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Tulane University

School of Public Health and Tropical Medicine

FINAL REPORT

ZAIRE FAMILY PLANNING OPERATIONS RESEARCH PROJECT

Cooperative Agreement DPE-3030-A-00-4051—00

Tulane University
School of Public Health and Tropical Medicine
New Orleans, LA 70112

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DEDICATION

This report is dedicated to the memory of Ms. Matondo Mansilu, one of the pioneers of the family planning movement in Zaire. From 1981 to 1989, Matondo served at the Deputy Director of the Matadi/Nsona Mpangu operations research project. She was highly instrumental in all aspects of planning, recruitment, training, service delivery and research. Due in part to her untiring efforts, Matadi evolved into the "showcase project" for community-based distribution in Zaire.

Matondo Mansilu was a skilled manager, who motivated her team by setting the example. She was firm and clear-cut in her directives, yet expressed a genuine respect for her co-workers at all levels. She communicated to her team what was expected of them, while showing compassion for the hurdles they faced in their daily lives.

In a society where men have traditionally held all positions of authority, Matondo Mansilu set an excellent example for women in development. She exuded confidence in herself and in her team. When she visited the many corners of the crowded city of Matadi or the remote villages of Nsona Mpangu, her authority was unquestioned, yet her manner was non-threatening. She set an example for many others, in combining a rigorous work schedule with her responsibilities toward her four children.

On September 10, 1989, Matondo Mansilu passed away, the victim of a brain tumor. Her family and friends struggle to understand why this individual who had contributed so much and who had so much left to contribute met this untimely death. All will miss her, but none more than Maman, Pichou, Junior, Joe and Erica.

EXECUTIVE SUMMARY

The Zaire Family Planning Operations Research (FP/OR) Project had two main objectives:

- to increase the use of modern methods of contraception among women of reproductive age
- to strengthen the technical capacity of Zairian institutions in the fields of operations research, design and evaluation of family planning programs.

A total of ten subprojects were conducted from the period of October 1984 to December 1989 in geographically dispersed sites in Zaire. The two subcontractors for these projects were the national family planning project (Projet des Services des Naissances Désirables, PSND) and the Baptist Community of West Zaire (CBZO).

The four main topic areas for the projects were community-based distribution (CBD), voluntary surgical contraception (VSC), AIDS, and utilization of services/quality of care. The results on CBD have not been reported elsewhere and are given in detail in this report, whereas the findings on the other three topics have been published elsewhere and thus are presented in summary form.

Community-based Distribution. The CBD activities—known locally as "PRODEF"—included a total of six subprojects in eight health zones with 271 distributors by late 1988. The objectives of all the CBD subprojects were to increase contraceptive prevalence and to test the cultural acceptability of this approach; specific projects had additional objectives.

This experience has demonstrated that CBD is politically and culturally acceptable, based on data from these geographically dispersed and ethnically distinct populations. With regard to program output, the mean monthly CMP (roughly equivalent to number of active users in the program) ranged from 408 to 1313 for urban sites and from 204 to 924 for rural sites. The city of Matadi recorded the highest level of CMP: 1313 per month or approximately 40 users per distributor per month.

Data on the impact of the programs on contraceptive prevalence were available in three sites, the most impressive being Matadi. Under the original Tulane OR Project in Zaire (1980-85) prevalence increased from 4% in 1981 to 17% in 1983. As of 1989, it was at 23%, the highest level reported to date for any site in Kinshasa. Data from two rural sites (Nsona Mpangu and Sona Bata) failed to show increases in prevalence attributable to the project.

The cost per couple-year-protection (CYP) ranged from $7-8 in the Nsona Mpangu/Matadi projects, to $60-89 per CYP in the three other sites where cost analysis was performed: Kisangani, Mbuji Mayi, Sona Bata. While the latter is extremely high by international standards, it should be stressed that (a) cost per CYP tended to decrease over time and these were the three "youngest" sites, and (b) this cost should be evaluated in comparison to other sub-Saharan programs for birth spacing/limitation aimed primarily at married couples.

Regarding the characteristics of successful distributors (measured in terms of mean monthly CMP), the single strongest predictor was place of residence, i.e. project site. Being young was negatively associated with performance. However, other personal characteristics, such as sex, religion, education and marital status, were not related

to distributor performance, suggesting that in future programs such socio-demographic characteristics need not be used as selection criteria.

Voluntary Surgical Contraception(VSC). A series of three studies was conducted as a complement to a service delivery program carried out by PSND with assistance from the Association for Voluntary Surgical Contraception (AVSC). This research included (1) 29 focus groups among acceptors of tubal ligation (TL), users of reversible methods and husbands of users, (2) a quantitative follow-up of 453 acceptors of tubal ligation, and (3) a survey of attitudes among 120 doctors, nurses and other health personnel regarding VSC. The three studies provided a comprehensive and consistent view of TL as an operation which was culturally acceptable for health but not economic reasons. Women felt pressured by their husbands (and the husband's family) to continue producing children, and many saw marital dissolution as the probable consequence of the woman's inability to continue child-bearing. Acceptors (who had an average of 7 living children) were favorable toward the operation, but were reticent to reveal to others that they were sterilized. Seventy-seven percent of service providers approved of TL for contraceptive purposes, but 61% believed that a woman who had the operation would be less accepted in her community.

AIDS. As a result of the research capability developed under the OR Project, the PSND was able to contribute to the National AIDS Prevention Program by providing AIDS KAP data from a probabilistic sample of over 6500 men and women in Kinshasa. This 1988 survey indicated that 20-40% of the adult population still believed in a vaccine or cure for AIDS. Condoms were not viewed as central to prevention; less than 20% of men had ever used them and less than 2% of married respondents reported using them regularly within marriage. The FP/OR project provide technical assistance (though no funds for research costs) for a second survey conducted in 10 geographically dispersed sites in Zaire, with a specific focus on sexual behavior and condom use. The results of these studies served to evaluate the reach and impact of AIDS mass media efforts in Zaire, and they were useful in the design of subsequent prevention activities.

In addition to the AIDS research, one subproject tested the feasibility of incorporating AIDS prevention into CBD efforts in two zones of Kinshasa. This effort, conducted in collaboration with the Central Coordinating Bureau (BCC) of the National AIDS Prevention Program, was the first community-level intervention program based on face-to-face interaction with the population in Kinshasa. However, it was not possible to conduct a follow-up survey to evaluate the impact of these activities. Moreover, monitoring of condom sales did not prove a useful means of assessing program effectiveness, since the data were seriously biased by stockouts of condoms at the central warehouse in Kinshasa at that time.

Utilization of Services/Quality of Care. Three subprojects were conducted on this topic. The first was a diagnosis of the reasons for the under-utilization of the Centre Libota Lilamu, a clinic located next to the administrative offices of the PSND in Kinshasa. Survey and focus group data indicated a lack of familiarity with this facility, which a subsequent intervention was designed to address. This consisted of systematically conducting small group meetings on a block-by-block basis in one of the zones neighboring the clinic (Kintambo). However, time series data failed to show any increase in clinic use which could be attributed to the program intervention.

The second project in the category focused on contraceptive continuation and reasons for discontinuation. Implemented by the

Kinshasa regional affiliate of the private family planning association (AZBEF) with technical assistance from Family Health International, this project provided useful data on client characteristics and reasons for discontinuation, the principal one being perceived side effects. However, due to staff turnover and other technical problems, it was not possible to establish discontinuation rates, as originally proposed.

The final subproject consisted of a series of activities designed to improve the quality of care in CBD programs. This included conducting workshops among project personnel, standardizing medical norms and program procedures, and developing a manual of guidelines for implementing CBD programs. In addition, a system for evaluating distributor performance — based on a knowledge test, observation of interactions with clients, and client survey — was developed and tested in the field.

The key accomplishments of this project can be summarized as follows:

1. Establishing community-based distribution as an alternative delivery systems for contraceptive distribution in Zaire, with a network of over 270 distributors in eight project sites.
2. Demonstrating the cultural and political acceptability of CBD in multiple, ethnically diverse sites.
3. Providing one of the first detailed analyses of the cost per couple-year-protection (CYP) for a family planning service in a sub-Saharan program.
4. Demonstrating from the Matadi project that contraceptive prevalence of modern methods can increase dramatically when contraceptives are made readily available through convenient channels at low cost.
5. Providing some of the first data available to date from sub-Saharan Africa on motivations for and barriers to voluntary surgical contraception.
6. Conducting an in-depth AIDS (KAP) study in the capital city of Kinshasa, the results of which have been used in developing subsequent IEC activities aimed at prevention.
7. Demonstrating the feasibility of combining AIDS prevention activities into an ongoing CBD program, the common link being the sale of condoms.
8. Establishing a research capability within the national family planning program in the form of the Operations Research Unit; training personnel in quantitative and qualitative research techniques, as well as microcomputer applications.
9. Disseminating these results within Zaire and to the larger international population community through four conferences and workshops, a 25 minute video on CBD in Zaire, three "how-to" manuals and nine research reports in French, eight articles in international population journals in English, and several unpublished papers.
10. Creating a strong sense of identification with the goals of applied research and an esprit de corps among the Zairians and Americans who collaborated on the OR projects.

