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Division of Reproductive Health, Center for Health Promotion and Education
(CHPE)

Subject Foreign Trip Report (AID/RSSA): Ghana, October 17-28, and October 31-
November 5, 1984.

To Donald R. Hopkins, M.D.
Acting Director, CDC
Through: Assistant Director for Science, CHPE *JM*

SUMMARY

- I. PLACES, DATES, AND PURPOSE OF TRAVEL
- II. PRINCIPAL CONTACTS
- III. BACKGROUND AND SCOPE OF WORK
- IV. COMMODITY MANAGEMENT AND REPORTING
 - A. Storage and Inventory Control
 - B. Stockouts and Emergency Shipments
 - C. Expiration of IUD's
 - D. Effect of Supply Status on Method Mix
 - E. User and Commodity Reporting
 - F. Supervision and Transport
 - G. Analysis and Use of Data
- V. ANALYSIS OF USER STATISTICS
 - A. New Acceptors and Client Visits
 - B. Method Mix
 - C. Potential for Expansion of Family Planning Services Within the MOH System
- VI. ANALYSIS OF COMMODITY STATISTICS
 - A. Supplies on Hand at Each Level
 - B. Length of Time Supply Could Last at Prevailing Rate of Drawdown
- VII. ESTIMATES OF PROGRAM PREVALENCE
- VIII. PROGRAM REVITALIZATION THROUGH TRAINING
- IX. CONTRACEPTIVE PROCUREMENT TABLES
 - A. MOH PROGRAM BUILDUP
 - B. COMMERCIAL SOCIAL MARKETING

FIGURE 1

TABLES 1-19

- APPENDIX 1: Plan for Distribution of Copies of Family Planning Methods and Practice: Africa in Ghana
- APPENDIX 2: Content of In-Service and Pre-Service Training
- APPENDIX 3: CONTRACEPTIVE PROCUREMENT TABLES-MOH
- APPENDIX 4: CONTRACEPTIVE PROCUREMENT TABLES-CSM

SUMMARY

As part of a team of AID consultants, the CDC advisor participated in the development of a 3-year bilateral agreement between the Government of Ghana (Ministry of Health, MOH) and the U.S. Government (USAID) to support family

Page 2 - Donald R. Hopkins, M.D.

planning services in Ghana. CHPE/DRH/PEB has provided technical assistance to Ghana in the area of contraceptive logistics management and user/commodity service statistics and reporting since 1980. Therefore, the CDC consultant was asked to (1) update the status of family planning commodity management practices and the use of the contraceptive supply and user reporting system, (2) analyze family planning service statistics, (3) complete FY 1985-1990 Contraceptive Procurement Tables, and (4) help to develop a family planning training strategy.

The consultant also developed a distribution plan for the book, Family Planning Methods and Practice: Africa (see Appendix 1).

The user/commodity service statistics system is being used in all regions of Ghana. The supervisors are correcting arithmetic errors, and an average of 72 percent of all service delivery points (SDP's) are reporting as expected. Use of these data to estimate program prevalence (coverage) suggests that under 2 percent of all women 15-49 living in stable unions are using contraceptives provided by the MOH. Estimates of program prevalence derived from user statistics and commodity statistics corresponded closely--between 83 and 98 percent correlation. However, reporting is as much as 6 months behind in several regions. To improve reporting and the local use of data for requesting contraceptives and planning outreach activities, supervision/in-service training needs to be intensified. One vehicle per region will be needed to improve supervision and to accelerate the delivery of contraceptives to SDP's. Once supervisors have access to transport, CDC should be called upon to train supervisors in the use of commodity-user data to estimate the resupply requirements of clinics and to plan changes in staffing and outreach activities.

Since 1979/80, the proportion of women that are planning their families using the pill has increased from 44 percent to 83 percent while the proportion of users of foaming tablets have dropped from 28 to 4 percent (see Table 1). In large part, this may be due to the fact that (1) pills are in oversupply in all but one region, and (2) foaming tablets are out of stock (as are injectables) in most of the regions. AID has already shipped an emergency supply of foaming tablets. A fresh supply of IUD's, preferably individually wrapped Lippes Loops or Copper-T's, needs to be shipped as soon as possible to replace the existing supply of Lippes Loops.

An average of 15 months supply of pills and 40 months supply of condoms are available at the clinic level. This resulted from the Ghanaians responding to Mr. Monteith's prior recommendation to move these commodities to the periphery from the center by shipping large quantities to individual clinics. At the present rate of draw-down, there is a danger supplies in some clinics may expire before they are used. Therefore, once supervisors have vehicles available, local supply imbalances should be corrected--over supplies in some clinics can be transferred to other clinics that are in short supply.

Contraceptive requirements for the MOH and Commercial Social Marketing (CSM) programs were made (see Appendices 3 and 4). In discussions with UNDP representatives, it was suggested that the UNFPA supply progestin only mini

pills, diaphragms, jelly and cream, and injectables. This point of discussion needs to be pursued by AID/W so that an agreement is reached, and the two agencies minimize overlap in the supply of contraceptives.

The MOH has requested extensive assistance in revitalizing its clinic-based and outreach family planning program. The director of medical services has requested that a team of AID consultants collaborate with MOH staff and consultants from the Ghanaian Institute of Management and Public Administration (GIMPA) to develop a family health approach to delivering all basic health services, including family planning, in clinics and in the community. Once this mode of service delivery has been designed, in-service and preservice training programs will be planned in detail. Based on preliminary estimates, the MOH expects to have revitalize family planning service delivery in 33 percent of 282 SDP's in the first year, a cumulative total of 87 SDP's by the end of the second year, and 141 SDP's by the end of the third year. By the end of the bilateral program, approximately 850 outreach workers and 1,600 village health brigade workers will be (re)trained to provide family planning information and methods. In addition, by the end of the project, about 250 community outlets will be distributing contraceptives as part of the MOH program. As a result of these efforts, MOH program prevalence is expected to increase from about 1.6 percent to 5.4 percent of all eligible Ghanaian women by the end of the project.

I. PLACES, DATES, AND PURPOSE OF TRAVEL

Ghana, October 17-18 and October 31-November 5, 1984, at the request of USAID/Ghana, to assist, as a member of a team of AID consultants, in the development of a bilateral agreement between the U.S. Government and the Government of Ghana in support of family planning services throughout Ghana. Also, on October 16, 1984, at the request of the Ministry of Health/Ghana, and USAID/Ghana, I visited Boston enroute to explore potential management training role of Management Sciences for Health as part of the USAID bilateral family planning program with the Government of Ghana. Specifically, I (1) updated the status of family planning commodity management practices and the use of the contraceptive supply and user reporting system, (2) analyzed family planning service statistics, (3) completed FY 1985-1990 Contraceptive Procurement Tables, and (4) helped to develop a family planning training strategy. This travel was in accordance with the Resource Support Services Agreement (RSSA) between the Office of Population, AID, and DRH/CHPE/CDC, and was in conjunction with consultations to Nigeria (October 28-31 and November 5-6, 1984) and Kenya (November 7-13, 1984).

II. PRINCIPAL CONTACTS

A. USAID/Ghana

1. Mr. Leroy Wagner, Mission Director
2. Mr. Tom Luche, General Development Officer
3. Ms. Joanna Laryea, Population Coordinator

B. Ministry of Health (MOH)

1. Dr. Joseph Otoo, Director of Medical Services
2. Ms. Victoria Assan, Public Health Nurse, Maternal/Child Health and Family Planning Division
3. Dr. Moses Adibo, Director of Health Planning
4. Dr. William Osei, Epidemiologist
5. Mrs. Elizabeth Dadzie, Senior Nursing Officer (MCH/FP), Accra City District

C. Ghana Institute of Management and Public Administration

1. Mr. R. K. O. Djang, Acting Director
2. Mr. Sakyi A. Amoa, Acting Deputy Director and Coordinator of Health Management Unit
3. Mr. G. K. A. Gyebi-Oforu, Course Coordinator, Senior Management Development Course
4. Mr. Abedi-Boafo, Assistant Coordinator, Health Management Unit

D. Ghana Census Office

1. Ms. Rebecca Appiah, Director, Ghana Fertility Survey

E. Other Ghanaians

1. Mr. A. Yaw Berko, Deputy General Manager, DANAFCO, Ltd.
2. Mr. J. O. Obetsebi-Lamprey, General Manager, Lintas, Ltd.
3. Professor Khafio, Chairman, Department of Obstetrics and Gynecology, Korle-Bu Teaching Hospital
4. Ms. Florence W. Ashitey, Senior Nursing Officer, I/C Family Planning Clinic, Korle-Bu Teaching Hospital
5. Mrs. Grace Adubah, Nursing Officer, Family Planning Clinic, Korle-Bu Teaching Hospital

F. Other AID Consultants

1. Mr. William Bair, ISTI Consultant to AID
2. Dr. Ralph Susman, Consultant, USAID
3. Mr. Eugene Rauch, KEDSO/West and Central Africa
4. Ms. Connie Husman, JHPIEGO
5. Dr. James Lea, INTRAH

G. Others

1. Mr. Andrews Taylor, UNDP Program Officer
2. Dr. Dennis Caillaux, UNICEF Resident Representative

III. BACKGROUND AND SCOPE OF WORK

Since 1969, Ghana has had a well articulated population policy in support of family planning. Since that time, it has also been providing family planning services throughout the country, initially through clinics, outreach programs and community-based activities, and more recently through commercial retail sales programs.

