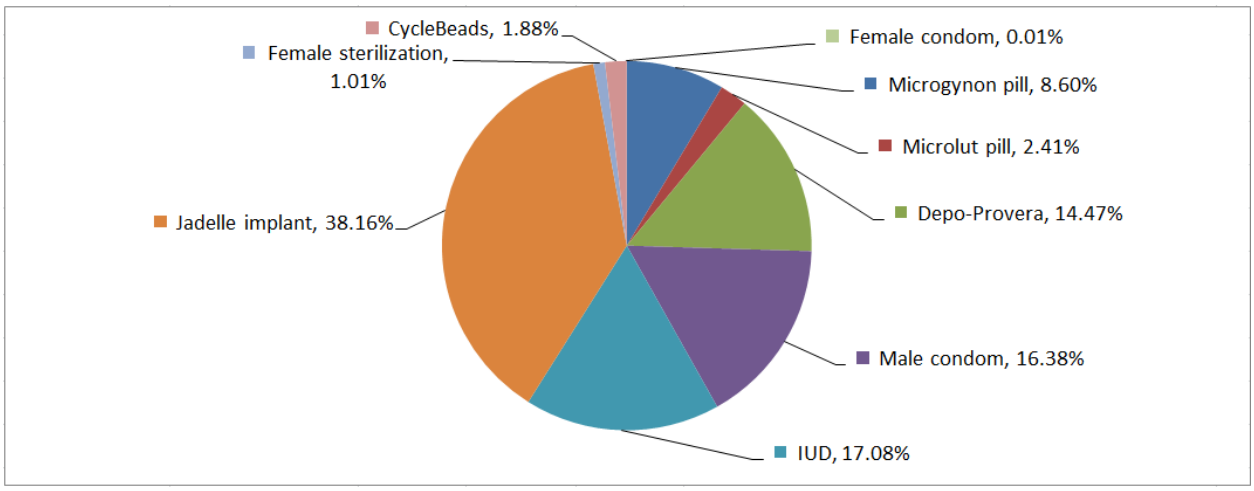

Figure 8. FP method mix in Mali, 2014 to 2018

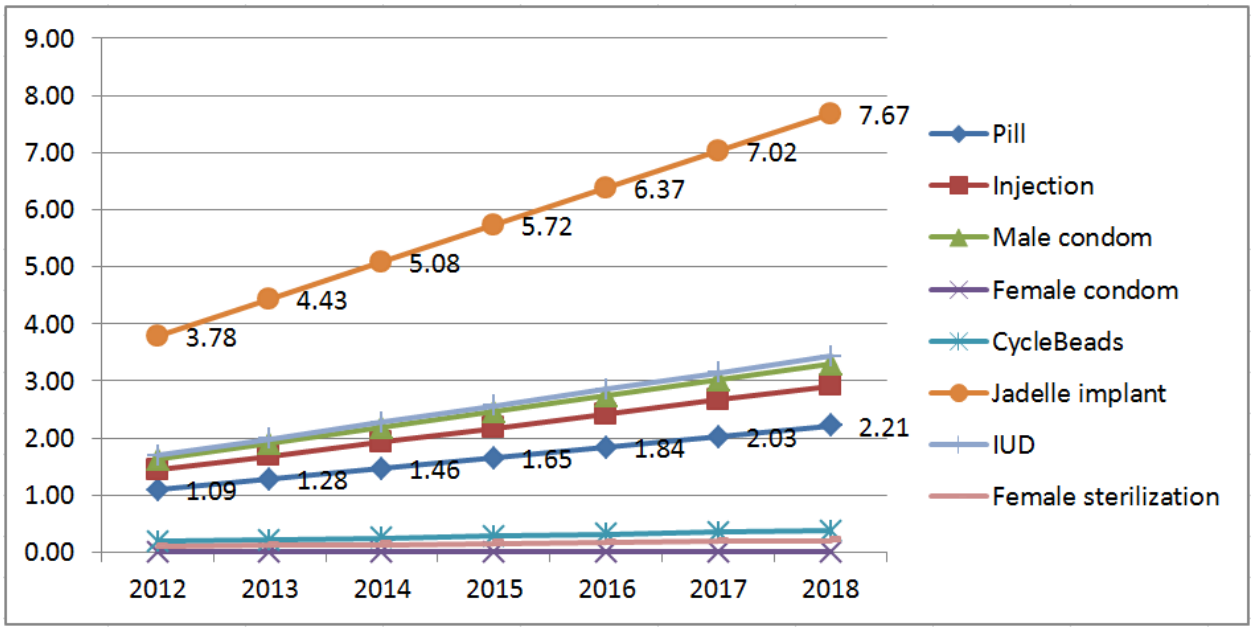

Figure 9: Changes in the contraceptive prevalence rate in Mali

Comparison between forecasting and the supply plan/purchasing requirements

Comparison between forecasts and supply plan requirements for the demographic and consumption methods

By comparing the amount of the calculated forecasts using the two quantification methods, the forecast for the consumption method is much higher than the amount for forecasts obtained using the demographic (or morbidity) method. The difference amounts to USD 10,498,575 for the forecast period (2014–2018).

The amount for the supply plan/purchasing requirements for the consumption method is also higher than the amount for the demographic method. The difference amounts to USD 15,170,069 for the same period.
The main reasons for these differences could be:

- Inadequate quality of LMIS data used for the consumption method.
- Use of distribution data from the regional and central levels for social marketing instead of consumption data.
- No differentiation between condoms consumed for contraception and those used to protect against STIs. It is important to specify that the collected data on male condoms deals with both FP and STI prevention.

Figures 10 and 11 provide the details on the comparison between national forecasts and supply plan requirements, by quantification method.