FINAL REPORT

ZAIRE FAMILY PLANNING OPERATIONS RESEARCH PROJECT

Cooperative Agreement DPE-3030-A-00-4051—00

I. Objectives of the Project

The purpose of this project, as stated in the Cooperative Agreement between the United States Agency for International Development (USAID) and Tulane University, was two-fold:

- to increase the use of modern methods of contraception among women of reproductive age leading to a reduction in morbidity, mortality and fertility in Zaire
- to strengthen the technical capacity of Zairian institutions in the fields of operations research (OR), design and evaluation of family planning (FP) programs.

The project was to contribute towards these goals through:

(1) direct support of certain family planning service activities,

(2) applied research to improve delivery of family planning services, and

(3) transfer of microcomputer technology (hardware and software) to indigenous institutions.

Three broad categories of activities were foreseen at the onset of this project:

- continuation and expansion of OR activities in Bas Zaire
- assessment of different information-education-communication (IEC) and service strategies in urban areas
- other potential OR projects, as specific OR needs in Zaire were identified.

The activities actually carried out under the Tulane Family Planning Operations Research (FP/OR) Project in Zaire have adhered closely to the points outlined in the original agreement. Nine subprojects were developed and funded, with a tenth which did not receive specific funding but was financed out of the main contract funds and served to support a series of small but useful activities related to the main project objectives. A list of the ten subprojects is given in Table 1. Also, the map in Figure 1 shows the sites of these activities.

Women from one of the rural populations under study.

When the cooperative agreement was drawn up in 1984, AIDS had yet to emerge as a major public health problem in Zaire. However, because of the natural links between AIDS prevention and family planning, the Tulane project was called upon and with the approval of the USAID Cognitive Technical Officer (CTO) became involved in research related to AIDS prevention, thus broadening the scope of this agreement.

II. Organization of the Project in Zaire

A. Subcontractors

The project activities were carried out by two sub-contractors: (1) the Projet des Services des Naissances Désirables (PSND, the national family planning services project), which was a sub-division of the Ministry of Health, and (2) the Communauté Baptiste de Zaire Ouest (CBZO, the Baptist Mission of West Zaire). At the time the cooperative agreement was drawn up in 1984, the USAID Zaire Mission had indicated its interest in having the Tulane OR project work in conjunction with the newly-established PSND to strengthen its research/evaluation capability.

To this end, funds from the OR project were used to develop an Operations Research Unit within the PSND. This unit had its offices within the central administration building of the PSND. It served as the base of operation for the six subprojects carried out by the PSND (numbers 4-9 on Table 1). In addition, it also provided research support to the three CBZO

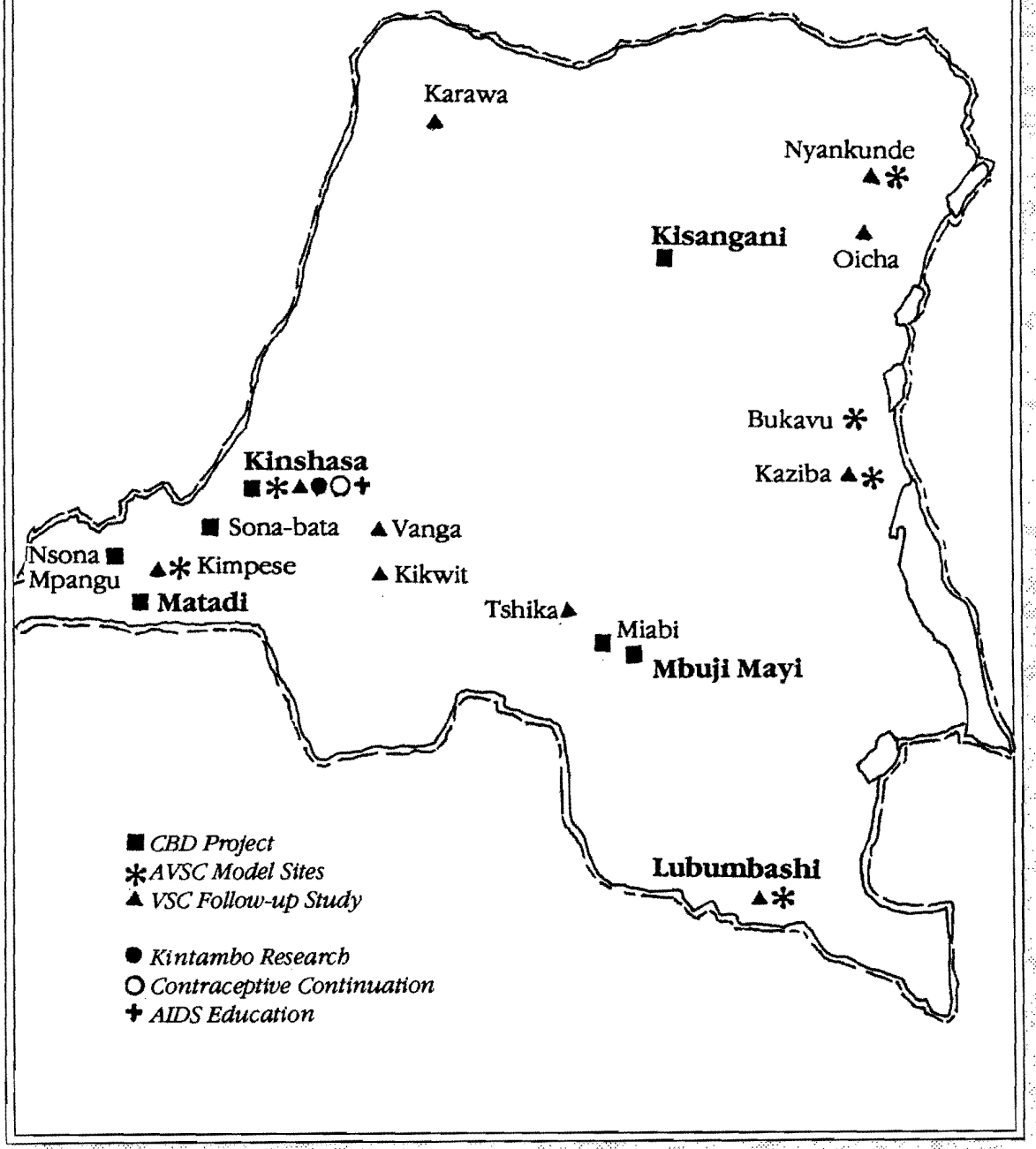
Table 1. List of Subprojects under the Tulane Family Planning Operations Research Project in Zaire, 1984-1990.

1. Nsona Mpangu, Bas Zaire: Long-term Evaluation of the Impact of the Community-based Distribution on Contraceptive Prevalence	10/1/84 -12/31/89
2. Expansion of the Matadi Project to Include CBD Workers and Continuation of Distribution through Dispensaries	1/1/85 -12/31/89
3. Sona Bata, Bas Zaire: A Test of Dispensary-based versus Community-based Distribution of FP Services	5/1/85 -12/31/89
4. PSND Kinshasa: Diagnostic Research on the Causes of the Sub-utilization of the Model FP Clinic and Efforts to Promote its Use (the "Kintambo Project")	6/1/85 - 6/30/88
5. Mbuji-Mayi: Community-based Distribution with Male Participation	9/1/86 -12/31/89
6. Kisangani: a Test of Two Strategies for FP Service Delivery	9/1/86 -12/31/89
7. Motivations for and Barriers to Voluntary Surgical Contraception For Women in Zaire	6/1/86 - 12/31/88
8. Incorporating Education/Prevention Activities for AIDS into a Contraceptive Community-Based Distribution Project in Kinshasa	3/1/87 - 9/30/89
9. Kinshasa: Study of Continuation of Contraceptive Use and Reasons for Abandoning Contraceptive Methods	1/1/87 - 12/31/88
10. Development of a Model for Evaluating the Quality of Care in CBD Programs in Zaire (1)	1/1/87 - 6/1/89

(1)This activity was not funded as a subcontract, but rather the costs were paid directly under the cooperative agreement.

Figure 1

Map of Zaire: O.R. Service/Research sites



Dr. Nlandu Mangani, Director of the first PRODEF project.

subprojects (numbers 1-3 in Table 1). As the research capability of the OR unit developed, it also became a resource for technical assistance to other population and health projects in Zaire.

The O.R. Unit of the PSND was divided into three sections: Community-based Distribution (CBD), Applied Research, and Computer Services. However, many of the activities involved more than one of these sections and thus the staff from these sections tended to collaborate on specific projects.