At the time that the Ghana Fertility Survey was conducted (February 1979-March 1980), 12.4 percent of "exposed" women aged 15 to 49 were using a form of contraception--7.2 percent were using a modern method (i.e., orals, vaginal

methods, condoms, sterilization, IUD, or injection). In their report of April 12, 1984, CDC consultants Monteith and Johnson estimated that if the definition of eligible women included all women in current stable sexual unions (married and unmarried), the prevalence of use of modern methods would be approximately 5 percent instead of 7.2 percent. At the time of their report, they estimated that 1.7 percent of women in union, based on this definition, were using modern efficient methods provided by the Ministry of Health (MOH)--35 percent of all current users. Monteith and Johnson suggested that this could be explained by the fact that there was little or no family planning activity in the MOH system when the program was controlled by the Ghana National Family Planning Program (GNFPP). The MOH only gained control of its family planning program mid-year 1983.

Mid-year 1984, USAID/Ghana requested that a team of consultants develop a Project Paper (PP) in preparation for the implementation of a new bilateral agreement, the USAID/Ghana Contraceptive Supplies Project (FY 85-87). As CDC has been providing support to Ghana's program since 1981, CDC was asked to send a consultant to participate as a member of the PP design team (see CDC Foreign Trip Reports dated July 23, 1981, April 8, 1982, November 29, 1982, April 27, 1983, and April 21, 1984).

During five previous consultations, Richard Monteith of CDC (1) evaluated the commodity management and contraceptives/users service statistics systems, (2) assisted Ghanaians in designing a simplified service statistics system, and assisted them in its implementation, (3) forecasted contraceptive requirements, and (4) proposed improvements in the management and flow of commodities.

As stated in USAID/Ghana's cable of August 3, 1984, I was asked, as part of the design team, to:

1. "Review the MOH's administrative, distribution, logistical support, staffing and reporting capabilities in relation to the present and projected contraceptive distribution program;"
2. "Review MOH reporting capability with special emphasis on the capacity to provide relevant program data which can readily be derived from the distribution chain as it expands;"
3. "Review and make appropriate recommendations on such key issues as supply imbalances, transport, availability and use of appropriate forms, contraceptive commodity storage conditions/security/accountability at Tema and elsewhere in the MOH distribution chain, and staffing requirements for an expanded MOH contraceptive program activity;" and
4. "Estimate contraceptive commodity requirements for the CRS social marketing program (as well as for the MOH network of service delivery points)."

In addition, the design team coordinators, Mr. Bair and Mr. Rauch, asked me to make a provisional assessment of family planning training requirements and to develop a preliminary strategy to satisfying those needs. Fortunately, Ms. Connie Husman (JHPIEGO) and Dr. James Lea (INTRAH) were each able to join the team for a few days each to assist with these tasks.

IV. COMMODITY MANAGEMENT AND REPORTING

A. Storage and Inventory Control

1. Central Warehouse at Tema:

Most of the recommendations made by Mr. Monteith in his April 1984 report have not been implemented. Supplies are still kept in two separate bays (Bays 3 and 4), commodities are stocked against the wall, and some commodities in Bay 3 appear to have been affected by water damage. The physical inventory of all items did balance with the current balances recorded in the inventory ledgers of both bays. As recommended by Monteith in his last report, pills and condoms have been shipped to the regions.

2. Greater Accra--Regional, District, and Clinic Stores:

In the regional, district, and four clinic stores visited (Greater Accra Region, Accra City District, Mamprobi Polyclinic, Ussher Town Clinic, Adabraka Polyclinic, and Korle-Bu Teaching Hospital), the physical inventories balanced with the current balances recorded in the ledgers in every case. Stacking, ventilation, protection from rain and sunlight, and security were uniformly acceptable.

B. Stockouts and Emergency Shipments

Presently, there are no vaginal foaming tablets available at any level of the MOH supply system, with the exception of two districts within Greater Accra (which, at the time of the consultation, had less than 2 months supply on hand). Neo-Sampooon was stocked out at the Tema Warehouse on April 1, 1983. Approximately 1,042,000 foaming tablets are presently being shipped to Ghana on an emergency basis. While desperately needed, this quantity represents approximately one-third of what can be expected to be dispensed in 1985, if the supply system were to be replenished. Foaming tablets are reportedly very popular--the 1979/1980 Ghana Fertility Survey documented that approximately 28 percent of all couples using a method used foaming tablets (see Table 1).

The proportion of couples using injectable contraceptives fell from approximately 8.5 percent of active users in 1979/1980 to less than 1 percent of MOH continuing users in March 1984, to nil at present. This is largely due to the depletion of stocks and the absence of any MOH resupply of the method in over a year. While AID does not supply or promote injectable contraceptives, it is worth noting that the method is out of stock at all levels of the MOH supply system, including clinics.

In addition, there are virtually no diaphragms, jelly, or foam available in the MOH supply system. MOH nurses report that while these methods are not popular, they do have some clients for whom they are indicated or who prefer these methods.

C. Expiration of IUD's

All Lippes Loops available at all levels of the MOH supply system have long exceeded the expiration dates printed on the packages. The Lippes D IUD's expired in February 1983 while the C's expired in either August 1980 or March 1981. Reports of IUD's breaking during insertion have come from four regions (Greater Accra, Volta, Eastern, and Ashanti) and the family planning nurses interviewed expressed concern and even reluctance to insert presumably expired Lippes Loops, the only IUD's in stock. Reflecting these concerns, the proportion of active users using IUD's has dropped from 5.6 percent in 1979/1980 to 1.2 percent in 1984 (see Table 1).

Although recent packaging of Lippes Loops reportedly do not have expiration dates, the practical consideration in Ghana is that nurses are reluctant to use the existing stock due to the report mentioned above. In addition, there is a strong preference for IUD's that are packaged individually and are sterile and ready for insertion. Also, solutions needed to sterilize Lippes Loops packaged in bulk prior to insertion are in short supply, and when available, are used for other purposes. Copper-T's are packed 20 per carton, whereas the Lippes Loops come 100 per bag--two bags are needed per clinic in order to have on hand the popular sizes, C and D. Given the relatively low demand in many areas for the IUD, the use of the Lippes Loop results in having dead stock in many clinics if all clinical outlets with trained nurses are to offer the IUD as one of the available methods. While the unit costs of individually packaged IUDs is much greater than for bulk packaged units, the total cost for Ghana is still modest.

Fresh supplies of individually wrapped IUDs should replace presumably expired stocks of Lippes C's and D's, which should be destroyed if for no other reason, to allay the fears of service providers. New stocks should be issued first to nurse providers who are currently inserting IUD's. Subsequently, as other nurses are (re)trained, they too should receive supplies of Copper-T's.

As part of this program, nurses will be (re)trained in the correct procedures for IUD insertion and removal. According to JHPIEGO's tentative plan, nurses from approximately 25 percent of MOH clinics will be (re)trained by the end of the first year of the bilateral, from 45 percent of clinics by the end of the second year and from 65 percent of the clinics by the end of the third year.

D. Effect of Supply Status on Method Mix

Historical data on method mix are available from two sources. The 1979/80 Ghana Fertility Survey reports active users by method for a sample of all users, independent of source of supply. Since that time, the only other available source of method mix information is the MOH's commodity/user service statistics system established in collaboration with CDC which reports user

visits by method for users of MOH services and supplies only. While comparisons based on these two different sources do not necessarily provide an accurate reading of changes in method mix, they are based on the only information available and provide at least a sample idea of trends.

When comparing the proportions of women contracepting that used each method in 1979/1980 as compared to 1984 (see Table 1), it is striking that:

1. the proportion using the pill, which is available in large quantities, increased from 44 percent to 83 percent;
2. the proportion using foaming tablets, which is in scarce supply, fell from 28 percent to 4 percent; and
3. the proportion using injectables, almost out of stock, fell from 9 percent to less than 1 percent.

While we cannot prove this to be the case, these data suggest that woman either discontinued the use of, or shifted away from less available methods (foaming tablets, injectables, and IUD's) and either adopted the pill, which is in great supply, sought an alternative supply of commodities, or dropped out.

E. User and Commodity Reporting

The reporting system introduced by Mr. Richard Monteith contains valuable information about commodities (contraceptives dispensed and on hand, by method) and acceptors (new acceptors and continuing users by method). Quarterly reports containing this information are submitted by clinics to districts, by districts to regions, and from regions to the central office of the MCH/FP Division of the MOH. The total number of clinics serving as outlets and responsible for reporting increased from 244 in the first quarter of 1983 to 282 clinics in the first quarter of 1984. During the five quarters from January 1983 through March 1984, an average of 72 percent of clinics submitted reports (see Table 2).

The regions with the greatest proportion of clinics reporting most consistently include Central (100 percent compliance), Brong Ahafo (97 percent), Greater Accra (94 percent), and Ashanti regions (83 percent). These regions have the best road and transport connections within their areas and between them and Accra. The Upper, Eastern, and Western regions had the poorest reporting performance--71 percent, 65 percent, and 56 percent, respectively.

Internal computations done with the user/commodity data reported from each region at the clinic, district, and regional levels suggest that the staff and supervisors are doing a careful job in filling out and checking the reports. Using the commodity data to estimate the number of couples using contraceptives during each quarter of 1983 and the first quarter of 1984 as a proxy for couples served, I found as high as 98.8 percent correspondence

between this estimate and the number of user visits reported per quarter in one region, Eastern. Nationally, there was a correlation of between 83 and 97 percent for the quarters examined. In addition, many of the reports had already been reviewed and corrected before reaching the MOH, as evidenced by the use of different colored pencils and the supervisors' signatures in that color. I found almost no arithmetic errors.