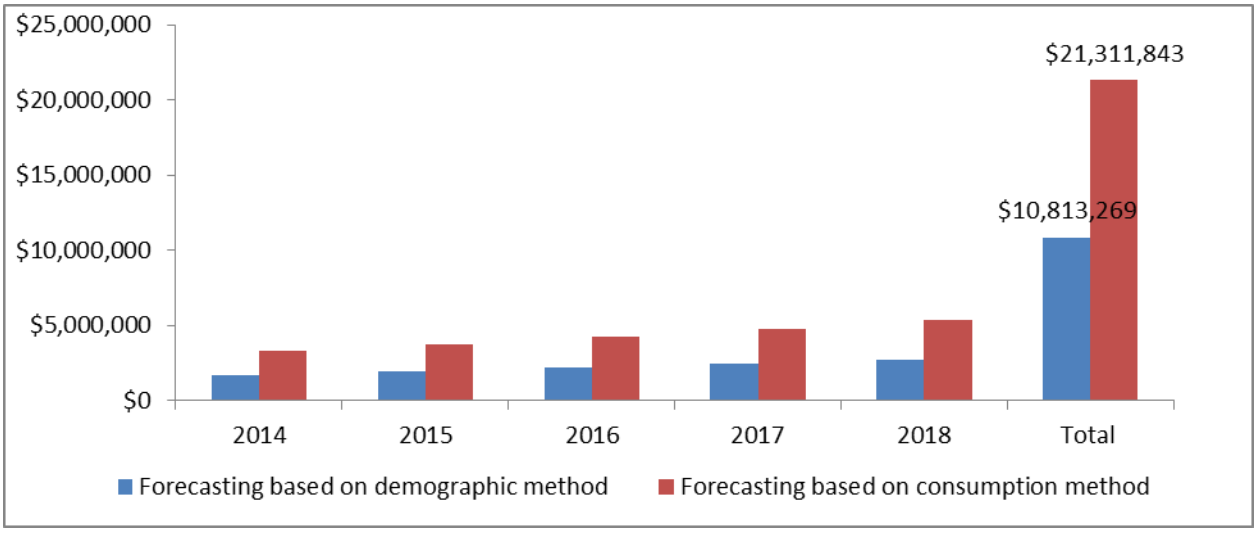

Figure 10: Amounts for national forecasts by quantification method

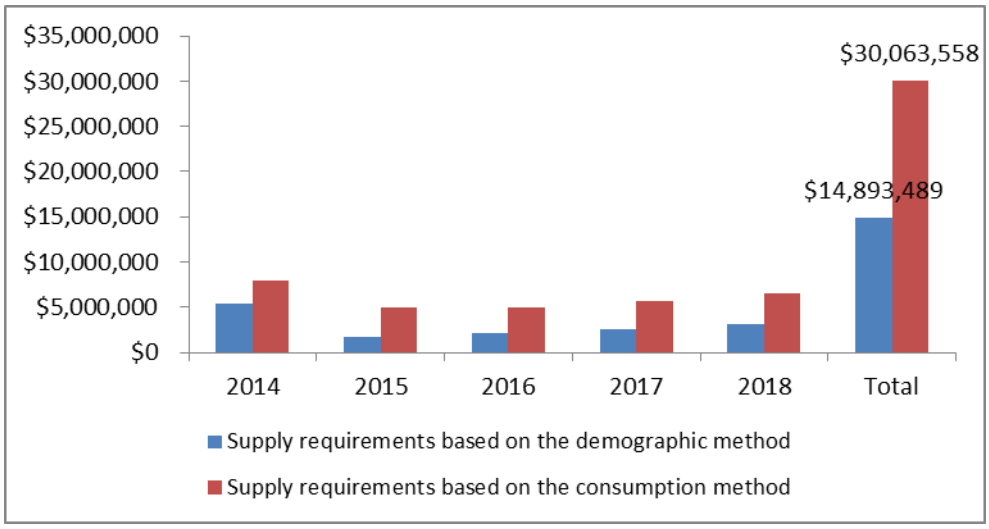

Figure 11: Comparison of costs for supply requirements, by quantification method

Comparison by sector for forecasted and procurement requirements according to the demographic method

Analysis of the forecasting and purchasing requirements based on the morbidity/demographic method shows that the total amount for purchasing requirements is higher than the forecasted amount, for both the public sector and social marketing for the quantification period.

The results from the demographic method for the public sector show that the total amount for purchasing requirements for the quantification period (2014–2018) is higher than USD 1,390,755, the amount for forecasted requirements. For 2014, procurement is significantly higher than forecasting, with a difference of USD 2,050,445. This situation is due to the fact that a large quantity of all commodities (except the IUD and implant) has been ordered and is expected to be delivered in 2014. These deliveries are far superior to the maximum level of individual products. However, starting in 2015 supplies are lower than requirements for the same reasons. It should be pointed out that there are no other orders for CycleBeads, Microgynon, Depo-Provera, male condoms and female condoms during the quantification period for the public sector according to the demographic method because the quantities in stock and/or already ordered in the pipeline are more than sufficient for the period. The shelf life of these commodities should be strictly monitored, and appropriate measures must be taken to avoid stockouts due to expiration. However, the needs could change due to expiration dates before use.

Table 40: Comparison between forecasted and procurement requirements for the public sector based on the demographic method (USD)

	2014	2015	2016	2017	2018	Total
Forecasted needs	436,958	501,672	567,452	638,614	714,014	2,858,710
Purchasing requirements (supply plan)	2,487,403	312,670	420,516	488,556	539,288	4,248,432

The results from the demographic method for social marketing show that the total amount for supply requirements for the quantification period 2014 to 2018 is higher than the amount of USD 2,689,465 for forecasted requirements. For 2014, purchasing is higher than the forecasts of USD 1,710,196 because a large quantity of commodities, such as CycleBeads and Mycrogynon, has already been ordered to be delivered in 2014. These quantities exceed the maximum level for these products. However, for 2015 supply is below the forecasted purchasing requirements because there are no additional orders for CycleBeads during the remainder of the quantification period, and Microgynon will not be purchased until 2017. The shelf life of these commodities should be strictly monitored, and appropriate measures must be taken to avoid stockouts due to expiration. However, the needs could change due to expiration dates before use.

Table 41: Comparison of costs for forecasted and procurement requirements for social marketing based on the demographic method (USD)

	2014	2015	2016	2017	2018	Total
Forecasted needs	1,204,492	1,389,523	1,579,152	1,782,804	1,998,587	7,954,558
Purchasing requirements (supply plan)	2,914,688	1,325,567	1,758,555	2,127,906	2,517,308	10,644,023

Comparison by sector between forecasted and supply requirements according to the demographic method

Analysis of the results from the consumption method highlighted the same findings: the total amount for purchasing requirements is higher than that of forecasted requirements for the quantification period 2014 to 2018 and for the two sectors.