B. Training of Personnel

As part of the objective to transfer research skills and technologies to local counterparts, a strong emphasis was given to training in quantitative and qualitative research methods. The training took a very "hands-on" approach. In general, Tulane personnel were responsible for initially providing local counterparts with training on specific skills, though this was usually done in the context of a project activity, not as an separate exercise. Subsequently, the Zairian counterparts took the lead in training other Zairians involved in the OR activities in these skills. This model worked particularly well in four areas:

- training of interviewers in data collection and mapping techniques
- training of focus group moderators for leading group discussions and for preparing transcriptions
- training of community members to promote and educate their communities about family planning (and in some cases AIDS) in the context of the CBD program
- training in the use of the microcomputer for data entry, data processing and word processing.

One training strategy which proved highly effective at the start of this project was to provide the newly-hired O.R. staff with on-the-job training as part of an actual research activity of limited scope near their home base. Specifically, the first activity under the PSND subcontract in 1985 was to conduct a baseline survey of existing levels of knowledge and use of family planning in the zone of Kintambo, Kinshasa. While it served a specific purpose under subproject #4, it was also designed as a training exercise to familiarize the O.R. staff with all aspects of both focus group and survey research, and to give them a concrete work experience in the vicinity of their offices (the PSND is located in the zone of Kintambo) in preparation for more elaborate and logistically more complicated efforts in other parts of the country at a later date. This survey effectively brought the staff together as a team and provided them with a solid base for both quantitative and qualitative data collection.

In addition to training provided under the Tulane project, staff benefitted from courses given by other institutions to a larger audience. For example, four Zairians took a month long course in microcomputers at the Social Development Center in Chicago; two attended

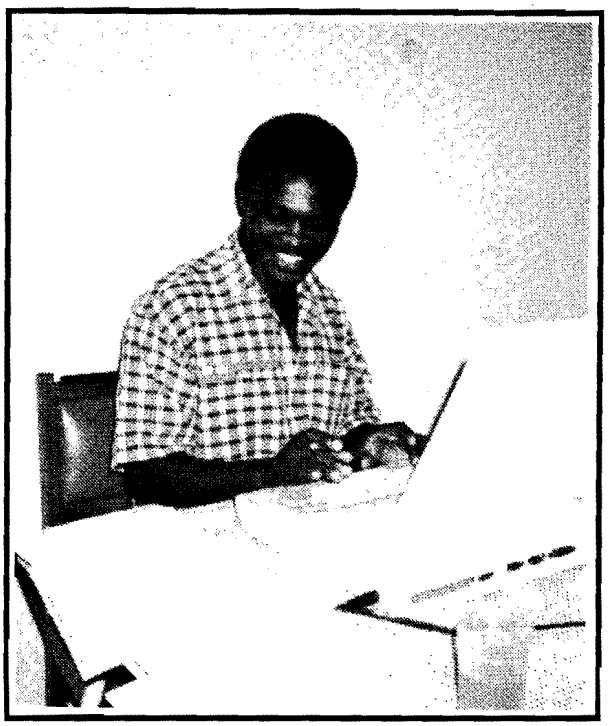
a two-month training on community development and information-education-communication (IEC), given by CAFS in Togo.

A list of the individuals who worked on the Zaire FP/OR Project is included in Appendix A.

2. Development of a Microcomputer Capability

In 1985 when the OR Unit was established, there was one individual who had some basic training in microcomputers, though no social science applications. By 1990, the OR Unit had six microcomputers which were constantly in use for data entry, editing, and processing using SPSS, dBASE III PLUS, and International Questionnaire (IQ); budget preparation on Lotus; design of graphics on Lotus and Harvard Graphics; word processing on Wordstar and WordPerfect; and others. At the close of the project, nine of 10 O.R. staff members were "computer-literate" on one or more of these programs; the six microcomputers were insufficient to meet the constant demand for access to this technology.

In addition to developing a microcomputer capability in the O.R. Unit, the project also installed microcomputers and provided staff training in four field locations: Matadi, Sona Bata, Kisangani and Mbuji Mayi. (The individual from Matadi later joined the staff of the PSND/OR Unit.) This training was initially done by staff from Tulane, but by mid-project the head of the Computer Services for the PSND was fully competent to design and conduct training for fellow Zairians for the software programs most frequently used at the field level: IQ for entry of survey data, dBASE III PLUS for data entry on service statistics and program costs (used in the cost analyses presented herein), and WordPerfect for word processing. This individual also became a resource to others working with large data sets in Kinshasa, and he was frequently consulted by members of other institutions on data processing problems.



Balowa Djunghu, head of Computer Services at the PSND.

III. Overview of Four Main Areas of Research

The original cooperative agreement outlined three illustrative topic areas for the work to be conducted under this project, listed above. However, it was expected that the final choice of projects would be based on local needs and the opportunities that emerged during the first years of the project. In the end, the activities under the Tulane FP/OR project fell into four categories, listed in Table 2. In addition, several other research activities on these same topics were conducted with technical assistance from Tulane but with funding from other sources. These are also listed in Table 2.

Completed reports are available in three of the four areas: VSC, AIDS, and utilization of services/quality of care. This final report provides a summary of the main findings from each, with references to the more detailed reports for interested readers. By contrast, most of the findings regarding the CBD

projects have yet to be published elsewhere; they are given in detail below and are being prepared for publication at this time.

IV. Community-Based Distribution

CBD is now one of three widely used approaches to the delivery of FP services in developing countries, the other two being clinic-based and commercial distribution. This strategy—based on recruiting and training community members to promote and sell contraceptives in their neighborhoods—has been tested in numerous countries in Asia and Latin America. However, prior to 1980 it was virtually unknown in sub-Saharan Africa.

The original Tulane FP/OR project, which operated in one urban and one rural zone of Bas Zaire from 1981-85, was among the first to experiment with CBD in sub-Saharan Africa. It tested the impact and cultural acceptability of CBD using the household distribution approach in the urban area of Matadi; in the rural zone of Nsona Mpangu, both the household distribution and community-depot approaches were utilized. In addition, eight health centers in both the urban and rural areas were selected to participate in the

Table 2.
Subprojects Conducted under the Tulane FP/OR Project, by Topic Area

A. Community-based distribution:	
Subproject 1.	Nsona Mpangu (Bas Zaire) CBD
Subproject 2.	Matadi (Bas Zaire) CBD
Subproject 3.	Sona Bata (Bas Zaire) CBD
Subproject 5.	Mbuji Mayi (Kasai Oriental) CBD
Subproject 6.	Kisangani (Haut Zaire) CBD
Subproject 8.	AIDS prevention in the context of CBD (Kinshasa)
B. Voluntary surgical contraception (VSC):	
Subproject 7.	Focus groups on attitudes toward VSC;
	Follow-up study of acceptors of VSC
(AVSC-funded)	Attitudes toward VSC among service providers
C. AIDS: behavioral aspects and prevention:	
Subproject 8.	AIDS/KAP survey of Kinshasa (1988);
	AIDS prevention in the context of CBD
(UNICEF)	Study of AIDS, sexual behavior and condom use in 10 sites in Zaire
(W.H.O.)	AIDS/KAP survey in three sites of Bas Zaire (1988 - 89)
D. Utilization of services and quality of care:	
Subproject 4.	The Kintambo motivation project
Subproject 9.	Kinshasa: study of contraceptive continuation
Subproject 10.	Evaluating the quality of performance in CBD

project; nurses from these facilities were trained in FP service delivery and supplied with contraceptives.

The results from the earlier project were very promising. Contraceptive prevalence for modern methods increased from 4.4% (baseline level in 1981) to 17.5% in the urban area and to 12.0% in the rural zone by late 1983. Of particular interest, the areas which had received home visiting including household distribution had a slightly but not significantly higher level of prevalence than did those in which contraceptives were simply made available through existing health centers and posts. Moreover, the cost per couple-month-protection (CMP) was slightly higher for the intervention with household distribution. These results served as a basis for the second phase of community-based distribution activity, conducted under the current Zaire FP/OR project.

A. Overview of the CBD Activity

Under the current project, the two initial sites were retained, thus permitting an evaluation of the impact of these activities over a period of eight years. In addition, six other sites were added as opportunities for expansion developed. All eight sites are listed below, in chronological order of onset of actual service delivery.

All CBD projects had the objectives of (1) increasing knowledge and use of modern contraceptives, and (2) evaluating the acceptability of the CBD approach for the delivery of FP services. Five of the eight sites also had a cost analysis component. Additional objectives for specific sites included the following:

Nsona Mpangu and Matadi:

- to measure the long-term impact of the CBD program (which was initiated in 1981 - 82)
- to increase the percentage of children under five in the target population who received appropriate treatment for malaria, intestinal worms and dehydration due to diarrhea (rural area only)
- to strengthen the counterpart team in the implementation and evaluation of family planning programs, including data processing and analysis.