F. Supervision and Transport

The biggest problems in reporting now are (1) incomplete forms and (2) the 28 percent of the clinics that are not reporting at any given time. Supervisors need to make periodic visits in order to (1) help providers improve their client counseling and education as well as clinic skills; (2) know how to use the data they collect to order more commodities in time so that they don't run the risk of running out; and (3) to encourage providers to complete each report and to turn it in punctually. CDC should be called upon to train supervisors to use the commodity-user data effectively once they have transport and are able to supervise clinics in person on a routine basis.

Mr. Monteith recommended that AID provide five vehicles for exclusive use by the MOH MCH/FP program and at least a 3-year supply of appropriate spare parts. The vehicles were recommended to improve regional, district, and clinic level resupply, data collection, and technical supervision/on-the-job training and motivation.

Presently, there are very few vehicles in service that are operated by the MOH. Nationally, the vehicle fleet is at 15 percent of what it was 10 years ago, and the roads are in poor repair. The World Bank, and to a lesser extent USAID, are providing support for the rebuilding of the fleet.

I recommend that 11 vehicles, not 5, be provided for use in revitalizing the family planning component of primary health care. This would make one vehicle available to each region, leaving another vehicle available for central level coordination of regional, district, and local training activities, including improved recordkeeping. UNFPA has committed to providing five or six vehicles. The balance should be funded out of the bilateral agreement.

I was told by Dr. Otoo, the Director of Medical Services (MOH), that UNICEF is providing the MOH 10 Nissan Atlas II heavy duty, high suspension trucks with double cabs--1 for each of 10 demonstration districts to be used for all primary health care activities. Dr. Otoo stressed the importance of standardizing the vehicles provided to facilitate maintenance. These vehicles meet all of the criteria outlined by Mr. Monteith's report of April 1984 with one exception--they have no secured cover for the cargo bed. Instead, fitted canvass covers can be ordered. Other than this drawback, the Atlas II is a more practical vehicle than the King Cab mentioned in the same report. It is less expensive, has a higher clearance, is sturdier, has a bigger load capacity, and a longer cruising range.

The benefits outlined in Mr. Monteith's report justify the investment:

1. improved timeliness of resupply;
2. elimination of stock imbalances and stockouts;
3. reduction of maximum stock requirements in the field, thereby increasing central control over commodities;
4. improved completeness, timeliness, and use of reports;
5. increased supervision/in-service training.

G. Analysis and Use of Data

Mrs. Arde-Acquah and Miss Assan are the two people at the MOH/central level assigned to manage family planning activities. While they are very conscientious, they have many responsibilities--training, supervision, tabulation of national user/commodity data, changing staff, monitoring the flow of commodities, and interacting with MOH staff at all levels and the donor community. I found that the tabulation of national commodity and user statistics was 6 months behind. This was partially due to the fact that they were waiting for reports from some regions and partially as a result of the fact that they need more staff. The data "perish," or no longer can be used to manage or prevent crises, if they are too old and becomes historic documentation. It is essential that two clerks be added to their staff, as recommended by Monteith, so that data can be used opportunely to manage program activities and Mrs. Arde-Acquah and Miss Assan have more time to devote to management instead of tabulation.

Mr. Monteith assisted the Ghanaians in introducing a streamlined service statistics (users and commodities) system. In the process, the traditional detailed client record forms for first visits and revisits were eliminated, substituting for it what practicing nurses judge to be an overly simplified card. As a result, most nurses are using both forms when working up a client. I recommend that the merits of both forms be examined, and a single form should be developed that satisfies the day-to-day needs of service providers and the basic program evaluation needs of managers.

V. ANALYSIS OF USER STATISTICS

The analyses contained in this section are based on data obtained from the user/commodity service statistics and reporting system.

A. New Acceptors and Client Visits

As shown in Table 3, the corrected number of new acceptors of family planning services reported nationally peaked in the fourth quarter of 1983 at 11,280. New acceptor (continuing and total acceptor) visits were corrected for underreporting on a proportional basis using the regional reporting rates for the appropriate quarter. These corrections assume, perhaps optimistically, the clinics not reporting during a given quarter are providing services to the same number of clients on average as those clinics that did report. In the first quarter of 1984, the number fell by 37 percent to 7,065--the lowest

level in five quarters. Anecdotally, decreases in clinic performance are due to unavailability of certain commodities, infrequent face-to-face supervision due to lack of transport and the deterioration of roadways, and sagging staff morale. The average corrected number of new acceptors per clinic providing family planning services climbed from 34 in the first quarter of 1983 to 43 in the last quarter (see Table 4). It fell dramatically to 25 new acceptors per clinic in the first quarter of 1984--a 49 percent drop. As shown in Table 3, the first quarter of 1984 marked an increase over the fourth quarter of 1983 in only two regions--Greater Accra and Volta.

Within the same timeframe, the largest number of continuing user visits corrected for underreporting (32,580) occurred in the second quarter of 1983 (see Table 5). The number fell by 30 percent in the third quarter to 22,780, increased by 15 percent to 26,170 in the fourth quarter of 1983, and fell by 24 percent in the first quarter of 1984 to 19,900. Given the increased number of new acceptors served in the fourth quarter of 1983, one would have expected a significant rise in continuing user visits in the first quarter of 1984, particularly given the increased proportion of pill users described in Section V.B below. However, the only region that reported this increase in continuing user visits in the first quarter of 1984 was Volta. This region reported serving 1,041 continuing users in the fourth quarter of 1983 and 2,128 in the first quarter of 1984--a 104 percent increase.

Table 6 is consistent with the trends described for new acceptors and continuing user visits--the number of total acceptor visits peaked in the second quarter of 1983, fell off in the third quarter, increased somewhat in the fourth quarter, and fell significantly in the first quarter of 1984. It is obvious from examining Table 7 that the average MOH clinic has been providing family planning services to very few people, ranging from 8 per clinic week in the first quarter of 1984 to a high of 13 per clinic week in the second quarter of 1983.

B. Method Mix

For the period January-March 1983, the proportion of new acceptors and continuing users using each method are presented in Tables 8 and 9, respectively. The pill was used by half of all new acceptors, followed by the condom (26 percent), foaming tablets (18 percent), the IUD (5 percent), cream (2 percent), and injectables (0.5 percent). Diaphragms were used by only two new acceptors during this period and are including with creams. As one might expect, the pill, a method that requires routine resupply, accounted for a larger proportion of continuing user visits as compared to the IUD: 72 percent pill, 0.3 percent IUD (see Table 9). In Table 10, the proportions of each method distributed to continuing users at each visit is examined for all five quarters--January 1983-March 1984. The use of the pill varies between 72 and 83 percent and there is a decrease in the use of foaming tablets. Neither trend is surprising as the pill was and is widely available whereas supplies of foaming tablets have been depleted and not replenished.

C. Potential for Expansion of Family Planning Services Within the MOH System of Health Facilities

In May of 1984, there was a total of 293 MOH health facilities or institutions in Ghana: 51 hospitals, 12 urban health centers, 55 rural health centers, 69 MCH centers, and 106 health posts (see Table 11). At about the same period, the first quarter of 1984, 282 of the 293 MOH facilities provided family planning services. There is not much potential for geographic expansion as there are only 11 health institutions that were not reportedly providing family planning services at the time. However, there is tremendous potential for program growth as a result of revitalizing the family planning activities of clinics that are currently providing this service. This can be done through intensified promotion; cross-referral within clinics among providers of other services and family planning; outreach promotion and service delivery; and word-of-mouth publicity from satisfied clients. It is critical that contraceptive supplies be available at each service delivery point so that women who come for family planning get the method of choice when they are motivated--i.e., when they make the effort to seek out services.

VI. ANALYSIS OF COMMODITY STATISTICS

A. Supplies on Hand at Each Level

1. Clinic Level

It is evident that the MOH implemented Mr. Monteith's recommendation to move oral contraceptives from the Tema Warehouse (central level) to the field. However, in so doing, supplies were distributed directly to clinics in large quantities instead of balancing the amounts left in district stores with the quantities issued to clinics. Table 12 shows that, on average, clinics had 15 months supply of pills on hand at the end of the first quarter of 1984. Clinics within Brong Ahafo region had an average of 27 months supply on hand. Ashanti and Central clinics were in shortest supply with only 3 months supply on hand. As shown in Tables 13 and 14, there was a short-fall of pills at Central Region's district stores and at Ashanti's regional store. However, in the Central Region, there are 32 months supply of pills on hand at the regional store. Therefore, low stocks can and should be replenished from supplies already within the region. In contrast, Ashanti region had only a 1 month supply of pills at the regional store. Consequently, clinics can not be resupplied with pills reportedly already available within the region. However, upon further investigation, Miss Assan and I learned that 62,400 cycles of pills had been shipped to Ashanti in May and August of 1984--the equivalent of 9 months supply at the prevailing rate of drawdown in Ashanti.

An average of 40 months supply of condoms is available at the clinic level with a high of a 105 months supply in Greater Accra and a low of an 11 month supply in Central (see Table 12). Unless the program picks up considerable momentum in Greater Accra, Western, and Volta,

there is a real danger that there will be stock that expires before it is used in a number of clinics, ultimately becoming unusable. Once supervisor have transport, supplies from overstocked clinics can be systematically transferred to understocked clinics so that the contraceptives are used before expiration.

Volta and Ashanti clinics are out of foaming tablets entirely. There was an average of 4 months supply on hand at clinics in the five regions that reported having foaming tablets (see Table 12)--this is based on meager distribution since nurses report that clients are being steered toward pills and away from foaming tablets due to the paucity of supply.