Results from the consumption method for the public sector show that the total procurement cost for the quantification period is more than the forecasted requirements amount of USD 1,798,972. For 2014, this difference (USD 2,203,867) is significantly higher because a large quantity of all commodities (except for Jadelle implant) has already been ordered to be delivered in 2014 or received in 2013. However, from 2015 to 2017 supply is less than requirements for the same reasons. It should be noted that there is no need for additional orders of Microgynon, male condom and female condom for the quantification period. Microlut and Depo-Provera are not needed until 2018. For the public sector, the quantities that are already available in stock and/or ordered in the pipeline are more than enough. The shelf life of these commodities should be

strictly monitored, and appropriate measures must be taken to avoid stockouts due to expiration. However, the needs could change due to expiration dates before use.

Table 42: Comparison of costs for forecasted and procurement requirements for the public sector based on the consumption method (USD)

	2014	2015	2016	2017	2018	Total
Forecasted needs	640,240	723,472	817,523	923,800	1,043,894	4,148,929
Procurement requirements (supply plan)	2,844,107	592,317	679,062	766,766	1,065,648	5,947,901

The results for social marketing show that the total amount for purchasing requirements exceeds the amount for forecasted requirements by USD 6,952,744 for the quantification period. Purchasing requirements for the first year are significantly higher (USD 2,477,227) compared to other years. Purchases per year are also higher than forecasted requirements. It should be noted that there is no need for additional orders of CycleBeads during the entire period. Requirements related to the consumption method for the social marketing sector seem to be slightly overestimated due to the problems with data quality noted above.

Table 43: Comparison of costs for forecasted and procurement requirements for social marketing based on the consumption method (USD)

	2014	2015	2016	2017	2018	Total
Forecasted needs	2,648,487	2,992,790	3,381,853	3,821,494	4,318,289	17,162,913
Procurement requirements (supply plan)	5,125,714	4,345,541	4,296,749	4,858,167	5,489,487	24,115,657

Comparison of quantities for procurement requirements by FP method/commodity according to the forecasting method and the sector for the period 2014–2018

These comparisons are made with the assumption that no stored commodity will have expired before being completely used by the program. In addition, all orders (including emergency orders) are assumed to be delivered and distributed to facilities and clients according to the supply plan.

Demographic method: public sector

Jadelle implant accounts for approximately half of the total amount for purchasing requirements (47.5%), followed by Depo-Provera (22.3%) and Mycrogynon (17.6%).

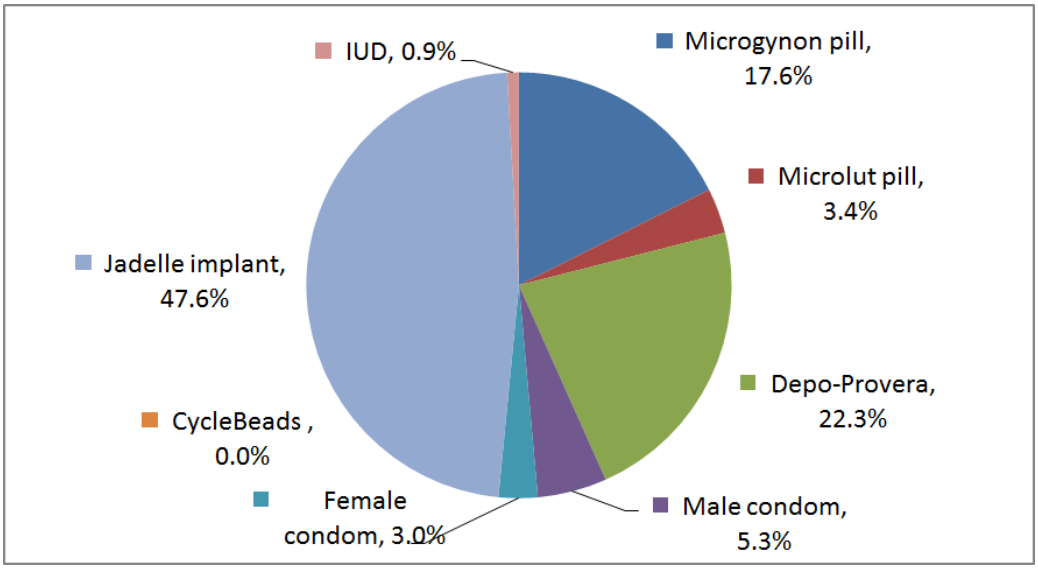

Figure 12: Comparison of costs for purchasing requirements by FP method for the public sector according to the demographic method

Demographic method: social marketing

Jadelle implant accounts for the greatest share of the costs for total requirements related to procurement with 38.0%, followed by male condoms (31.7%) and Depo-Provera (15.5%).

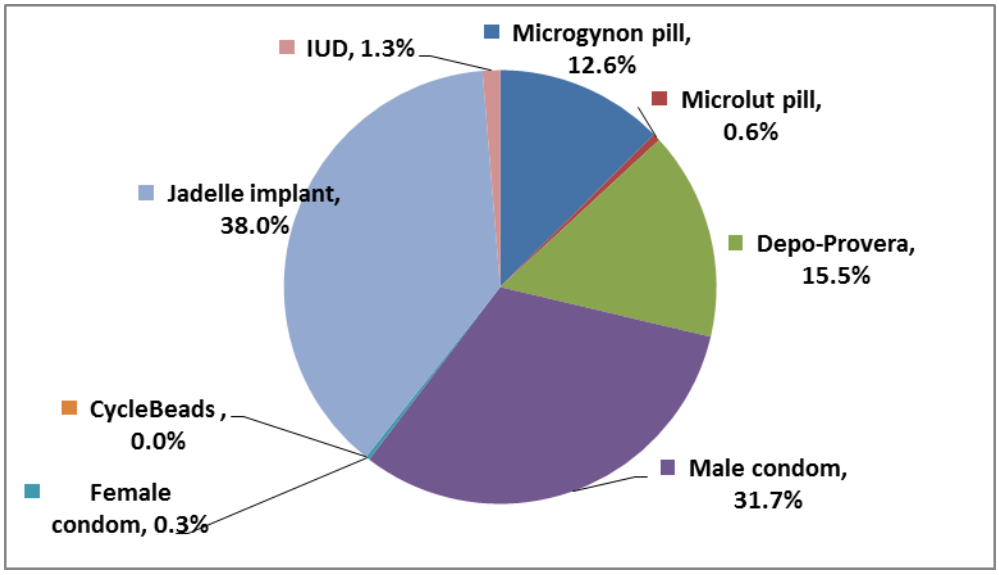

Figure 13: Comparison of costs for purchasing requirements by FP method, for social marketing according to the demographic method

Consumption method: public sector

In terms of purchasing, the Jadelle implant accounts for over half of the overall cost, with 60.5%, followed by Depo-Provera (19.2%) and Microgynon (12.6%).