Sona Bata and Kisangani:

- to test the relative effectiveness of

Sites of the PRODEF CBD Projects

Site	Region	Location	Baseline/Services
Nsona Mpangu	Bas Zaire	Rural	1981/1981
Matadi	Bas Zaire	Urban	1981/1982
Sona Bata	Bas Zaire	Rural	1986/1986
Kisangani	Haut Zaire	Urban	1986/1987
Mbuji Mayi	Kasai Oriental	Urban	1986/1987
Zone of Makala	Kinshasa	Urban	1988/1988
Zone of Kikimi	Kinshasa	Urban	1988/1988
Miabi	Kasai Oriental	Rural	1986/1988

Dissu Makela (right) with a PRODEF distributor.

contraceptive delivery using the CBD approach versus a clinic-based approach (health centers/post).

Mbuji Mayi:

- to test the relative effectiveness of CBD distribution using female distributors only versus both male and female distributors.

Makala and Kikimi:

- to test of feasibility of incorporating AIDS prevention activities into CBD (described in detail in Section VI-B, below).

The projects at the different sites were designed to have certain common elements, and as the project evolved, an effort was made to further standardize the structure of CBD in Zaire. At the same time, the projects were located in geographically dispersed sites; each had its own director and operated with a certain degree of autonomy.

Elements which were common to the different CBD projects included the following:

- prior to the initiation of service activities, a baseline study was conducted to determine the existing level of contraceptive prevalence.
- individuals were recruited from the communities in which they were to work as distributors
- once recruited, these individuals underwent a short training course (1-2 weeks long) in contraceptive methods (correct use, side effects, contraindications, etc.), communication techniques, and procedures used in the program.
- distributors sold pills, condoms and vaginal foaming tablets; in addition, they sold other basic medications: chloroquine, aspirin, oral rehydration salts, and anti-parasitic drugs (except in the Matadi project, where they only sold contraceptives)
- distributors administered a checklist of possible contraindications to any woman interested in the pill before selling her this method
- distributors tended to sell the products from their own homes, but they were also encouraged to visit clients in their neighborhood to explain the benefits of family planning and to sell products to those interested
- the distributors did not receive a fixed salary but rather a percentage of their sales (generally 30%)
- distributors with assistance from their supervisors collected data on the quantity of each product sold, which were later translated to couple-years-protection (CYP) for monitoring purposes.

Elements which differed by project site included the following:

- all projects were conducted in health zones, which are designed to have approximately 100,000 inhabitants; in the urban sites the project tried to cover the total population of the zone, whereas in the rural sites only part of the zones were targeted (for logistic reasons)
- in the first three sites (Nsona Mpangu,

Matadi, Sona Bata) all distributors were women; in the other sites, both men and women were selected for this job

- in four of the sites (Nsona Mpangu, Matadi, Sona Bata, Miabi) contraceptives were distributed at health centers/posts as well as by CBD workers as part of the program activity; in Kisangani this was planned but it did not happen; and in Mbuji Mayi it was not planned but did evolve (see further explanation below)
- data on project costs were coded and processed to measure the cost per CYP over time in the different projects in all sites except Makala and Kikimi (zones in Kinshasa) and in Miabi (the rural component of the Mbuji Mayi project); these three zones became operational too late for this analysis to be done in a meaningful fashion.
- follow-up studies to measure change in contraceptive prevalence were conducted under this project in Nsona Mpangu, Matadi, and Sona Bata; and under a different funding mechanism in Mbuji Mayi (urban only). It was decided in conjunction with the USAID CTO not to conduct follow-up studies in the remaining sites of Makala, Kikimi (the two zones in Kinshasa), Miabi, and Kisangani, because the project had not been in operation a sufficient time to permit any demonstration of impact.

By 1989 CBD was operational in eight health zones, with a total of 271 active distributors. PRODEF (for "Programme d'Education Familiale"), the name given to the original project, was adopted by the remaining sites (even though these projects were supported by two separate institutions, the PSND and CBZO), and "PRODEF" became synonymous with community-based distribution in Zaire.

Guidelines for CBD project implementation were drawn up in an illustrated document which has served as a basic reference for this activity. Entitled "Guide pour la Réalisation du Programme de Distribution Communautaire des Contraceptifs au Zaire", this booklet

A PRODEF distributor explains the use of oral contraceptives.

outlines procedures for recruiting and training distributors; medical standards to be respected; guidelines for implementing the program at the field level; supervisory strategies; and evaluation techniques.

As one of the first CBD efforts in francophone sub-Saharan Africa, the PRODEF project was designed to yield data on a number of key aspects: the cultural and political acceptability of this approach in diverse geographical areas of the country, levels of program output over time, the costs per CYP by site, impact of the program on contraceptive prevalence and factors associated with successful performance by the distributors in the program. The main findings can be summarized as follows.

B. Cultural and Political Acceptability

The experience to date in eight health zones in Zaire demonstrates the cultural and political acceptability of the CBD approach. While this

conclusion is based on subjective impressions, a number merit discussion.

Several factors contributed to this success. First, in five of the eight zones, the head of the PRODEF activity was the chief medical officer of the zone. Because this individual was responsible for defining and overseeing the health delivery activities, his participation gave immediate legitimization to the program. Conversely, in one case where a new chief medical officer was opposed, this had a very negative impact on the program.

Second, family planning is officially recognized as one of the components of primary health care in Zaire, according to official government policy. Thus, PRODEF was an activity which conformed to established national policy.

Third, at the local level, efforts were made to involve the community in the selection of the distributors. In this way, community members were informed of the existence of this activity and allowed to participate in the decision-making process.

Fourth, in all sites except Matadi, the distributors sold four basic medications in addition to contraceptives, as mentioned above. Especially in rural areas community members appreciated this improved access to products which were essential to their children's and their own health. There was no test per se of the contraceptives-only versus contraceptives-plus-drugs approach. (This was proposed as a possible research project, but the director of the PSND felt it was inappropriate in light of the national policy which called for integrating family planning into other health services.)

(Of note, the most successful CBD project — that of Matadi — sold contraceptives only, based on a decision made during the original Bas Zaire project. Thus, while the "integrated approach" is believed to have enhanced the acceptability of the program at the community level, it can not be considered essential, at least in the urban context.)

While the CBD approach was demonstrated to be politically acceptable in multiple sites, there were "political problems" in two cases, one of which was not possible to rectify in the time frame of the project. These problems,

Tomorrow's parents

which occurred in Kisangani and Nsona Mpangu, are described in the 48, 54, and 60 month progress reports. It should be noted that in both cases, the opposition to program activities could be characterized as a battle over turf rather than opposition to the CBD approach per se.

However, these two problems did have important repercussions for program activities. In the case of Kisangani, the medical officer in whose zone the clinic-based approach was to be tested resigned from the project, and the intervention intended for his zone could not be implemented, thus rendering it impossible to carry out the quasi-experimental design targeted for Kisangani. The proposed alternative was to test the impact of CBD by comparing prevalence in the CBD zone to that of the comparison zone. However, due to a suspension of program activities in 1987, CBD services did not start up again until the second quarter of 1988. Had the follow-up study been conducted as proposed, the data collection would have had to take place by late 1988 to ensure the completion of data analysis before the end of the project. This would have meant evaluating the impact of an activity which had been in the field less than 12 months. By joint agreement between the USAID CTO and Tulane, it was decided that project funds would be better spent elsewhere and the follow-up study was not conducted. Rather, the project has been monitored in terms of couple-years-protection and cost per CYP.

The second problem involved Nsona Mpangu, a rural site which had shown very promising results in the original Bas Zaire project. Similar levels of output were observed under the current agreement, through 1987. However, in mid-1987, the director of the project (Dr. Nlandu Mangani) was recruited by the PSND work at the national level. Direction for the PRODEF activities was given to the Deputy Director (Ms. Matondo Mansilu), who had worked very effectively with the project since 1981. Subsequently, the headquarters for the joint Nsona Mpangu/Matadi project were moved from Nsona Mpangu to Matadi.

Chirwisa Chirhamolekwa, Director of PSND, on a site visit to Kisangani.

The new chief medical officer of Nsona Mpangu was upset not to be given control of the PRODEF activities. Despite efforts by the PRODEF staff to establish an effective collaboration, this individual proceeded to undermine PRODEF activity throughout the zone. The effect of his actions is evident from the service statistics in the next section. While he was later removed from this post for reasons unrelated to PRODEF, it was not before he had caused significant damage to project activities. In this case, the follow-up study was conducted as scheduled, but the results only confirm the deleterious effect of his actions on the program. In contrast to Kisangani, where there was still time to reestablish the program, in Nsona Mpangu time ran out.