Only two regions reported having stocks of cream on hand--Brong Ahafo (4 months) and Western (3 months).

As previously mentioned, all Lippes Loops had long since expired according to package data. Many nurses had reportedly all but stopped inserting IUD's as a result. New supplies are desperately needed.

Six regions are out of injectables. Greater Accra, which is using the method sparingly due to low stock levels, has an 11-month supply for the few clients that are still using the method. This is the only region that reported still having a supply on hand at the clinic level.

2. District Level

Ashanti, Western, and Upper do not use district stores. Clinics are resupplied directly from the regional warehouses. The average district in the other regions had an 8-month supply of pills and a 19-month supply of condoms (see Table 13). By and large, district stores do not have any other products in stock.

3. Regional Level

As shown in Table 14, only two commodities are in stock at the regional stores, pills and condoms. The average stock on hand at the regional level was a 44-month supply of pills and a 36-month supply of condoms. Brong Ahafo and Ashanti had the lowest supply levels in both cases.

4. Central Level

At the prevailing rate of drawdown for all MOH clinics in the country, the central warehouse at Tema had an 11-month supply of pills, a 1-month supply of plain condoms, and a 33-month supply of colored condoms (see Table 15). The warehouse has not had the following supplies in stock for at least 6 months: foaming tablets, cream, and injectables. All IUD's in stock had expired at least 12 months before the CDC visit. Several reports of expired Lippes Loops breaking during insertion had been made from four regions. MOH supervisors reported that nurses have lost confidence in the Lippes Loops in stock, and many are no longer inserting them.

B. Length of Time Supply Could Last at Prevailing Rate of Drawdown

Given the client loads reported in the first quarter of 1984, the supply of pills that exists at all levels of the "pipeline" could last for approximately 59 months if the entire supply line were to be exhausted (see Table 16). Again, this assumes no change in client load. There are enough plain condoms in the pipeline to last approximately 50 months and colored condoms to last 93 months. Based on available tabulations at the time of Mr. Moneith's last trip, the biggest changes that have occurred are: (1) Supplies have been shifted from the central level to clinic stores, and (2) the client load has dropped off by 24 percent.

As discussed in Section VIII of this report, the MOH is eager to revitalize its family planning program and rapidly increase the number of couples using contraceptives. Therefore, future supply demands (see Section IX) have been based on projected requirements, not past performance. Based on projected contraceptive requirements, while overstocked supplies will be redistributed and used first, new supplies will also be required as indicated in Section IX.

VII. ESTIMATES OF PROGRAM PREVALENCE

I used two methods for estimating program prevalence. The first relies on couple-quarters of protection based on the reported quantities of contraceptive supplies dispensed as a proxy for the number of couples served, or protected from pregnancy during a quarter of the year. The conversion factors used are as follows: 3.25 cycles of pills=1 couple-quarter of protection (CQP); 36 condoms=1 CQP; 36 foaming tablets=1 CQP; 0.9 IUD's inserted=1 new acceptor; 1.5 tubes of cream=1 CQP; and 1 injection=1 CQP. The second method is based on total acceptor visits reported. This method assumes that on average, all users will come for one visit per quarter. Adjusting data from the 1979-80 Ghana Fertility Survey based on the expert opinion of Ms. R. Appiah, director of the survey, I assumed (1) a total population of 12 million; (2) that 22.5 percent of the population are women 15-49; and (3) that 73 percent of these women live in stable unions. In making these assumptions, I calculated that there are approximately 1,971,000 women who are potentially the maximum target population for family planning services. Of course, one could adjust the number of women to represent only those at risk of our unwanted pregnancy but prevalence is so low, this would be academic at this point in time. Table 17 summarizes the two sets of estimates of program prevalence for three quarters: the first quarter of both 1983 and 1984, and the third quarter of 1983 (chosen because this was the quarter with the most complete reporting of commodity/user statistics).

All estimates of program prevalence are under 2 percent. The highest estimate was for the fourth quarter of 1983: 1.9 percent based on total acceptor visits as compared to 1.3 percent based on couple quarters of protection. In any event, a very small proportion of Ghanaian women are being served by the family planning program of the MOH.

I also examined 1983 data from the Planned Parenthood Association of Ghana (PPAG) and the Christian Council of Ghana (CCG). User statistics suggest that there were approximately 10,350 couples using the family planning services of PPAG and 3,000 from CCG. Analysis of the commodity data increases the estimate for PPAG to 15,900 active users. Taking the combined high estimate, these programs were serving 18,900 couples, or just under 1 percent of eligible women. I was not able to obtain user or commodity data from the YMCA or APPLE programs or from the commercial and private physician sectors.

VIII. PROGRAM REVITALIZATION THROUGH TRAINING

Dr. Joseph Otoo, director of medical services, was very explicit in outlining the approach he would like to take in using training to revitalize and expand the family planning component of primary health care. He strongly feels that health workers who may have at one time been active providers of family planning services need refresher training to sharpen their skills and to re-motivate them. He also understands that SDP's--hospitals, polyclinics, health centers, and health posts--are divided into two sections in the way health workers think about and provide services. There is the "general medicine" side (curative) and the "other side" (preventive, MCH/Family Planning). Dr. Otoo would like all health providers to be cross-trained in the fundamentals of family planning and other preventive services. He would also like to reorganize the way in which SDP's operate in order to tear down service barriers between the preventive and curative services offered. As a result, he expects all health workers to, for example, (1) understand the importance of family planning to the health and wellbeing of all family members, (2) promote family planning, (3) provide barrier methods to get people started, and, if acceptable to the MOH, the pill, and (4) to refer clients to a fully trained family planning provider as needed. Family planning training needs by level of the service delivery system are outlined in Figure 1.

Based on the inputs of JHPIEGO and INTRAH, it is contemplated that training will be provided in two ways: in-service and preservice training. Preservice will include tutor training, revision of school curricula with respect to family planning, and the training of new graduates before being posted to a SDP. Both in-service and preservice training will provide training in (1) family health program management and in (2) specialized areas of family health--the technical component (e.g., family planning). The purpose of family health program management training is to establish a community/public health context and methodology for providing all services, as needed, to each family. The specialized training is intended to improve the specific skills needed to provide services. The content of in-service and preservice training is outlined in Appendix 3.

In-service training will be done in stages. The first stage will involve training a national core of trainers together with regional trainers. During the second stage, regional trainers will train district training officers in the process of training SDP teams. Training within regions will be started on

a staggered basis. As part of the team training of SDP teams, outreach workers will be trained. Once this is done, a lead nurse or SDP outreach worker will train village brigade members to provide family planning advice and some methods. As part of this process, local outlets will also be established to distribute condoms and foaming tablets (e.g., fishing or agricultural cooperative stores, factory or employee stores).

Dr. Otoo would like to have the Health Unit of the Ghanaian Institute of Management and Public Administration (GIMPA) take the lead in organizing, coordinating, and supervising all in-service training activities. A 3-year schedule of revitalized clinics, trained outreach and village brigade workers, and local outlets is presented in Table 18. The planned buildup of family planning services utilized and commodities dispensed is reflected in the projection of contraceptive requirements discussed in Section IX.

IX. CONTRACEPTIVE PROCUREMENT TABLES

A. Ministry of Health Program Buildup

As discussed in Section VIII, the MOH is eager to revitalize its family planning program through extensive training. Table 19 summarizes the advancements expected as a result of training in terms of revitalized clinics, retrained outreach workers, trained village health brigade members, local outlets, the numbers of couples using family planning services each year (CYP), and program prevalence achieved.

I took the buildup in the MOH program and the expected shifts in method mix summarized in Table 1 into account in developing the projections of contraceptive requirements presented in Appendix 3.

After discussions with UNDP resident advisors, it was suggested that the UNFPA supply progestin only mini pills, injectables, diaphragms, cream, and foam. I did not include contraceptive procurement tables for injectables, diaphragms, cream, or foam in this report.

B. Commercial Social Marketing

Dr. Susman and I analyzed the records of the previous commercial retail sales program managed by DANAFCO for the purposes of predicting: (1) uptake by method per outlet; (2) rate of increase in the number of outlets; (3) changes in order size and frequency; and (4) intervals between growth spurts and plateaus in product uptake. Based on these assessments plus site visits made by Dr. Susman and Mr. Bair, Dr. Susman and I prepared the projections of contraceptive requirements for the CSM program found in Appendix 4.



Michael E. Dalmat, Dr.P.H.

Attachments

Figure 1

OUTLINE OF TRAINING NEEDS FOR INTEGRATION OF FAMILY PLANNING INTO SERVICES OF THE FAMILY HEALTH SYSTEM

COMPONENTS OF THE FAMILY HEALTH SYSTEM

	Family Planning Concepts	Promotion, Education, Counselling	Provision of Barrier Methods	Resupply of the Pill	Initial Pill Supply	Insertion and Removal of IUD	Referral for NFP	Data Collection and Interpretation	Supervision	Planning, Administration, Evaluation	Sterilization
National MCH/FP	x	x	x	?	Some	Some	x	x	x	x	
Regional Health Team	x	x	x	x	Some	Some	x	x	x	x	
Regional Hospital	x	x	x	x	x	x	x	x	x	x	
District Health Team	x	x	x	x	Some	Some	x	x	x	x	
Hospital	x	x	x	x	x	x	x	x	?	?	x
Maternity	x	x	x	x	x	x	x	x	?	?	
PoliClinic	x	x	x	x	x	x	x	x	x	x	
Health Center	x	x	x	x	x	x	x	x	x	x	
Health Post	x	x	x	x	x	x	x	x	?	x	
Satellite Clinic	x	x	x	x	?		x	x	x	x	
Health Brigade (TBA, CCAs, etc.)	x	x	x	x				x			

TABLE

Proportional Distribution Among Family
Planning Methods: Ghana 1979/1980 and 1984-1987

	(1) <u>1979/80</u>	(2) <u>1984</u>	(3) <u>1985</u>	(3) <u>1986</u>	(3) <u>1987</u>
Oral contraceptives	43.7	83.1	66	62	56
Foaming tablets	28.0	4.3	20	22	24
Condoms	11.3	11.1	5	5	5
Injectables	8.5	0.1	5	6	8
IUD	5.6	1.2	3	4	5
Sterilization	1.4	Unk.	0.4	0.5	1.0
NFP	0.9	Unk.	0.1	0.1	0.1
Other methods	0.6	0.2	0.5	0.5	0.5

Sources:

1. 1979/1980 Ghana Fertility Survey: Active users of conttaception
2. MOH quarterly reports for January to March for continuing user visits
3. CDC consultant projections based on staff interviews and assuming the availability of all methods in the pipeline.