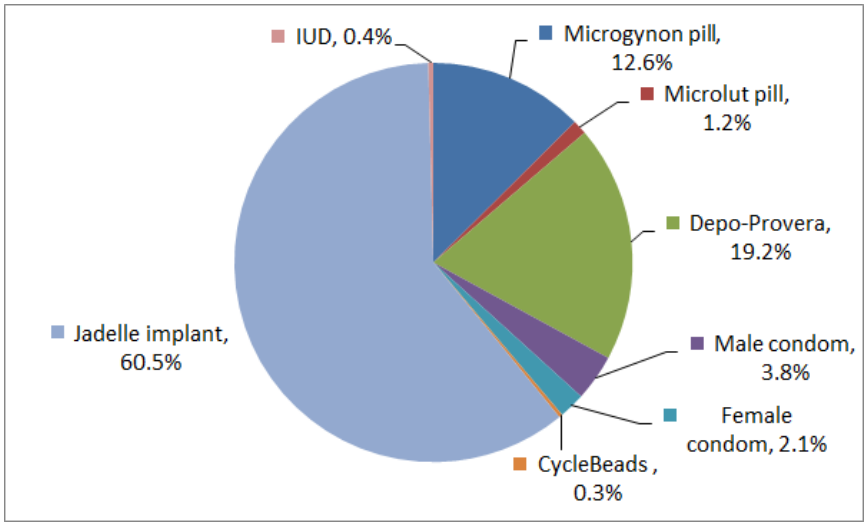

Figure 14: Comparison of costs for purchasing requirements by FP method for the public sector according to consumption method

Consumption method: social marketing

For the purchasing requirements, the male condom accounts for the largest share, with 29.7%, followed by Jadelle implant (28.2%) and Depo-Provera (20.8%).

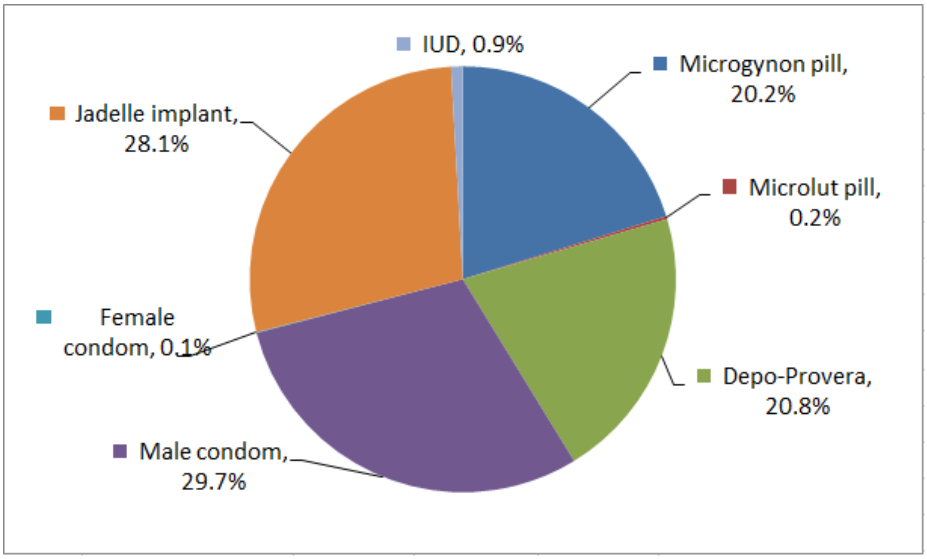

Figure 15: Comparison of costs for purchasing requirements by FP method for social marketing according to the consumption method

Comparison of CYP costs by FP method

Cost analysis of the FP methods for one CYP show that the female condom is the most expensive method at USD 66.0 per couple and per year while the IUD is the least expensive method at USD 0.12. Figure 16 provides details about cost per CYP and per FP method.

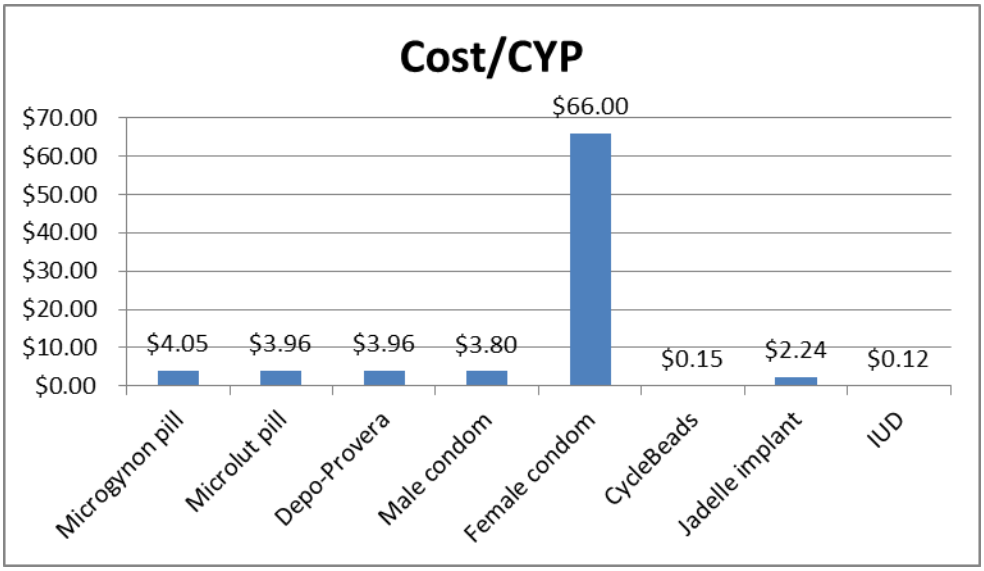

Figure 16: Comparison of costs of FP methods for one CYP

Results/impacts using the demographic method

If commodities are purchased, imported, distributed and used correctly by clients as planned in this exercise, the costs for quantified commodities (meaning the costs incurred to obtain and distribute them to clients) will bring about various positive results. The following results have been calculated for the quantification period.