To summarize, the PRODEF activities in six of the eight zone where CBD was tested were

well received by both the local authorities and community members. In two of the eight, there were serious "political problems," but which resulted from a conflict over turf rather than opposition to the CBD approach per se.

C. Program Outputs by Site, 1984-1989

The measure of output used to monitor the CBD activity has been couple-years-protection (CYP). This is the indicator of choice, given that it can be calculated based on routinely collected data on the volume of each contraceptive sold. Moreover, the same indicator is used in monitoring the clinic-based and social marketing programs in Zaire, thus making the service statistics comparable.

Just as one year is equal to 12 months, so one couple-year-protection (CYP) is equal to 12 couple-months protection (CMP). For the purposes of monitoring PRODEF output by quarter, CMP rather than CYP has been used (although CYP can be calculated from any CMP figure given herein by dividing by 12). Had all sites operated for a full 12 months during a given calendar year, CYP would have been used instead.

One CMP is roughly equivalent to one active user in the program for that month; thus, 3 CMP is roughly equivalent to one active user over a full quarter. As such, if program X reports 3000 CMP per quarter, this is roughly equivalent to 1000 active users during that quarter.

In interpreting data on output, it is important to know the number of providers in the system. This information is shown in Table 3, which gives the number of "provider-months" per quarter per site. To take specific examples, there are 21 "provider-months" in the first quarter of 1984 corresponding to the health centers/posts in Nsona Mpangu. This represents seven facilities reporting over the three months of the quarter. By contrast, the 98 "provider-months" for distributors suggests approximately 33 distributors reporting for each of three months with one exception (33 x 3 = 99 - 1 = 98). These data indicate the points during the program at which there were major changes in personnel, such as the addition of new distributors to the system. This information is useful in interpreting the graphs in Figures 2-10.

Table 4 indicates the CMP output by project, by type of provider, and by quarter from 1984-1989. Since several of the projects included distribution not only by CBD distributors but also in health centers or posts, this distinction is made in Table 4. Columns containing "0" indicate that the program was not yet operational (or in the case of Kisangani in late 1987/early 1988, suspension of project activity).

The trends in project performance as measured by CMP are shown in a series of graphs (Figure 2-A to 9-A); the CMP per quarter for all eight sites combined is presented in Figure 10. Since the CMP per quarter is affected by the number of providers (service points) reporting which in some sites changes over time, the data on average output per service point are also given: for the specific sites (Figures 2-B to 9-B) and for all combined (Figure 11). It should be stressed that the scale (shown on the Y-axis) differs from one graph to the next, depending on the maximum levels of output for the site. From this series of graphs, the following can be observed.

PRODEF/Nsona Mpangu

The Nsona Mpangu project is the "oldest" CBD effort project in Zaire, having started in 1981. Under the current cooperative agreement, output increased from an initial level of under 550 CMP per month (equivalent to roughly 550 active users) to over 2000 CMP per month (in the third quarter of 1986). This peak in mid-1986 reflects both additional distributors being added to the system and a high level of CMP per distributor (about 45 active users per month). In all quarters there were more distributors (ranging in number from 33 to 44) than health centers/posts (of which there were

Table 3

Provider-Months
by Project, by Type of Provider, and by Quarter

Quarter	Nsona-Mpangu			Matadi			Sona-Bata			Mbuji-Mayi			Miabi			Kisangani	Makala	Kikimi	Grand Total
	HC/P	CBD.	Total	HC/P	CBD.	Total	HC/P	CBD.	Total	HC/P	CBD.	Total	HC/P	CBD.	Total				
84-1	21	98	119	23	0	23	0	0	0	0	0	0	0	0	0	0	0	0	142
84-2	21	101	122	24	0	24	0	0	0	0	0	0	0	0	0	0	0	0	146
84-3	21	99	120	24	0	24	0	0	0	0	0	0	0	0	0	0	0	0	144
84-4	33	110	143	23	0	23	0	0	0	0	0	0	0	0	0	0	0	0	166
85-1	39	117	156	21	0	21	0	0	0	0	0	0	0	0	0	0	0	0	177
85-2	39	117	156	21	0	21	0	0	0	0	0	0	0	0	0	0	0	0	177
85-3	39	117	156	18	0	18	0	0	0	0	0	0	0	0	0	0	0	0	174
85-4	37	115	152	19	0	19	0	0	0	0	0	0	0	0	0	0	0	0	171
86-1	41	129	170	16	0	16	0	0	0	0	0	0	0	0	0	0	0	0	186
86-2	42	133	175	19	0	19	0	57	57	0	0	0	0	0	0	0	0	0	251
86-3	37	124	161	18	0	18	0	77	77	0	0	0	0	0	0	0	0	0	256
86-4	33	124	157	24	71	95	11	81	92	0	0	0	0	0	0	0	0	0	344
87-1	30	121	151	27	76	103	29	87	116	0	0	0	0	0	0	0	0	0	370
87-2	29	120	149	27	77	104	33	85	118	0	0	0	0	0	0	39	0	0	410
87-3	27	121	148	27	75	102	38	82	120	0	0	0	0	0	0	65	0	0	435
87-4	27	113	140	27	76	103	63	52	115	0	37	37	0	0	0	0	0	0	395
88-1	24	109	133	27	77	104	27	90	117	0	57	57	0	0	0	0	0	0	411
88-2	20	99	119	29	96	125	30	82	112	0	74	74	0	0	0	37	0	0	467
88-3	18	96	114	27	100	127	31	79	110	3	110	113	0	0	0	93	48	0	605
88-4	13	94	107	27	99	126	27	102	129	10	116	126	18	71	89	110	67	35	789
89-1	12	93	105	27	84	111	28	66	94	8	104	112	22	72	94	118	83	97	814
89-2	12	84	96	27	83	110	4	5	9	4	93	97	25	65	90	103	51	85	641
89-3	12	86	98	27	81	108	0	0	0	6	86	94	31	57	88	81	10	70	547
89-4	12	63	75	20	73	93	0	0	0	4	43	47	12	52	64	77	0	46	402
Total	639	2583	3222	569	1068	1637	321	945	1266	35	720	755	108	317	425	723	259	333	8620

Notes: HC/P refers to Health Center/Post; CBD refers to CBD Distributor; One provider-month is one distributor or health center in operation for one month.

Table 4

Couple-Months-Protection
by Project, by Type of Provider, and by Quarter

Quarter	Nsona-Mpangu			Matadi			Sona-Bata			Mbuji-Mayi			Miabi			Kisan-gani	Makala	Kikimi	Grand Total
	HC/P	CBD.	Total	HC/P	CBD.	Total	HC/P	CBD.	Total	HC/P	CBD.	Total	HC/P	CBD.	Total				
84-1	321	986	1,306	3,424	0	3,424	0	0	0	0	0	0	0	0	0	0	0	0	4,730
84-2	634	1,335	1,969	3,243	0	3,243	0	0	0	0	0	0	0	0	0	0	0	0	5,212
84-3	889	1,508	2,397	2,832	0	2,832	0	0	0	0	0	0	0	0	0	0	0	0	5,229
84-4	1,090	2,219	3,310	2,187	0	2,187	0	0	0	0	0	0	0	0	0	0	0	0	5,497
85-1	1,382	2,192	3,574	2,709	0	2,709	0	0	0	0	0	0	0	0	0	0	0	0	6,283
85-2	1,607	2,907	4,514	3,147	0	3,147	0	0	0	0	0	0	0	0	0	0	0	0	7,661
85-3	1,945	4,418	6,363	3,402	0	3,402	0	0	0	0	0	0	0	0	0	0	0	0	9,765
85-4	1,678	3,747	5,425	4,060	0	4,060	0	0	0	0	0	0	0	0	0	0	0	0	9,485
86-1	781	1,248	2,029	3,417	0	3,417	0	0	0	0	0	0	0	0	0	0	0	0	5,446
86-2	1,447	2,495	3,942	2,633	0	2,633	0	705	705	0	0	0	0	0	0	0	0	0	7,280
86-3	1,093	5,610	6,703	3,967	0	3,967	0	797	797	0	0	0	0	0	0	0	0	0	11,467
86-4	879	4,224	5,103	1,641	5,728	7,369	163	798	961	0	0	0	0	0	0	0	0	0	13,433
87-1	1,218	2,626	3,844	1,734	3,775	5,509	168	497	665	0	0	0	0	0	0	0	0	0	10,018
87-2	1,037	2,382	3,419	1,997	3,106	5,103	85	414	499	0	0	0	0	0	0	1,947	0	0	10,968
87-3	1,457	3,173	4,630	1,177	1,963	3,140	92	716	807	0	0	0	0	0	0	2,320	0	0	10,897
87-4	402	524	926	786	1,605	2,392	315	373	688	0	669	669	0	0	0	0	0	0	4,675
88-1	617	766	1,383	813	2,443	3,256	166	686	852	0	594	594	0	0	0	0	0	0	6,085
88-2	272	508	780	923	2,894	3,817	174	442	615	0	1,274	1,274	0	0	0	1,100	0	0	7,586
88-3	180	553	734	1,610	3,801	5,411	126	445	571	395	1,806	2,201	0	0	0	1,008	1,683	0	11,608
88-4	166	962	1,128	1,289	3,654	4,943	86	1,157	1,243	608	1,441	2,049	147	1,093	1,239	1,472	1,449	3,758	17,281
89-1	101	535	636	1,039	2,803	3,842	161	236	396	229	1,388	1,618	100	447	548	1,518	1,574	2,893	13,025
89-2	109	544	653	1,180	3,411	4,591	12	28	41	418	1,000	1,418	190	283	473	672	1,324	1,307	10,479
89-3	109	666	776	1,030	4,480	5,511	0	0	0	972	915	1,886	207	286	493	296	2,101	2,887	13,950
89-4	180	819	999	1,356	3,286	4,642	0	0	0	795	486	1,281	61	245	306	679	0	347	8,254
Total	19,594	46,947	66,543	51,596	42,949	94,547	1,548	7,294	8,840	3,417	9,573	12,990	705	2,354	3,059	11,012	8,131	11,192	216,314