TABLE 2

Percentage of MOH Clinics Offering Family Planning Services
That Submitted Quarterly Reports by Region, Ghana
January 1983-April 1984
(Percent distribution)

<u>Region</u>	<u>1983</u>				<u>1984</u>	<u>Quarterly Average</u>
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>First</u>	
Greater Accra	88	94	100	95	95	94
Volta	55	73	100	82	60	74
Brong Ahafo	100	100	100	100	85	97
Northern	85	69	NR	NR	NR	*
Central	100	100	100	100	100	100
Eastern	71	71	68	59	57	65
Ashanti	60	90	70	100	94	83
Western	55	NR	59	50	59	56
Upper	82	67	64	71	NR	71
Total % Reporting	75	73	76	71	64	72
No. Clinics	244	249	249	262	282	

Source: MOH quarterly reports

NR = No report from regional level

* Not meaningful since reports are not available for 3 of 5 quarters.

TABLE 3

New Family Planning Acceptors Reported Quarterly by Region and
Nationally: MOH, January 1983-March 1984

Region	1983								1984	
	Jan.-March		April-June		July-Sept.		Oct.-Dec.		Jan.-March	
	No.	%	No.	%	No.	%	No.	%	No.	%
Greater Accra	957	16.4	940	14.5	541	7.3	840	10.0	863	16.7
Volta	186	3.2	1,024	15.8	1,015	13.8	538	6.4	658	12.8
Brong Ahafo	583	10.0	874	13.5	844	11.5	782	9.3	512	9.9
Northern	152	2.6	171	2.6	320	4.3	NA	NA	NA	NA
Central	464	8.0	631	9.8	553	7.5	525	6.2	361	7.0
Eastern	840	14.4	727	11.2	1,057	14.4	1,680	20.0	814	15.8
Ashanti	782	13.4	956	14.8	2,185	29.7	2,459	29.2	1,431	27.8
Western	1,500	25.8	900	13.9	707	9.6	1,024	12.2	516	10.0
Upper	354	6.1	246	3.8	142	1.9	571	6.8	NA	NA
TOTAL	5,818	100.0	6,469	100.0	7,364	100.0	8,419 ^a	100.0	5,155 ^b	100.0
% Clinic reporting	75		73		76		71		64	
Corrected for underreporting ^c	8,300		7,510		9,370		11,280		7,065	

^a Northern Region's data are not included.

^b Northern and Upper Region's data are not included.

^c Clinics not reporting assumed to have same client load as reporting clinics; adjusted by regional reporting levels shown in Table 2.

TABLE 4

New Family Planning Acceptors Per Clinic Offering
Services by quarter: MOH, January 1983-March 1984 in Ghana

	1983				1984
	<u>Jan.-March</u>	<u>April-June</u>	<u>July-Sept.</u>	<u>Oct.-Dec.</u>	<u>Jan.-March</u>
	<u>No.</u>	<u>No.</u>	<u>No.</u>	<u>No.</u>	<u>No.</u>
New acceptors (corrected for underreporting)	8,300	7,510	9,370	11,280	7,065
Total clinics offering family planning	244	249	249	262	282
New acceptors per clinic	34	30	38	43	25
New acceptors per clinic week	2.8	2.5	3.2	3.6	2.1

TABLE 5

Continuing User Visits Reported Quarterly by Region and
Nationally: January 1983-March 1984

Region	1983								1984	
	June-March		April-June		July-Sept.		Oct.-Dec.		Jan.-March	
	No.	%	No.	%	No.	%	No.	%	No.	%
Greater Accra	2,413	15.6	2,651	9.9	2,596	13.4	5,397	25.2	3,015	18.5
Volta	557	3.6	10,607 ^a	39.6	1,304	6.7	1,041	4.9	2,128	13.0
Brong Ahafo	1,143	7.4	1,415	5.3	1,583	8.2	1,226	5.7	1,000	6.1
Northern	289	1.9	250	0.9	543	2.8	NA	NA	NA	NA
Central	940	6.1	1,266	4.7	2,344	12.1	1,558	7.3	1,263	7.7
Eastern	2,038	13.2	2,184	8.2	2,563	13.3	3,021	14.1	2,750	16.8
Ashanti	4,698	30.4	4,206	15.7	6,238	32.3	5,938	27.7	5,250	32.2
Western	2,940	19.0	3,625	13.5	1,698	8.8	1,402	6.5	917	5.6
Upper	424	2.7	552	2.1	465	2.4	1,843	8.6	NA	NA
TOTAL	15,442	100.0	26,756	100.0	19,334	100.0	21,426 ^b	100.0	16,323 ^c	100.0
% Clinic reporting	75		73		76		71		64	
Corrected for underreporting ^d	22,770		32,580		22,780		26,170		19,900	

^a Question validity of this statistic.

^b Northern region's data are not included.

^c Northern and Upper region's data are not included.

^d Clinics not reporting assumed to have some client level as reporting clinics; adjusted by regional reporting levels shown in Table 2.

TABLE 6

Total Acceptor Visits Reported Quarterly by Region and
Nationally: January 1983-March 1984

Region	1983								1984	
	Jan.-March		April-June		July-Sept.		Oct.-Dec.		Jan.-March	
	No.	%	No.	%	No.	%	No.	%	No.	%
Greater Accra	3,370	15.9	3,591	10.8	3,137	11.7	6,237	20.9	3,878	18.1
Volta	743	3.5	11,631 ^a	39.6	2,319	8.7	1,579	4.9	2,786	13.0
Brong Ahafo	1,726	8.1	2,289	6.9	2,427	9.1	2,008	6.7	1,512	7.0
Northern	441	2.1	421	1.3	863	3.2	NA	NA	NA	NA
Central	1,404	6.6	1,897	5.7	2,897	10.9	2,083	7.0	1,624	7.6
Eastern	2,878	13.5	2,911	8.8	3,620	13.6	4,701	15.3	3,564	16.6
Ashanti	5,480	25.8	5,162	15.5	8,423	31.5	8,397	28.1	6,681	31.1
Western	4,440	20.9	4,525	13.6	2,405	9.0	2,426	8.1	1,433	6.7
Upper	778	3.7	798	2.4	607	2.3	2,414	8.1	NA	NA
TOTAL	21,260	100.0	33,225	100.0	26,698	100.0	29,845 ^b	100.0	21,478 ^c	100.0
% Clinic reporting	75		73		76		71		64	
Corrected for underreporting ^d	31,070		40,090		32,150		37,450		26,965	

^a Questionable validity of this statistic.

^b Northern region's data are not included.

^c Northern and Upper region's data are not included.

^d Clinics not reporting assumed to have same client level as reporting clinics; adjusted by regional reporting levels shown in Table 2.

TABLE 7

Total Acceptors per Clinic Week, Ghana: MOH
January 1983-March 1984

	1983				1984
	<u>June-March</u>	<u>April-June</u>	<u>July-Sept.</u>	<u>Oct.-Dec.</u>	<u>Jan.-March</u>
Total acceptor visits (corrected for reporting error)	31, 070	40,090	32,150	37,450	26,965
Total clinics offering family planning	244	249	249	262	282
Total visits per clinic	127	161	129	143	96
Visits per clinic week	11	13	11	12	8

TABLE 8

Distribution of New Acceptors by Contraceptive Method and
Region, Ghana: January-March 1983
(Percent Distribution)

<u>Region</u>	<u>OC</u>	<u>Condoms</u>	<u>Foaming Tablets</u>	<u>IUD</u>	<u>Injectable</u>	<u>Cream</u>	<u>Total</u>
Greater Accra	40.3	28.6	14.3	14.6	2.0	0.0*	100.0
Volta	49.8	22.4	25.9	2.0	0.0	0.0	100.0
Brong Ahafo	49.4	20.8	22.3	3.6	0.0	3.9	100.0
Northern	67.1	11.8	14.5	0.0	0.0	6.6	100.0
Central	61.0	25.2	9.7	4.1	0.0	0.0	100.0
Eastern	36.2	28.8	26.8	1.2	0.0	7.0	100.0
Ashanti	77.4	7.2	11.4	3.5	0.6	0.0	100.0
Western	38.1	38.2	21.2	2.1	0.4	0.0	100.0
Upper	76.6	9.6	5.9	6.2	0.0	1.4 ^a	100.0
TOTAL ^b	49.7	25.7	17.7	4.7 ^c	0.5	1.7	100.0

^a One new acceptor in each region accepted diaphragm (0.03 percent of total acceptors).

^b Unweighted averages.

^c Of the IUD users, 88 percent were using the Lippes D and 12 percent the Lippes C.