Couple-years of protection (CYP): This is the number of couples protected by FP services during a one-year period. It is calculated by multiplying the CYP factors by the total number of users (for commodities used several times per year) or by dividing the total number of users by the CYP factors (for commodities or methods used for several years). In total, an estimated 4,536, 325 couples have been protected from unintended pregnancies over the five-year quantification period. Only modern methods, including female sterilization, were taken into account in calculating the CYP. Table 44 shows the CYP factors by method and the forecasted CYP by year.

Tableau 44. Couple-years of protection: modern methods

Method	CYP factor	2014	2015	2016	2017	2018	Total
Microgynon pill	15	45,082	52,532	60,284	68,498	77,201	303,596
Microlut pill	15	12,640	14,721	16,886	19,180	21,611	85,039
Depo-Provera	4	75,868	88,388	101,415	115,218	129,844	510,733
Male condom	120	85,880	100,055	114,803	130,431	146,990	578,160
Female condom	120	53	61	70	79	89	352
CycleBeads	1.5	7293	8356	9433	10,601	11,840	47,523
Jadelle implant	3.8	297,959	338,389	378,618	422,972	469,967	1,907,905
IUD	4.6	161,439	183,345	205,142	229,173	254,636	1,033,735
Female sterilization	9	11,433	12,634	13,739	15,046	16,430	69,281
All methods		697,647	798,480	900,389	1,011,200	1,128,609	4,536,325

Number of unintended pregnancies prevented: This is calculated using the annual pregnancy rate of 850 (Reality Check, version 2, User's Guide, 2010) and the annual failure rate specific to the method (Reality Check, version 2, User's Guide, 2010). It is estimated that a total of 2,862,350 unintended pregnancies are prevented during the quantification period. Table 45 shows the details by year and by type of method/commodity.

Number of prevented unintended pregnancies = (number of users x annual pregnancy rate) – (number of users x failure rate).

Table 45: Number of unintended pregnancies prevented

Method	Annual failure rate	2014	2015	2016	2017	2018	Total
Microgynon pill	8.00%	34,713	40,449	46,418	52,743	59,445	233,768
Microlut pill	8.00%	9733	11,335	13,002	14,769	16,640	65,480
Depo-Provera	3.00%	62,211	72,478	83,160	94,479	106,472	418,800
Male condom	15.00%	60,116	70,038	80,362	91,302	102,893	404,711
Female condom	21.00%	34	39	45	51	57	226
CycleBeads	5.00%	7884	9187	10,543	11,980	13,502	53,096
Jadelle implant	0.05%	169,953	198,014	227,211	258,149	290,929	1,144,256
IUD	0.80%	75,398	87,846	100,799	114,524	129,067	507,634
Female sterilization	0.50%	4474	5213	5982	6796	7659	30,124
All methods		424,516	494,599	567,522	644,793	726,664	2,858,095

Number of abortions prevented: This is calculated by multiplying the number of unintended pregnancies prevented by the abortion rate. The abortion rate is estimated at 13% of pregnancies in Mali.[7] A total of 372,106 abortions can be prevented during the quantification period. Table 46 shows the details by year and by type of method/commodity.

Number of abortions prevented = number of unintended pregnancies prevented x abortion rate/100

[7] Sedgh G, Singh S, Shah IH, Åhman E, Henshaw, Bankola A. Induced abortion: incidence and trends worldwide from 1995 to 2008. *Lancet* 2012; 379(9816):625–632.

Table 46: Number of abortions prevented by method

Method	2014	2015	2016	2017	2018	Total
Microgynon pill	4513	5258	6034	6857	7728	30,390
Microlut pill	1347	1569	1800	2045	2304	9065
Depo-Provera	8087	9422	10,811	12,282	13,841	54,444
Male condom	7815	9105	10,447	11,869	13,376	52,613
Female condom	4	5	6	7	7	29
CycleBeads	1025	1194	1371	1557	1755	6902
Jadelle implant	22,094	25,742	29,537	33,559	37,821	148,753
IUD	9802	11,420	13,104	14,888	16,779	65,992
Female sterilization	582	678	778	884	996	3916
All methods	55,269	64,394	73,888	83,948	94,607	372,106

Number of unintended births prevented: This is calculated using an assumed rate for miscarriage/stillbirth of 12.5 for 100.[8] According to the formula below, a total of 2,132,451 unintended births could be prevented during the quantification period. Table 47 shows details by year and by type of method/commodity.

Number of unintended pregnancies = number of unintended pregnancies – number of prevented abortions – (number of unintended pregnancies x rate of miscarriages/100)

[8] Population Reference Bureau. *Abortion Facts and Figures 2011*. Washington, DC: 2011.

Table 47: Number of unintended births prevented

Method	2014	2015	2016	2017	2018	Total
Microgynon pill	25,861	30,135	34,582	39,294	44,286	174,158
Microlut pill	7722	8993	10,316	11,717	13,202	51,950
Depo-Provera	46,348	53,996	61,954	70,387	79,322	312,007
Male condom	44,786	52,179	59,870	68,020	76,655	301,510
Female condom	25	29	33	38	43	168
CycleBeads	5873	6844	7855	8925	10,059	39,556
Jadelle implant	126,615	147,520	169,272	192,321	216,742	852,471
IUD	56,171	65,446	75,095	85,320	96,155	378,188
Female sterilization	3333	3884	4456	5063	5706	22,443
All methods	316,735	369,026	423,434	481,085	542,171	2,132,451

Number of maternal deaths prevented: This is calculated using the maternal mortality ratio of 464 for 100,000 births (DHS 2006). According to the formula below, a total of 9895 maternal deaths could be prevented during the quantification period. Table 48 shows the details by year and by type of method/commodity.

Number of maternal deaths prevented = number of unintended births prevented x maternal mortality rate/100,000

Table 48: Number of maternal deaths prevented

Method	2014	2015	2016	2017	2018	Total
Microgynon pill	120	140	160	182	205	808
Microlut pill	36	42	48	54	61	241
Depo-Provera	215	251	287	327	368	1448
Male condom	208	242	278	316	356	1399
Female condom	0	0	0	0	0	1
CycleBeads	27	32	36	41	47	184
Jadelle implant	587	684	785	892	1006	3955
IUD	261	304	348	396	446	1755
Female sterilization	15	18	21	23	26	104
All methods	1470	1712	1965	2232	2516	9895

Number of child deaths prevented: This is calculated using an infant mortality rate of 58 for 1000 births (DHS 2012/13). According to the formula below, a total of 123,682 infant deaths could be prevented during the quantification period. Table 49 shows the details by year and by type of method/commodity.