Notes: HC/P refers to Health Center/Post; CBD refers to CBD Distributor

Figure 2 A. Nsona Mpangu

A. Couple-Months-Protection

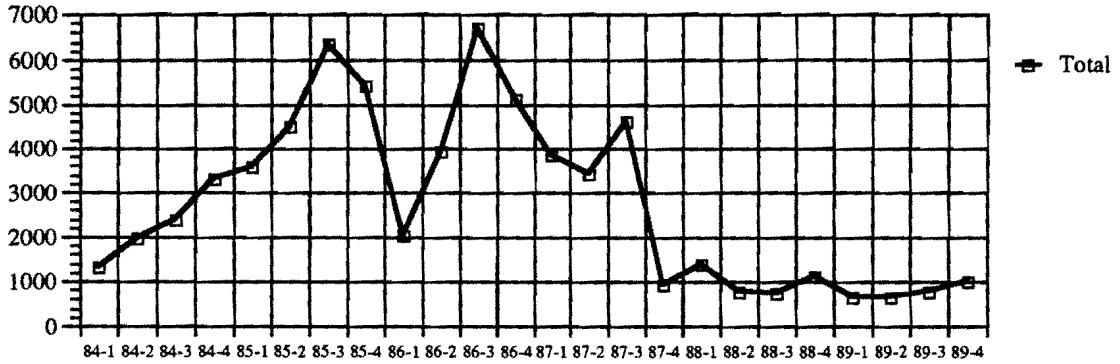
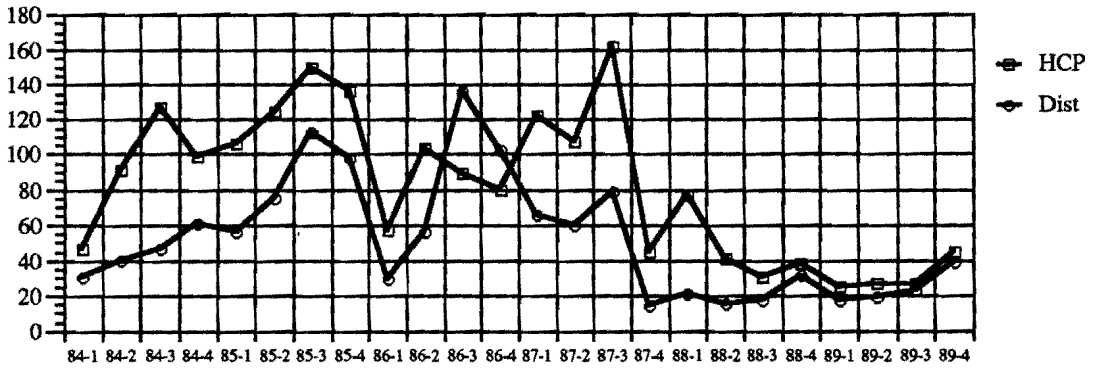


Figure 2 B. Nsona Mpangu

B. Mean CMP per Provider per Quarter



originally seven, with seven others added during the expansion of program activities). Thus, it is not surprising that the total CMP attributable to distributors (as a group) was higher than that attributable to health centers/ posts throughout the life of the project. However, as illustrated in Figure 2-B, the average output (CMP per quarter) per provider was higher for the health centers and posts than for the distributors.

Figure 2-A can not adequately communicate what was truly notable about the Nsona Mpangu project. That is, between 1984 and 1987, this was a very active family planning program being conducted in an isolated, rural area of Bas Zaire. When contraceptives were made available to the population at low cost, through a trusted and convenient mechanism, there was a demand for this service, even in this rural setting. The graph does communicate very effectively the impact of the problems surrounding the change in the chief medical officer (described above), which caused the levels of output on this project to plummet. It was not possible during the remainder of the project to rectify this situation.

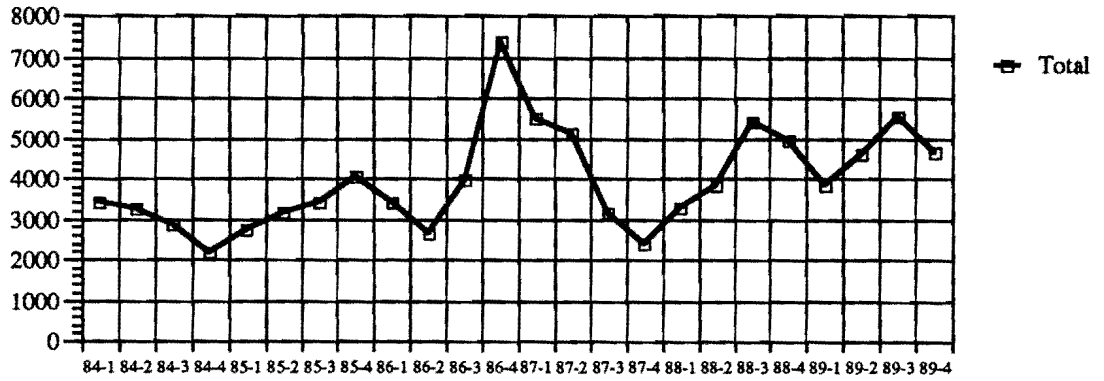
PRODEF/Matadi

Figure 3 shows the output for Matadi, which was the second "oldest" and by far the most successful of the CBD sites in terms of output and impact on prevalence (described below). As shown in Figure 3-A, the project averaged 3940 CMP per quarter or roughly 1300 active users per month over the life of the project. This was fairly consistent over time, with the exception of (1) a peak in 1986, resulting largely from the addition of new distributors to the program, and (2) a drop in CMP in the fourth quarter of 1987, reflecting stock-outs of the pill in the PSND warehouse in Kinshasa at that time.

The data from Matadi also illustrate the impact of establishing a CBD program where FP services have been previously available through health centers and posts. From 1984 to mid-1986 the PRODEF activity consisted in resupplying eight existing health centers and posts which had been incorporated into the overall program for service delivery in this city. (The data in Figure 3-B refer only to service points supplied by the PRODEF project,

Figure 3 A. Matadi

A. Couple-Months-Protection



although there were six other clinics in Matadi supplied directly by the national program). When the CBD distributors were trained and became operational in late 1986, overall CMP did increase: from an average of 1061 CMP per month before this to an average of 1526 CMP for the remainder of the project. However, the output attributable to the health centers and posts dropped dramatically: from a monthly average of 1061 to 425 CMP. This suggests that increasing the number of service points does result in greater contraceptive use. However, it may result in a lower average output per individual service point.

PRODEF/Sona Bata

Sona Bata is a rural community in Bas Zaire approximately 90 minutes from Kinshasa. Building on the earlier CBD projects, the Sona Bata program provided FP services through 32 distributors (in one treatment area) and 11 health centers and posts (in a second treatment area). Despite strong management (including regular supervision and refresher training) by the project staff, this site yielded lower results than expected, based on the Nsona Mpangu experience. This was especially true in that Sona Bata was less isolated and thus might be expected to be more open to change.

The data for Sona Bata (Figure 4) show a fairly steady, though low level of contraceptive sales from the start of the program in 1986 through 1989. As mentioned above, there were more distributors (32) than health centers/posts (11). Collectively, the distributors produced a higher level of CMP (an average of 187 per month) than did the health centers/posts (47 per month) over the life of the project. Moreover, as shown in Figure 4-B, the mean level of output per provider was higher for distributors than for the health centers/posts. Thus, while the overall level of contraceptive sales was low in the Sona Bata project, the distributors sold a higher volume of contraceptives than did the health centers.