TABLE 9

Distribution of Continuing User Visits by Contraceptive Method and
Region, Ghana: January-March 1983
(Percent Distribution)

<u>Region</u>	<u>OC</u>	<u>Condoms</u>	<u>Foaming Tablets</u>	<u>IUD</u>	<u>Injectable</u>	<u>Cream</u>	<u>Total</u>
Greater Accra	65.7	15.8	12.3	1.7	4.4	0.1	100.0
Volta	53.8	26.1	20.0	0.0	0.0	0.0	100.0
Brong Ahafo	62.8	10.1	20.8	0.0	0.0	6.3	100.0
Northern	60.2	20.8	15.9	0.0	0.0	3.1	100.0
Central	74.7	11.0	14.1	0.2	0.0	0.0	100.0
Eastern	49.4	19.1	25.0	0.4	0.0	6.4	100.0
Ashanti	94.4	1.7	3.9	0.0	0.0	0.0*	100.0
Western	60.2	21.7	16.9	0.1	1.0	0.0	100.0
Upper	87.0	7.5	4.5	0.0	0.0	0.9	100.0
TOTAL	71.6	12.6	13.2	0.3	0.9	1.4	100.0

*Three diaphragms (0.02 percent of total continuing users).

TABLE 10

Distribution of Continuing User Visits by Contraceptive Method and Quarter
 January 1983-March 1984
 (Percent Distribution)

<u>1983</u>	<u>OC</u>	<u>Condoms</u>	<u>Foaming Tablets</u>	<u>IUD</u>	<u>Injectable</u>	<u>Cream</u>	<u>Total</u>
Jan.-Mar.	71.6	12.6	13.2	0.3	0.9	1.4	100.0
Apr.-June	80.9	6.1	10.1	1.0	0.6	1.2	100.0
July-Sept.	81.6	7.3	9.1	1.0	*	0.9	100.0
Oct.-Dec.	75.9	16.4	6.3	1.0	0.1	0.3	100.0
<u>1984</u>							
Jan.-Mar.	83.1	11.1	4.3	1.2	0.1	0.2	100.0
Weighted average	77.8	11.1	8.8	1.1	0.3	0.8	100.0

* Less than 0.05.

TABLE 11

Ghana Ministry of Health, Institutions by Region, May 1984

<u>Region</u>	<u>Hospitals*</u>	<u>Urban HC</u>	<u>Rural HC</u>	<u>MCH Centers</u>	<u>Health Posts</u>	<u>Total No. MOH Instit.</u>	<u>No. Districts</u>	<u>No. Instit. Per District</u>
Greater Accra	6	7	2	2	12	29	3	10
Volta	10	-	9	7	21	47	8	6
Western	9	2	5	10	6	32	5	6
Eastern	6	-	9	17	15	47	9	5
Central	6	1	2	9	20	38	8	5
Ashanti	6	2	11	8	5	32	10	3
Brong Ahafo	1	-	8	6	12	27	8	3
Northern	3	-	6	5	8	22	7	3
Upper E	-	-	1	3	4	8	3	3
Upper W	4	-	2	2	3	11	4	3
TOTAL	51	12	55	69	106	293	65	5

*Excludes mission, quasi-government, and mines hospitals.

TABLE 12

Average Months Supply of Contraceptives on Hand at the Clinic Level
at the End of the First Quarter of 1984, by Method and Region

<u>Clinic Supply</u>	<u>OC</u>	<u>Condom</u>	<u>Foam Tab.</u>	<u>Cream</u>	<u>IUD</u>	<u>Injectable</u>
Greater Accra	24	106	3	*	143	11
Volta	21	49	0	0	0	0
Brong Ahafo	27	19	5	4	56	0
Northern	NR	NR	NR	NR	NR	NR
Central	3	11	4	0	142	0
Eastern	10	14	1	0	345	0
Ashanti	3	15	0	0	86	0
Western	4	66	4	3	66	0
Upper	NR	NR	NR	NR	NR	NR
Lowest	3	11	0	0	***	0
Highest	27	106	5	4	***	11
Average	15	40	2	**	***	**

*Stock on hand but none dispensed.

**Not meaningful because only one or two regions had supplies.

***All of the supplies on hand expired 2 to 4 years ago.

NR=No report.

TABLE 13

Average Months Supply of Contraceptives on Hand at the District Level
at the End of the First Quarter of 1984, by Method and Region

<u>District Stores</u>	<u>OC</u>	<u>Condom</u>	<u>Foam Tab.</u>	<u>Cream</u>	<u>IUD</u>	<u>Injectable</u>
Greater Accra	14	8	0	0	0	0
Volta	10	52	0	0	0	0
Brong Ahafo	8	10	3	1	0	0
Northern	NR	NR	NR	NR	NR	NR
Central	1	7	0	0	0	0
Eastern	8	18	1	0	107**	0
Ashanti	NA	NA	NA	NA	NA	NA
Western	NA	NA	NA	NA	NA	NA
Upper	NR	NR	NR	NR	NR	NR
Lowest	1	7	0	0	0	0
Highest	14	52	3	1	107	0
Average	8	19	*	*	*	*

*Not meaningful because only none, one, or two regions had supplies.
**All of these expired 2 to 4 years ago.

NR=No report

NA=Not applicable. Supply directly from regional store to clinics.

TABLE 14

Average Months Supply of Contraceptives on Hand at the Regional Level
at the End of the First Quarter of 1984, by Method and Region

<u>Regional Supply</u>	<u>OC</u>	<u>Condom</u>	<u>Foam Tab.</u>	<u>Cream</u>	<u>IUD</u>	<u>Injectable</u>
Greater Accra	60	98	0	0	0	0
Volta	130	52	0	0	*	0
Brong Ahafo	20	0	0	0	0	0
Northern	NR	NR	NR	NR	NR	NR
Central	32	16	0	0	0	0
Eastern	36	17	0	0	*	0
Ashanti	1	1	0	0	0	0
Western	33	70	0	0	0	0
Upper	NR	NR	NR	NR	NR	NR
Lowest	1	0	0	0	0	0
Highest	130	98	0	0	0	0
Average	44	36	0	0	0	0

*All IUD's had expired 2 to 4 years ago.

NR=No report.

TABLE 15

Months Supply of Contraceptives on Hand at the Central Warehouse
at the End of the First Quarter of 1984, by Method

<u>Central Warehouse</u>	<u>OC</u>	<u>Condom</u>		<u>Foam Tab.</u>	<u>Cream</u>	<u>IUD</u>	<u>Injectable</u>
		<u>Plain</u>	<u>Colored</u>				
Quantity	259,200	24,000	270,000	0	0	*	0
Months supply on hand	10.8	1.2	33.0	0.0	0.0	*	0.0

*All IUD's expired 2 to 4 years ago.

27

TABLE 16

Length of Time That Supplies on Hand at the End of the First
Quarter of 1984 Could Last Serving the Total Number
of Acceptors Reported During That Period

Level (Nov. 1984)	OC (Cycles)	Condom		Foam Tab. (Tabs)	Cream (Tubes)	IUD* (Units)	Injectable (Doses)
		Plain (Pcs)	Colored (Pcs)				
Regional, district, and clinic	1,175,260	1,269,103	650,872	0	0	*	0
Central	<u>259,200</u>	<u>24,000</u>	<u>270,000</u>	<u>0</u>	<u>0</u>	<u>*</u>	<u>0</u>
TOTAL IN SUPPLY LINE	1,434,820	1,293,103	920,872	0	0	*	0
Conversion factor for GYP	13	144	144	144	6	-	4
GYP on hand at current rate of drawdown	110,370	8,980	6,395	0	0	-	0
Total acceptor visits First Quarter of 1984**	22,408	2,167	826	1,159	54	324	27
Length of time program can supply acceptor visits of First Quarter 1984							
Years	4.9	4.1	7.7	-	-	-	0
Months	59.0	50.0	93.0	-	-	-	0

*All IUD's have been expired for from 2 to 4 years and are not trusted by many Ghanaian providers of service.

**Using total acceptor visits as a proxy for total acceptors, given that the standard issue is a 3-month supply of pills, foam, and cream for continuing users. The estimate of the length of time supplies can last is understated, given that new acceptors are given a 1-month supply.

TABLE 17

Estimates of Program Prevalence Based on Commodity
and User Service Statistics

	First Quarter 1983	Third Quarter 1983	Fourth Quarter 1984
1. Eligible women*	1,971,000	1,971,000	1,971,000
2. <u>Commodity-based estimate of prevalence</u>			
Couple-quarters of protection**	21,430	31,199	25,885
Program prevalence	1.1%	1.6%	1.3%
3. <u>User-based estimate of prevalence</u>			
Total acceptor visits***	31,070	32,150	37,450
Program prevalence	1.6%	1.6%	1.9%

*Women 15-49 living in stable unions. Figure is derived from 1979-80 Ghana Fertility Survey (GFS): Total population=12 million; 22.5 percent of total population=women 15-49; 73 percent of these women living in stable unions.

**See text for conversion factors.

***Accepts total acceptor visits as a proxy for total users. These data are corrected for underreporting.

TABLE 18

Service Delivery Outlets as a Result of In-Service Training
(Cumulative Numbers)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Revitalized clinics	33	87	141
Trained outreach workers	198	522	846
<u>Village Brigade Workers</u>			
Trained	495	1,060	1,620
Working*	345	810	1,200
<u>Local Outlets</u>			
Established	66	174	282
Distributing*	60	162	254

*Accounts for attrition.