Number of child deaths prevented = number of unintended births prevented x infant mortality rate/100,000

Table 49: Number of child deaths prevented

Method	2014	2015	2016	2017	2018	Total
Microgynon pill	1500	1748	2006	2279	2569	10,101
Microlut pill	448	522	598	680	766	3013
Depo-Provera	2688	3132	3593	4082	4601	18,096
Male condom	2598	3026	3472	3945	4446	17,488
Female condom	1	2	2	2	2	10
CycleBeads	341	397	456	518	583	2294
Jadelle implant	7344	8556	9818	11,155	12,571	49,443
IUD	3258	3796	4356	4949	5577	21,935
Female sterilization	193	225	258	294	331	1302
All methods	18,371	21,403	24,559	27,903	31,446	123,682

Emergency orders

The time frame from planning to receipt of commodities in the country is at least six months (six for PSI, six and a half months for PPM and seven months for USAID and UNFPA) and is often unpredictable due to numerous approval steps. Therefore, it is highly recommended that any shipments planned for delivery on or before November 2014 are considered as emergency purchasing orders. These orders should be expedited to avoid stockouts.
The total cost for FP shipments that should be delivered before the end of November 2014 based on the demographic method for the social marketing sector is USD 355,873 (IUD and Jadelle). The demographic method does not indicate any emergency orders for the public sector.

Particular care and monitoring are also needed to ensure timely shipment of commodities that have already been ordered. To the extent possible and based on the results of the supply plan updates, delivery dates and shipment orders should be modified.

Many shipments that were already ordered for delivery in 2014 should be staggered, postponed or canceled to avoid expiration of commodities before they are used by clients since the arrival of these shipments causes stock levels to exceed the maximum for most commodities.

CHALLENGES

Although the supply chain for FP commodities has existed for several years, efforts still must be made to overcome challenges related to various aspects of supply chain functions. The main challenges are:

- Inconsistent and incomplete data for some health facilities: (stock at end of period + stock received) – (expired or losses – stock at end of period) does not equal distributed stock.

- The expiration dates are not shown on the data collection tool for some commodities.

- Lack of adequate supervision, mentoring or a monitoring system based in the facility due to lack of funding for this activity.

- Lack of a functional information system at the central level to collect, aggregate and analyze LMIS data.

- Poor stock management practices at the facility level resulting in overstock in some facilities and stockouts in others.

- The program is not able to provide objectives and clear plans that will support quantification.

According to DHS editions, some contraceptive methods are classified differently; the CycleBeads and the lactational amenorrhea method (LAM) are often traditional or modern according to the DHS reports.

- Unavailability of the discontinuation rate: use of indirect data.

- Inexistence of forecasts for contraceptive prevalence for mixed methods.

- There is no reference document for stock levels or lead time for the central level, and the DRCs have a maximum level that does not comply with the various standardized formulas for calculation.

- The quarantining of commodities until quality control results are available is not effective at the national procurement agency of Mali.

RECOMMENDATIONS

- Implement a logistics unit at the central level to compile and analyze sent data and provide feedback to the facilities.
- Include targets for contraceptive prevalence rate by contraception method in the FP action plan.
- Include questions in the DHS that allow for collecting information needed to calculate the discontinuation rate.
- Review the maximum stock level for the central level and the DRCs and document the maximum stock level for the central level.
- Reduce the time needed to release quality control results so these results can be considered before distribution of commodities.

ANNEX 1: SHIPMENT PLAN: PUBLIC SECTOR

Vendor	Funding source	Commodity	Date of receipt	Quantity	Quantification status	Commodity costs	Shipping costs	Total costs
2014								
UNFPA	UNFPA	Microgynon	4/15/2014	1,193,040	Ordered	$322,121	$38,655	$360,775
UNFPA	UNFPA	Microlut	4/15/2014	109,440	Ordered	$32,832	$3940	$36,772
UNFPA	UNFPA	Depo-Provera	4/30/2014	232,400	Ordered	$178,948	$21,474	$200,422
UNFPA	UNFPA	Protector Plus	4/30/2014	2,671,200	Ordered	$69,451	$8,334	$77,785
UNFPA	UNFPA	Protective	4/15/2014	30,000	Ordered	$18,000	$2,160	$20,160
UNFPA	UNFPA	Jadelle	4/15/2014	39,500	Ordered	$335,750	$40,290	$376,040
UNFPA	UNFPA	IUD	4/15/2014	6000	Ordered	$2100	$252	$2352
UNFPA Total						**$959,202**	**$115,104**	**$1,074,306**
USAID | DELIVER PROJECT	USAID	Microgynon	10/30/2014	1,280,400	Ordered	$345,708	$41,485	$387,193
USAID | DELIVER PROJECT	USAID	Microlut	10/30/2014	109,200	Ordered	$25,116	$3014	$28,130
USAID | DELIVER PROJECT	USAID	Depo-Provera	12/31/2014	419,600	Ordered	$415,404	$49,848	$465,252
USAID | DELIVER PROJECT	USAID	Depo-Provera	10/30/2014	253,200	Ordered	$250,668	$30,080	$280,748
USAID | DELIVER PROJECT	USAID	Protector Plus	10/30/2014	1,689,000	Ordered	$50,670	$6080	$56,750
USAID | DELIVER PROJECT	USAID	Protector Plus	12/31/2014	1,404,000	Ordered	$42,120	$5054	$47,174