Figure 4-A shows a sharp drop in 1989; this is believed to be due to missing data, not an actual decline in performance. This situation will be investigated before the final publication of these data in journal form.

Figure 3 B. Matadi

B. Mean CMP per Provider per Quarter

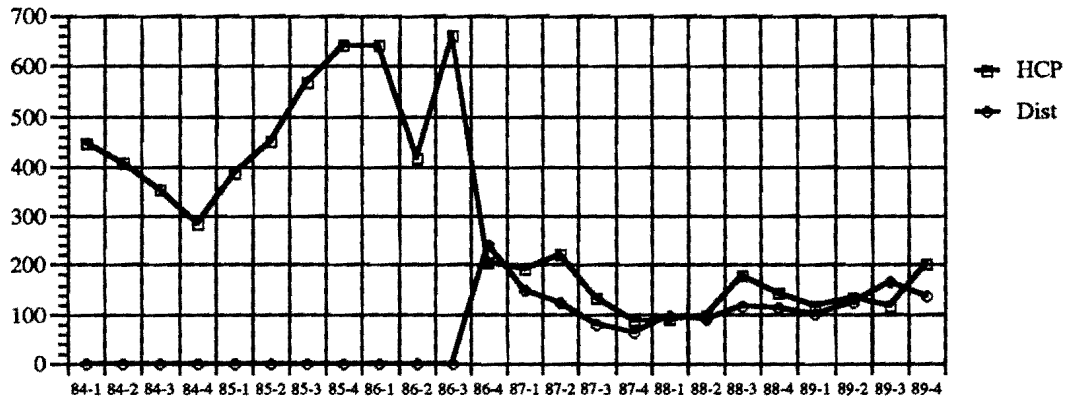


Figure 4 A. Sona - Bata

A. Couple-Months-Protection

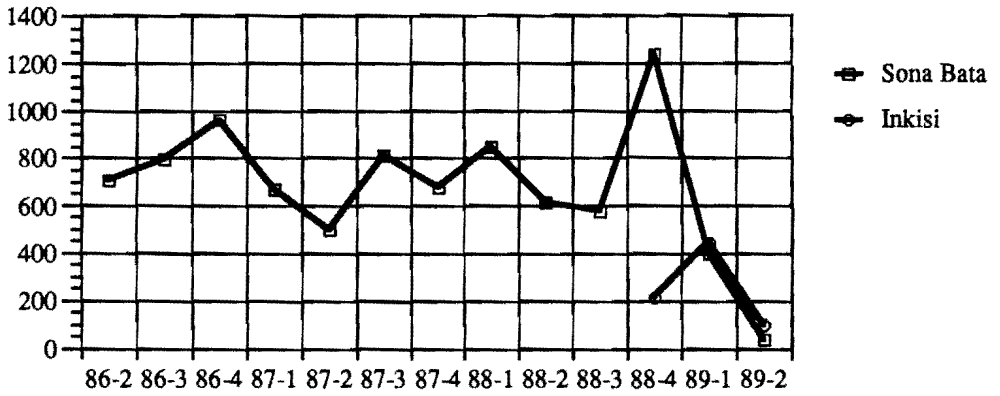
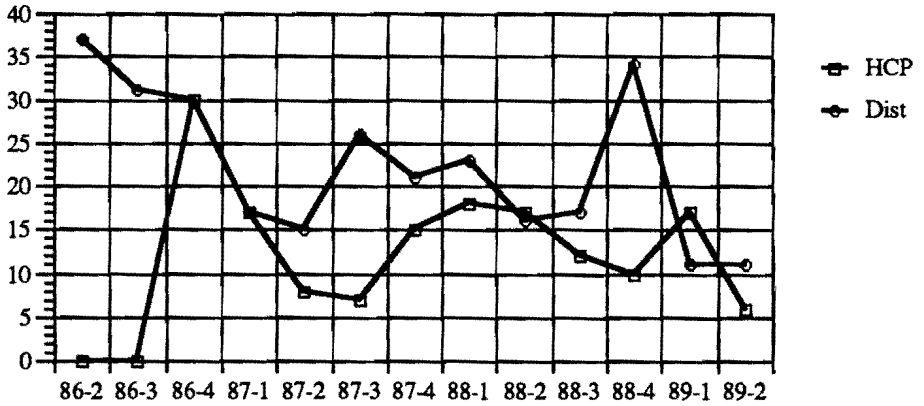


Figure 4 B. Sona - Bata

B. Mean CMP per Provider per Quarter



Toward the end of the project, the opportunity arose to establish a small group of distributors in the neighboring town of Inkisi. Although this population was not included in the survey research, the output from this effort is shown on Figure 4-A. In fact, these data suggest a much greater receptivity to family planning use in this semi-urban environment than in the rural villages of Sona Bata.

PRODEF/Mbuji Mayi

The three CBD projects just described were all carried out in the region of Bas Zaire. It was of great interest to determine whether the CBD approach would work in other areas of Zaire which differed substantially in ethnic composition, language and culture. One of the first sites for experimentation outside Bas Zaire was Mbuji Mayi, located in the region of Kasai Oriental where diamond mining is the main economic activity. Baseline data indicated this to be a highly traditional population.

The project had both an urban component (referred to herein simply as "Mbuji Mayi," although it was actually the zone of Dibindi in the city of Mbuji Mayi) and a rural component in the neighboring health zone of Miabi. However, due to a change in the chief medical officer of Miabi in late 1986 which resulted in disruption of all health activities in this zone, the CBD activity was not established there until late 1988.

The data for the urban component of the Mbuji Mayi project are shown in Figure 5. The original design called for the inclusion of distributors only (not health centers or posts), and to this end 20 were trained in 1987. (The implementing organization in Mbuji Mayi did offer FP services through the missionary clinic in the zone, which was used by the CBD program for referrals.) At the time of the second training session for 20 additional distributors in 1988, several nurses from other facilities within Mbuji Mayi requested and received the opportunity to be taken on as distributors in this program, bringing to a total of 43 the number of distributors trained. While these "special cases" operated outside the target zone for this project, their output is also included herein.

Figure 5 indicates a modest start, followed up a strong upward surge in output in the third quarter of activity (corresponding to the training of additional distributors), subsequently leveling off to about 1550 CMP per quarter or roughly 517 active users on a regular basis. While this figure is less than half of what was produced by Matadi, it should be stressed that prior to this program the prevalence for modern methods in Mbuji Mayi was only one percent, the lowest of any study conducted to date in Zaire. Thus, it is noteworthy that this program was able to attract this number of users.

During the first seven quarters of project activity, most of the CMP was generated by the distributors. However, in the final two quarters, the (few) special distributors who were operating out of health clinics elsewhere in the city had markedly increased sales. Of this special group, the highest CMP was obtained from a distributor who worked out of the MIBA company clinic. While the output of these few special distributors is dramatically illustrated in Figure 5-B, in fact the average CMP per distributor remained very stable over the life of the project (each distributor having an average of 10-15 regular users).

PRODEF/Miabi

In the rural zone of Miabi (outside Mbuji Mayi), 26 distributors and nurses from health centers were trained in FP service delivery. The distributor group had a relatively high level of sales during the first quarter of operation, followed by a sharp decline thereafter (Figure 6-A). Because this high start-up level was not maintained, this may reflect one-time sales to a source, possibly outside the area. Thus, the levels shown in the final four quarters probably are a more accurate indication of distributor performance in this area. By contrast, the health centers/posts had a