TABLE 19

Buildup of Family Planning Component of Family Health Program
Ghana: April 1985-April 1988

I. Year 1

A. Catchment Areas of 33 Revitalized Clinics

	3-Month Client Base		Total Accepted
	From	To	
1. HC: 33X	140	420	13,860
2. Outreach: 198X	10	30	5,940
3. Village health brigade (TBA/VHW: 345X)	0	25	8,625
4. Local outlets: 60X	0	50	3,000
			<u>31,525</u>
			x 1/2 year
			<u>15,760 CYP</u>

B. Other Clinics and Catchment Areas

282-33=249HC x 140=	34,860 x 1 year	
20% increase in users of foaming tablets =	6,972	
5% increase in users of IUD =	1,743	
8% increase in users of injectables =	2,789	
	Total = 17,500 + 34,860=	46,360

Total CYP = 46,360

Program Prevalence = 46,360/1,971,000 MWRA = 2.4% using MOH services

II. Year 2

A. Maintain 33 clinic areas at uplifted levels = 31,525
CYP = 31,525

B. Uplift 54 More Clinics

	3 Month Client Base		
	From	To	
1. HC: 54	140	470	25,380
2. Outreach: 324	10	40	12,960
3. Village health brigade: 560	0	36	20,250
4. Local outlets: 108	0	55	6,480
	TOTAL		<u>65,070</u>
			x 1/2 year
			<u>32,535 CYP</u>

C. Other Clinic Areas

282-93 = 189 x 185 =	34,965
	x 1
	<u>34,965 CYP</u>

TOTAL CYP = 99,025

Program prevalence = 99,025/1,971,000 = 5.4% using MOH services

III. Year 3

A. Maintains 87 clinic areas at uplifted levels. 43,000
CYP=43,000

B. Uplift 54 more clinics 65,070
x 1/2 year
32,535

C. Other clinic areas

282-141=141 x 216=	30,460
	x 1 year
	<u>30,460 CYP</u>

Total CYP = 106,000

Program Prevalence=106,000/1,971,000=5.4% prevalence

Appendix I
PLAN FOR DISTRIBUTION OF COPIES OF FAMILY PLANNING METHODS
AND PRACTICE: AFRICA, IN GHANA

October 29, 1984

Prepared by Michael E. Dalmat, U.S. Centers for Disease Control (CDC) in consultation with:

Dr. Joseph Otoo
Director of Medical Services
Ministry of Health (MOH)

Ms. Victoria Assan
Assistant Deputy Director
Maternal-Child Health and Family Planning Division
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Dr. Moses Adibo
Director of Planning
MOH

Professor Khafio
Chairman, Department of Obstetrics and Gynecology
Korle-Bu Teaching Hospital

A. OBJECTIVES

1. Provide a 2-year supply of books to Ghanaian institutions that provide in-service and preservice training in family planning to physicians, nurses, and midwives.
2. To provide sufficient copies of the book to all public and private service delivery points (SDP's) that are or will be providing family planning services in the next 2 years such that each key provider has use of a book and a copy is permanently available in the facility.
3. To provide copies of the book to policy organizations--national population and development, nursing, and medical policy boards.
4. To provide for effective distribution of copies of the book for the purposes outlined above and to obtain a basis for subsequent evaluation of the book to the recipients.

B. DISTRIBUTION AND SUBSEQUENT EVALUATION

1. All boxes containing copies of the book will continue to be shipped from CDC to USAID/Ghana. Based on this distribution plan, USAID will issue the appropriate number of boxes to the Maternal-Child Health and Family Planning Division (MOH) for distribution to each organization, as specified below in section C.

Appendix 1 (continued)

2. The recipient from each organization will be responsible for:
 - 2.1. distributing copies of the book to intended recipients;
 - 2.2. obtaining a list of recipients with permanent mailing addresses to facilitate subsequent evaluation efforts;
 - 2.3. informing recipients, by means of a brief letter, of the reason why they are being given a copy of the book and that an evaluation will be conducted to assess the usefulness of the book to them in under taking their work.

C. ALLOCATION OF BOOKS

1. Midwifery Training Schools:		
9 - Number of schools (functioning)		
300 - Graduates per year		
2-year supply for graduates		
36 - Tutors		608
9 - Libraries		40
Sub-Total		<u>45</u>
		693
2. State Registered Nurse Training Schools:		
7 - Number of schools (functioning)		
300 - Graduates per year		
2-year supply for graduates		
54 - Tutors		600
7 - Libraries		60
Sub-Total		<u>33</u>
		693
3. Community Health Nurse Training Schools:		
4 - Number of schools		
160 - Graduates per year		
2-year supply for graduates		
14 - Tutors		323
4 - Libraries		20
Sub-Total		<u>20</u>
		363
4. Public Health Nurse Training School:		
1 - Number of schools		
40 - Graduates per year		
2-year supply for graduates		
5 - Tutors		80
1 - Library		9
Sub-Total		<u>10</u>
		99
5. Rural Health Training Schools:		
1 - Number of schools		
100 - Graduates per year		
2-year supply for graduates		
10 - Tutors		207
1 - Library		15
Sub-Total		<u>9</u>
		231

Appendix 1 (continued)

6. Medical Schools:

2 - Number of schools	
100 - Graduates per year	
2-year supply for graduates	205
22 - Tutors (Obstetrics & Gynecology)	29
2 - Libraries	30
Sub-Total	<u>264</u>

7. Health Facilities:

347 - Number (functioning)	
4 - Average number of copies per facility	
MOH-HQ	1,386
Military	66
NGO's	132
Sub-Total	<u>396</u>
	1,980

8. USAID/Ghana Reserve:

277

TOTAL

4,600

D. STATUS OF STOCK

1. Total shipped to date

1.1. MCH/FP Division and USAID	1,122
1.2. Korle-Bu Teaching Hospital	33
1.3. Regional Institute of Population	33
1.4. Mamprobi Polyclinic	33
TOTAL	<u>1,221</u>

2. Total issued to date

1.1. MCH/FP Division and USAID	726
1.2. Korle-Bu Teaching Hospital	33
1.3. Regional Institute of Population	33
1.4. Mamprobi Polyclinic	33
TOTAL	<u>825</u>

3. Balance in country

396

4. Augmentation required from CDC

4,204

APPENDIX 2

Content of In-Service and Preservice Training

I. IN-SERVICE TRAINING

A. Family Health Program Management

1. Understanding the Family Health Service Delivery Model
2. Application of goals to setting local program targets
 - coverage
 - changes in health status
3. Team approach to replanning the program
4. Redefining the jobs/work of existing staff
5. Reorganizing family health service delivery
 - clinic work
 - community work
6. Management and logistics of commodities and other resources
7. Data collection, tabulation, and use in assessing progress (coverage and health status) and in replanning
8. Staff supervision: assessing performance, on-the-job training, and problem-solving
9. Community education, organization, and relations

B. Technical Component

1. Family planning
 - FP concepts, benefits, and methods
 - pros and cons of methods available
 - provision of barrier methods and resupply of pills
 - opportunities to inform and serve people in need
2. Health promotion, education, and counselling
3. Maternal care, nutrition, and hygiene
4. Child development, immunization, ORT, nutrition, hygiene, and prevention of accidents
5. Home, food, and environmental sanitation
6. Infectious/communicable diseases

II. PRESERVICE

A. Tutor Training

1. Physicians
 - a. Assist in reviewing and updating curriculum
 - b. Family health approach to practice
 - c. Backup skills in family planning
2. Nurses
 - a. Provide clinical training for tutors in reproductive health
 - b. Family health approach to practice
 - c. Assist in reviewing and updating curriculum through national workshop
 - d. Workshop for Tutor Training School faculty

B. Training of New Graduates Prior to Being Posted

1. Physicians

- a. Family health approach to practice
- b. Family planning medical backup skills
- c. Community education and promotion

2. Nurses

- a. Family health approach to practice
- b. Elements of family planning technical component (see in-service)
- c. Specialized skills in family planning
 1. History-taking
 2. Physical examination
 3. Counselling and education
 4. IUD insertion/removal
 5. Managing the pill
 6. Referral

APPENDIX 3

(Ghana Trip Report dated April 1, 1985)

CONTRACEPTIVE PROCUREMENT TABLES-MOH

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

MOH

Product: Noriday

Date: 11/1/84

Data for beginning-of-year stock: Stock records

	<u>1984</u> (000)	<u>1985</u> (000)	<u>1986</u> (000)	<u>1987</u> (000)	<u>1988</u> (000)	<u>1989</u> (000)	<u>1990</u> (000)
I. Beginning-of-year stock	2,015	1,728	1,410	907	728	764	803
+							
II. New supply of same product							
a. received in 1984 to date	0						
b. scheduled for shipment but not received	0	0					
c. other sources of supply (-)	0	0	0	0	0	0	0
III. Estimated product use (-)	287	318	503	503	509	535	535
IV. Desired end-of-year stock level (equal to 150% use in subsequent year) (=)	477	755	755	728	764	803	803
V. Net supply situation (- addi- tional supplies needed from AID; + no AID requirement, calculate #6)	+1251	+655	+152	-324	-545	-574	-535
VI. End-of-year supply level	1,728	1,410	907				

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

MOH

Product: Lo-Femenal

Date: 11/1/84

Data for beginning-of-year stock: Stock Records

	<u>1985</u> (000)	<u>1986</u> (000)	<u>1987</u> (000)	<u>1988</u> (000)	<u>1989</u> (000)	<u>1990</u> (000)
I. Beginning-of-year stock (+)	0	755	728	792	831	873
II. New supply of same product						
a. received in 1984 to date	0					
b. scheduled for shipment but not received	0	0				
c. other sources of supply (-)	0	0	0	0	0	0
III. Estimated product use (-)	318	503	503	528	554	582
IV. Desired end-of-year stock level (equal to 150% use in subse- quent year) (=)	755	728	792	831	873	873
V. Net supply situation (- AID supplies needed; (+ no AID supplies)	-1,073	-476	-567	-567	-596	-582
VI. End-of-year supply level						