Vendor	Funding source	Commodity	Date of receipt	Quantity	Quantification status	Commodity costs	Shipping costs	Total costs
USAID | DELIVER PROJECT	USAID	Protector Plus	12/31/2014	1,263,000	Ordered	$37,890	$4547	$42,437
USAID | DELIVER PROJECT	USAID	Protective	10/30/2014	118,122	Ordered	$64,967	$7796	$72,763
USAID | DELIVER PROJECT	USAID	Protective	12/31/2014	53,000	Ordered	$29,150	$3498	$32,648
USAID DELIVER Total						**$1,261,693**	**$151,403**	**$1,413,096**
Total 2014						**$2,220,895**	**$266,507**	**$2,487,403**
2015								
TBD	None Selected	Jadelle	3/31/2015	15,631	Planned	$132,864	$15,944	$148,807
TBD	None Selected	Jadelle	9/30/2015	16,446	Planned	$139,791	$16,775	$156,566
TBD	None Selected	IUD	3/31/2015	6102	Planned	$3417	$410	$3827
TBD	None Selected	IUD	9/30/2015	5532	Planned	$3098	$372	$3470
Total 2015						279,169.54	33,500.34	312,669.88
2016								
TBD	None Selected	Microlut	9/30/2016	45,000	Planned	$10,350	$1242	$11,592
TBD	None Selected	Jadelle	3/31/2016	23,620	Planned	$200,770	$24,092	$224,862
TBD	None Selected	Jadelle	9/30/2016	18,402	Planned	$156,417	$18,770	$175,187
TBD	None Selected	IUD	3/31/2016	7957	Planned	$4456	$535	$4991
TBD	None Selected	IUD	9/30/2016	6192	Planned	$3468	$416	$3884
Total 2016						**$375,460**	**$45,055**	**$420,516**
2017								
TBD	None Selected	Microlut	3/31/2017	71,958	Planned	$16,550	$1986	$18,536
TBD	None Selected	Microlut	9/30/2017	54,534	Planned	$12,543	$1505	$14,048
TBD	None Selected	Jadelle	9/30/2017	20,556	Planned	$174,726	$20,967	$195,693
TBD	None Selected	Jadelle	3/31/2017	26,301	Planned	$223,559	$26,827	$250,386
TBD	None Selected	IUD	3/31/2017	8855	Planned	$4959	$595	$5554

Vendor	Funding source	Commodity	Date of receipt	Quantity	Quantification status	Commodity costs	Shipping costs	Total costs
TBD	None Selected	IUD	9/30/2017	6918	Planned	$3874	$465	$4339
Total 2017						**$436,211**	**$52,345**	**$488,556**
2018								
TBD	None Selected	Microlut	3/31/2018	79,898	Planned	$18,377	$2205	$20,582
TBD	None Selected	Microlut	9/30/2018	61,452	Planned	$14,134	$1696	$15,830
TBD	None Selected	Jadelle	3/31/2018	28,942	Planned	$246,007	$29,521	$275,528
TBD	None Selected	Jadelle	9/30/2018	22,842	Planned	$194,157	$23,299	$217,456
TBD	None Selected	IUD	3/31/2018	9734	Planned	$5451	$654	$6105
TBD	None Selected	IUD	9/30/2018	7686	Planned	$4304	$517	$4821
Total 2018						**$482,430**	**$57,892**	**$540,321**
Total 2014–2018						**$3,794,165**	**$455,300**	**$4,249,465**

ANNEX 2: SHIPMENT PLAN: SOCIAL MARKETING SECTOR

Vendor	Funding source	Commodity	Date of receipt	Quantity	Quantification status	Commodity costs	Shipping costs	Total costs
2014								
USAID | DELIVER PROJECT	USAID	Microgynon	3/31/2014	461,084	Ordered	$124,493	$14,939	$139,432
USAID | DELIVER PROJECT	USAID	Microgynon	3/31/2014	230,542	Ordered	$62,246	$7470	$69,716
USAID | DELIVER PROJECT	USAID	Microgynon	3/31/2014	230,542	Ordered	$62,246	$7470	$69,716
USAID | DELIVER PROJECT	USAID	Microgynon	4/30/2014	230,542	Ordered	$62,246	$7470	$69,716
USAID | DELIVER PROJECT	USAID	Microgynon	5/31/2014	230,542	Ordered	$62,246	$7470	$69,716
USAID | DELIVER PROJECT	USAID	Microgynon	6/30/2014	230,542	Ordered	$62,246	$7470	$69,716
USAID | DELIVER PROJECT	USAID	Protector Plus	3/28/2014	6,048,000	Ordered	$181,440	$21,773	$203,213
USAID | DELIVER PROJECT	USAID	Protector Plus	7/21/2014	8,202,000	Ordered	$246,060	$29,527	$275,587
USAID | DELIVER PROJECT	USAID	Protective	3/28/2014	3000	Ordered	$1650	$198	$1848
USAID | DELIVER PROJECT	USAID	Protective	5/30/2014	5000	Ordered	$2750	$330	$3080
USAID | DELIVER PROJECT	USAID	IUD	3/31/2014	866	Ordered	$485	$58	$543
USAID | DELIVER PROJECT	USAID	IUD	3/31/2014	866	Ordered	$485	$58	$543
USAID | DELIVER PROJECT	USAID	IUD	3/31/2014	1732	Ordered	$970	$116	$1086

Vendor	Funding source	Commodity	Date of receipt	Quantity	Quantification status	Commodity costs	Shipping costs	Total costs
USAID | DELIVER PROJECT	USAID	IUD	4/30/2014	866	Ordered	$485	$58	$543
USAID | DELIVER PROJECT	USAID	IUD	5/31/2014	866	Ordered	$485	$58	$543
USAID | DELIVER PROJECT	USAID	IUD	6/30/2014	866	Ordered	$485	$58	$543
USAID DELIVER Total						**$871,019**	**$104,522**	**$975,541**
UNFPA	UNFPA	Microgynon	4/30/2014	30,240	Ordered	$8165	$980	$9145
UNFPA	UNFPA	Microgynon	4/30/2014	6480	Ordered	$1750	$210	$1960
UNFPA	UNFPA	Microlut	4/30/2014	2880	Ordered	$864	$104	$968
UNFPA	UNFPA	Microlut	4/30/2014	12,240	Ordered	$3672	$441	$4113
UNFPA	UNFPA	Confiance	4/15/2014	30,000	Ordered	$23,100	$2772	$25,872
UNFPA	UNFPA	Confiance	4/15/2014	2200	Ordered	$1694	$203	$1897
UNFPA	UNFPA	Protector Plus	4/30/2014	43,200	Ordered	$1123	$135	$1258
UNFPA	UNFPA	Jadelle	4/30/2014	5100	Ordered	$43,350	$5202	$48,552
UNFPA	UNFPA	Jadelle	4/30/2014	56,000	Ordered	$476,000	$57,120	$533,120
UNFPA Total						**$559,718**	**$67,166**	**$626,884**
PSI	KfW	Microgynon	8/31/2014	1,318,000	Ordered	$316,320	$37,958	$354,278
PSI	KfW	Protector Plus	8/31/2014	13,440,000	Ordered	$537,600	$64,512	$602,112
PSI Total						**$853,920**	**$102,470**	**$956,390**
TBD	None Selected	Jadelle	9/30/2014	34,405	Planned	$292,443	$35,093	$327,536
TBD	None Selected	IUD	7/31/2014	45,180	Planned	$25,301	$3036	$28,337
TBD Total						**$317,743**	**$38,129**	**$355,873**
Total 2014						**$2,602,400**	**$312,288**	**$2,914,688**
2015								
TBD	None Selected	Microlut	3/31/2015	39,019	Planned	$8974	$1077	$10,051
TBD	None Selected	Microlut	9/30/2015	16,914	Planned	$3890	$467	$4357
TBD	None Selected	Confiance	3/31/2015	127,856	Planned	$126,577	$15,189	$141,767

Vendor	Funding source	Commodity	Date of receipt	Quantity	Quantification status	Commodity costs	Shipping costs	Total costs
TBD	None Selected	Confiance	9/30/2015	132,750	Planned	$131,423	$15,771	$147,193
TBD	None Selected	Protector Plus	9/30/2015	9,614,543	Planned	$288,436	$34,612	$323,049
TBD	None Selected	Protective	3/31/2015	4262	Planned	$2344	$281	$2625
TBD	None Selected	Protective	9/30/2015	3792	Planned	$2086	$250	$2336
TBD	None Selected	Jadelle	3/31/2015	39,973	Planned	$339,771	$40,772	$380,543
TBD	None Selected	Jadelle	9/30/2015	30,306	Planned	$257,601	$30,912	$288,513
TBD	None Selected	IUD	3/31/2015	24,681	Planned	$13,821	$1659	$15,480
TBD	None Selected	IUD	9/30/2015	15,390	Planned	$8618	$1034	$9653
Total 2015						**$1,183,542**	**$142,025**	**$1,325,567**
2016								
TBD	None Selected	Microlut	3/31/2016	26,040	Planned	$5989	$719	$6708
TBD	None Selected	Microlut	9/30/2016	19,404	Planned	$4463	$536	$4998
TBD	None Selected	Confiance	3/31/2016	204,495	Planned	$202,450	$24,294	$226,744
TBD	None Selected	Confiance	9/30/2016	152,316	Planned	$150,793	$18,095	$168,888
TBD	None Selected	Protector Plus	3/31/2016	9,918,486	Planned	$297,555	$35,707	$333,261
TBD	None Selected	Protector Plus	9/30/2016	7,387,602	Planned	$221,628	$26,595	$248,223
TBD	None Selected	Protective	3/31/2016	5819	Planned	$3200	$384	$3585
TBD	None Selected	Protective	9/30/2016	4344	Planned	$2389	$287	$2676
TBD	None Selected	Jadelle	3/31/2016	43,700	Planned	$371,450	$44,574	$416,024
TBD	None Selected	Jadelle	9/30/2016	33,906	Planned	$288,201	$34,584	$322,785
TBD	None Selected	IUD	3/31/2016	22,101	Planned	$12,377	$1485	$13,862
TBD	None Selected	IUD	9/30/2016	17,220	Planned	$9643	$1157	$10,800
Total 2016						**$1,570,138**	**$188,417**	**$1,758,555**
2017								
TBD	None Selected	Microgynon	9/30/2017	525,629	Planned	$141,920	$17,030	$158,950
TBD	None Selected	Microlut	3/31/2017	29,111	Planned	$6696	$803	$7499
TBD	None Selected	Microlut	9/30/2017	22,050	Planned	$5072	$609	$5680
TBD	None Selected	Confiance	3/31/2017	228,350	Planned	$226,067	$27,128	$253,194

Vendor	Funding source	Commodity	Date of receipt	Quantity	Quantification status	Commodity costs	Shipping costs	Total costs
TBD	None Selected	Confiance	9/30/2017	173,052	Planned	$171,321	$20,559	$191,880
TBD	None Selected	Protector Plus	3/31/2017	11,075,003	Planned	$332,250	$39,870	$372,120
TBD	None Selected	Protector Plus	9/30/2017	8,393,256	Planned	$251,798	$30,216	$282,013
TBD	None Selected	Protective	3/31/2017	6478	Planned	$3563	$428	$3990
TBD	None Selected	Protective	9/30/2017	4926	Planned	$2709	$325	$3034
TBD	None Selected	Jadelle	3/31/2017	48,471	Planned	$412,004	$49,440	$461,444
TBD	None Selected	Jadelle	9/30/2017	37,878	Planned	$321,963	$38,636	$360,599
TBD	None Selected	IUD	3/31/2017	24,612	Planned	$13,783	$1654	$15,437
TBD	None Selected	IUD	9/30/2017	19,236	Planned	$10,772	$1293	$12,065
Total 2017						**$1,899,916**	**$227,990**	**$2,127,906**
2018								
TBD	None Selected	Microgynon	3/31/2018	614,067	Planned	$165,798	$19,896	$185,694
TBD	None Selected	Microgynon	9/30/2018	468,886	Planned	$126,599	$15,192	$141,791
TBD	None Selected	Microlut	3/31/2018	32,324	Planned	$7435	$892	$8327
TBD	None Selected	Microlut	9/30/2018	24,852	Planned	$5716	$686	$6402
TBD	None Selected	Confiance	9/30/2018	195,018	Planned	$193,068	$23,168	$216,236
TBD	None Selected	Confiance	3/31/2018	253,588	Planned	$251,052	$30,126	$281,178
TBD	None Selected	Protector Plus	3/31/2018	12,300,344	Planned	$369,010	$44,281	$413,292
TBD	None Selected	Protector Plus	9/30/2018	9,458,826	Planned	$283,765	$34,052	$317,817
TBD	None Selected	Protective	3/31/2018	7195	Planned	$3957	$475	$4432
TBD	None Selected	Protective	9/30/2018	5544	Planned	$3049	$366	$3415
TBD	None Selected	Jadelle	9/30/2018	42,090	Planned	$357,765	$42,932	$400,697
TBD	None Selected	Jadelle	3/31/2018	53,324	Planned	$453,254	$54,390	$507,644
TBD	None Selected	IUD	3/31/2018	27,071	Planned	$15,160	$1819	$16,979
TBD	None Selected	IUD	9/30/2018	21,372	Planned	$11,968	$1436	$13,405
Total 2017						**$2,247,596**	**$269,712**	**$2,517,308**
Total 2014–2018						**$9,503,592**	**$1,140,431**	**$10,644,023**

ANNEX 3: LIST OF QUANTIFICATION WORKSHOP PARTICIPANTS

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