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

MOH

Product: Progestin only minipill

Date: 11/1/84

Data for beginning-of-year stock: Stock Records

	<u>1985</u> (000)	<u>1986</u> (000)	<u>1987</u> (000)	<u>1988</u> (000)	<u>1989</u> (000)	<u>1990</u> (000)
I. Beginning-of-year stock (+)	0	476	461	500	525	552
II. New supply of same product						
a. received in 1984 to date	0					
b. scheduled for shipment but not received	0	0				
c. other sources of supply (-)	0	0	0	0	0	0
III. Estimated product use (-)	200	317	317	333	350	368
IV. Desired end-of-year stock level (equal to 150% use in subse- quent year) (=)	476	461	500	525	552	552
V. Net supply situation (- additional supplies needed) (+ no AID requirement, calc. #VI)	-676	-302	-356	-358	-377	-368
VI. End-of-year supply level						

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

MOH

Product: Vaginal Foaming Tablets (Conceptrol)

Date: 11/1/84

Data for beginning-of-year stock: Analysis of Quarterly Reports

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
	(000)	(000)	(000)	(000)	(000)	(000)	(000)
I. Beginning-of-year stock	46	4,208	7,793	8,937	9,384	9,854	10,346
+							
II. New supply of same product							
a. received in 1984 to date	0						
b. scheduled for shipment but not received	1,042	0					
c. other sources of supply (-)	0	0	0	0	0	0	0
III. Estimated product use (-)	230	2,805	5,195	5,958	6,256	6,569	6,897
IV. Desired end-of-year stock level (equal to 150% use in subsequent year)	4,208	7,793	8,937	9,384	9,854	10,346	
10,346							
(=)							
V. Net supply situation (- addi- tional supplies needed from AID; + no AID supplies needed)	-3,350	-6,390	-6,339	-6,405	-6,726	-7,061	-6,897
VI. End-of-year supply level							

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

MOH

Product: Condom (Plain)

Date: 11/1/84

Data for beginning-of-year stock: Stock Record

	<u>1984</u> (000)	<u>1985</u> (000)	<u>1986</u> (000)	<u>1987</u> (000)	<u>1988</u> (000)	<u>1989</u> (000)	<u>1990</u> (000)
I. Beginning-of-year stock	1,360	1,062	1,259	1,322	1,388	1,457	1,530
+							
II. New supply of same product							
a. received in 1984 to date	0						
b. scheduled for shipment but not received	0	0					
c. other sources of supply (-)	0	0	0	0	0	0	0
III. Estimated product use (-)	298	498	839	881	925	971	1,020
IV. Desired end-of-year stock level (equal to 150% use in subsequent year) (=)	747	1,259	1,322	1,388	1,457	1,530	1,530
V. Net supply situation AID supplies needed + no AID supplies needed)	+315	-695	-902	-947	-994	-1,044	-1,020
VI. End-of-year supply level	1,062						

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

MOH

Product: Condom (Tahiti)

Date: 11/1/84

Data for beginning-of-year stock: Stock Records

	<u>1984</u> (000)	<u>1985</u> (000)	<u>1986</u> (000)	<u>1987</u> (000)	<u>1988</u> (000)	<u>1989</u> (000)	<u>1990</u> (000)
I. Beginning-of-year stock	3,278	836	632	540	567	596	626
+							
II. New supply of same product							
a. received in 1984 to date	0						
b. scheduled for shipment but not received	0	0					
c. other sources of supply (-)	0	0	0	0	0	0	0
III. Estimated product use (-)	2,442*	204	343	360	378	397	417
IV. Desired end-of-year stock level (equal to 150% use in subsequent year) (=)	306	515	540	567	596	626	626
V. Net supply situation AID supplies needed + no AID supplies needed)	+530	+117	-251	-387	-407	-427	-417
VI. End-of-year supply level	836	632					

*This is due to large shipments made to CCG, YMCA, and Apple in addition to MOH use of 120,000 colored condoms.

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

MOH

Product: Copper T

Date: 11/1/84

Data for beginning-of-year stock: Stock Records

	<u>1984</u> (units)	<u>1985</u> (units)	<u>1986</u> (units)	<u>1987</u> (units)	<u>1988</u> (units)	<u>1989</u> (units)	<u>1990</u> (units)
I. Beginning-of-year stock	0	5,250	11,820	15,570	17,130	18,840	20,730
+							
II. New supply of same product							
a. received in 1984 to date	0						
b. scheduled for shipment but not received	0	0					
c. other sources of supply (-)	6,710*	0	0	0			
III. Estimated product use (-)	1,460**	3,500	7,880	10,380	11,420	12,560	13,820
IV. Desired end-of-year stock level (equal to 150% use in subsequent year) (=)	5,250	11,820	15,570	17,130	18,840	20,730	20,730
V. Net supply situation AID supplies needed + no AID supplies needed)	0	-10,070	-11,630	-11,940	-13,130	-14,450	-13,820

*To be requested of centrally-funded source.

**No Copper T's in supply line. All Lippes have expired 2-4 years ago; have created problems during insertion and should be destroyed. Due to sanitary conditions, Copper T's are recommended by MOH as sole IUD.

APPENDIX 4

(Ghana Trip Report dated April 1, 1985)

CONTRACEPTIVE PROCUREMENT TABLES-CSM

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

CSM Program

Product: Lo Femenal

Date: 1/9/85

Data for beginning-of-year stock: N/A

	<u>1985</u> (000)	<u>1986</u> (000)	<u>1987</u> (000)	<u>1988</u> (000)	<u>1989</u> (000)	<u>1990</u> (000)
I. Beginning-of-year stock +	0	2,037	2,568	3,081	3,543	3,897
II. New supply of same product						
a. received in 1985 to date	0					
b. scheduled for shipment but not received	0	0				
c. other sources of supply (-)	0	0	0	0	0	0
III. Estimated product use (-)	417	1,358	1,712	2,054	2,362	2,598
IV. Desired end-of-year stock level (equal to 150% use in subsequent year) (=)	2,037	2,568	3,081	3,543	3,897	3,897
V. Net supply situation - = additional AID supplies needed + = no AID requirement, calculate VI)	-2,454	-1,889	-2,225	-2,516	-2,716	-2,598
VI. End-of-year supply level						

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

CSM Program

Product: Condom (Tahiti)

Date: 1/9/85

Data for beginning-of-year stock: N/A

	<u>1985</u> (000)	<u>1986</u> (000)	<u>1987</u> (000)	<u>1988</u> (000)	<u>1989</u> (000)	<u>1990</u> (000)
I. Beginning-of-year stock +	0	1,941	3,059	3,671	4,221	4,644
II. New supply of same product						
a. received in 1985 to date	0					
b. scheduled for shipment but not received	0	0				
c. other sources of supply (-)	0	0	0	0	0	0
III. Estimated product use (-)	311	1,294	2,039	2,447	2,814	3,096
IV. Desired end-of-year stock level (equal to 150% use in subsequent year) (=)	1,941	3,059	3,671	4,221	4,644	4,644
V. Net supply situation - = additional AID supplies needed + = no AID requirement, calculate VI)	-2,252	-2,412	-2,651	-2,997	-3,237	-3,096
VI. End-of-year supply level						

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

CSM Program

Product: Condom (Plain)

Date: 1/9/85

Data for beginning-of-year stock: N/A

	<u>1985</u> (000)	<u>1986</u> (000)	<u>1987</u> (000)	<u>1988</u> (000)	<u>1989</u> (000)	<u>1990</u> (000)
I. Beginning-of-year stock +	0	4,080	4,941	5,930	6,819	7,500
II. New supply of same product						
a. received in 1985 to date	0					
b. scheduled for shipment but not received	0	0				
c. other sources of supply (-)	0	0	0	0	0	0
III. Estimated product use (-)	957	2,720	3,294	3,953	4,546	5,000
IV. Desired end-of-year stock level (equal to 150% use in subsequent year) (=)	4,080	4,941	5,930	6,819	7,500	7,500
V. Net supply situation - = additional AID supplies needed + = no AID requirement, calculate VI)	-5,037	-3,581	-4,283	-4,842	-5,227	-5,000
VI. End-of-year supply level						

CONTRACEPTIVE PROCUREMENT TABLES

Ghana

CSM Program

Product: Conceptrol

Date: 1/9/85

Data for beginning-of-year stock: N/A

	<u>1985</u> (000)	<u>1986</u> (000)	<u>1987</u> (000)	<u>1988</u> (000)	<u>1989</u> (000)	<u>1990</u> (000)
I. Beginning-of-year stock	0	1,941	3,059	3,671	4,221	4,644
II. New supply of same product						
a. received in 1985 to date	0					
b. scheduled for shipment but not received	0	0				
c. other sources of supply (-)	0	0	0	0	0	0
.III. Estimated product use (-)	3,135	8,875	10,674	12,809	14,730	16,203
IV. Desired end-of-year stock level (equal to 150% use in subsequent year) (=)	13,313	16,011	19,214	26,514	24,305	24,305
V. Net supply situation - = additional AID supplies needed + = no AID requirement, calculate VI)	-16,448	-11,573	-13,877	-20,109	-12,521	-16,203
VI. End-of-year supply level						