Figure 5 A. Mbuji - Mayi

A. Couple-Months-Protection

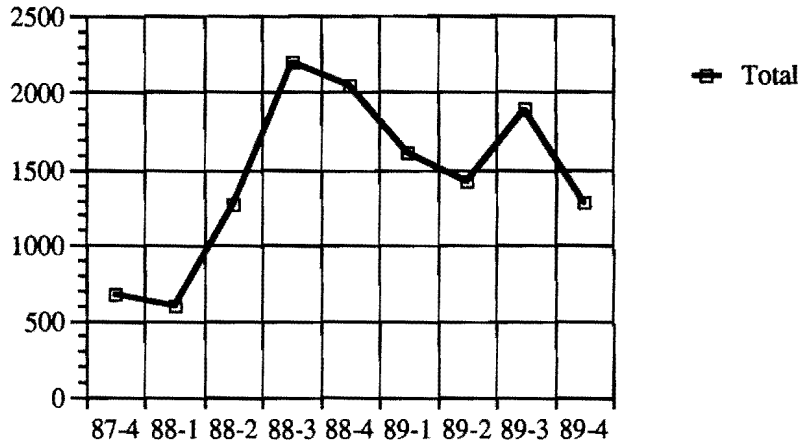


Figure 5 B. Mbuji - Mayi

B. Mean CMP per Provider per Quarter

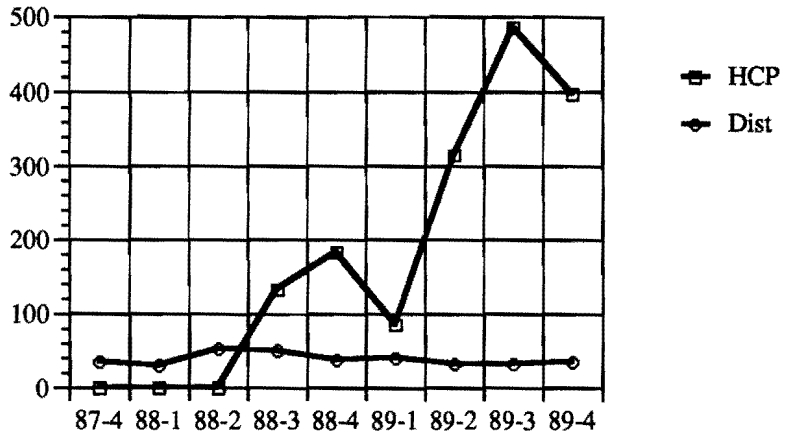


Figure 6 A. Miabi

A. Couple-Months-Protection

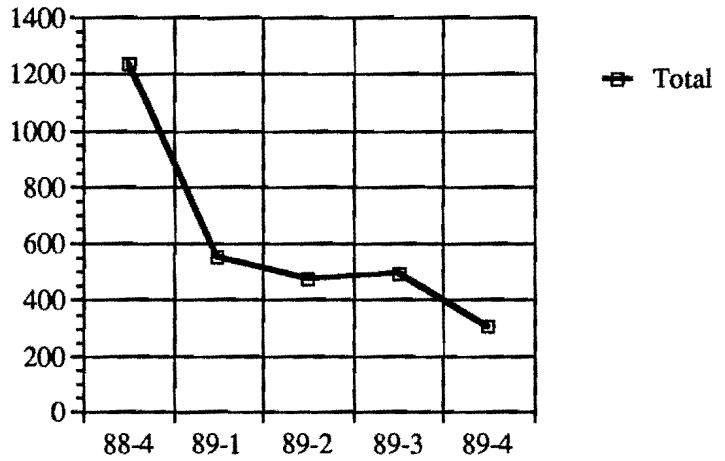
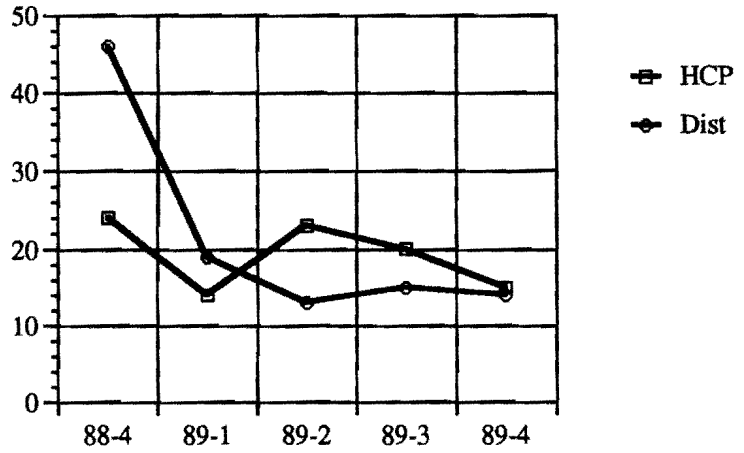


Figure 6 B. Miabi

B. Mean CMP per Provider per Quarter



relatively low, stable output over the five quarters of operation. In comparison to Mbuji Mayi which served the equivalent of over 500 active users monthly, the rural component served a monthly average of 150 during calendar year 1989. This is not surprising, given the lower population density and the relatively short time that the project had operated in the area.

PRODEF/Kisangani

Kisangani, located in the region of Haut Zaire, was selected as another of the sites for expansion of CBD activities. The data shown in Figure 7 reflect the two-stages of program activity, as well as the suspension of project activities during the period of change of leadership (represented by "0" output). On an average, the program produced a monthly CMP of 408 (roughly equivalent to 408 active users regularly using this service), a figure which is similar but slightly lower than for Mbuji Mayi.

Ironically, the distributors working in phase I, who were subject to criticism from the medical community for their "unacceptable socio-demographic profile" (either for being young, unmarried, or inadequately educated) in fact sold a higher volume of contraceptives (711 CMP per month collectively) than did the new set of distributors, selected to enhance the image of the program (who collectively averaged 321 CMP per month). As shown in Figure 7-B, this does not result from a larger number of distributors during phase one, but rather from a higher level of output on a per capita basis. However, it is also possible that one or more distributors in Phase I sold contraceptives to some source outside the zone, and that this activity was curtailed during the period of closer supervision in Phase II.

PRODEF/Kinshasa

After starting CBD activities in distant locations throughout Zaire, the opportunity arose to test the CBD approach in the capital city of Kinshasa. This project is described in more detail below, since the purpose was to assess

Several of the early reports published in French.

Figure 7 A. Kisangani

A. Couple-Months-Protection

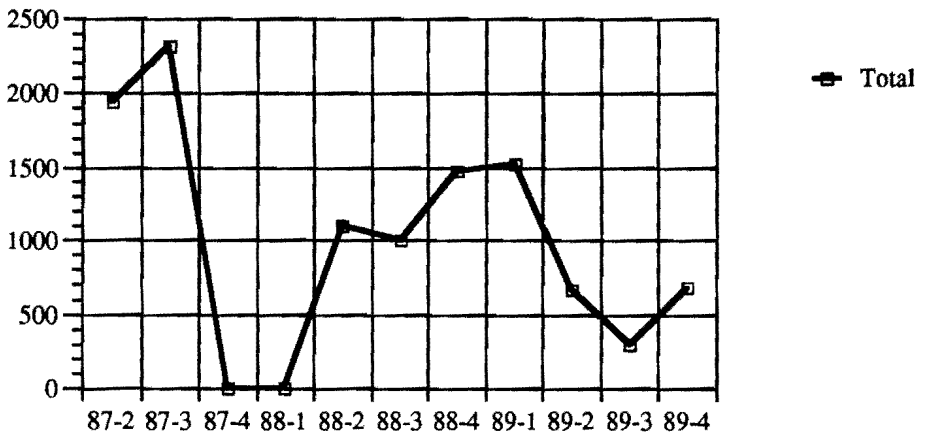


Figure 7 B. Kisangani

B. Mean CMP per Provider per Quarter

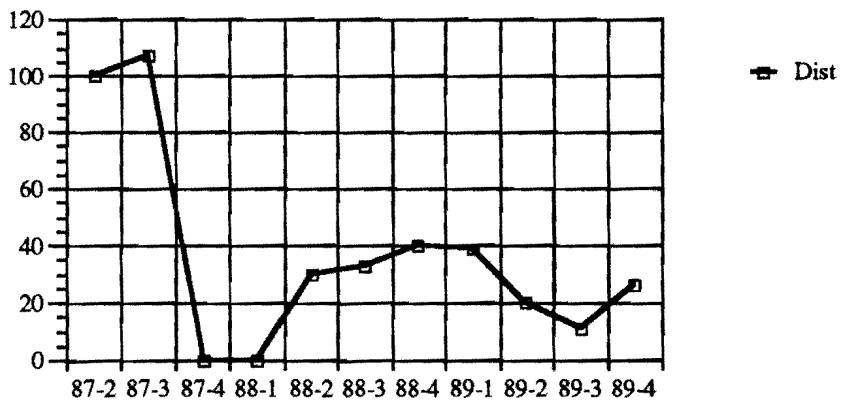


Figure 8 A. Makala

A. Couple-Months-Protection

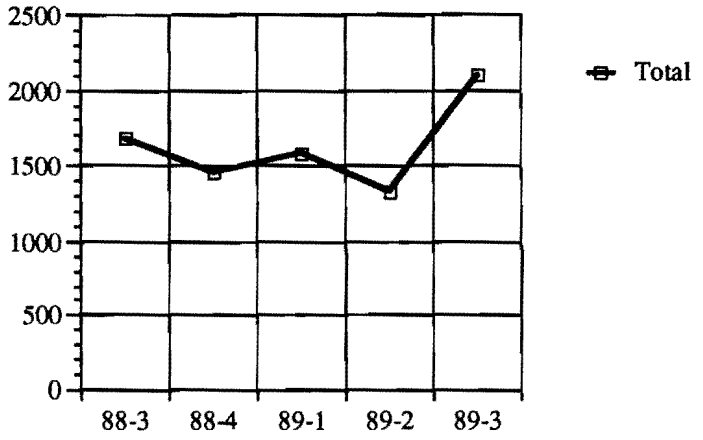


Figure 8 B. Makala

B. Mean CMP per Provider per Quarter

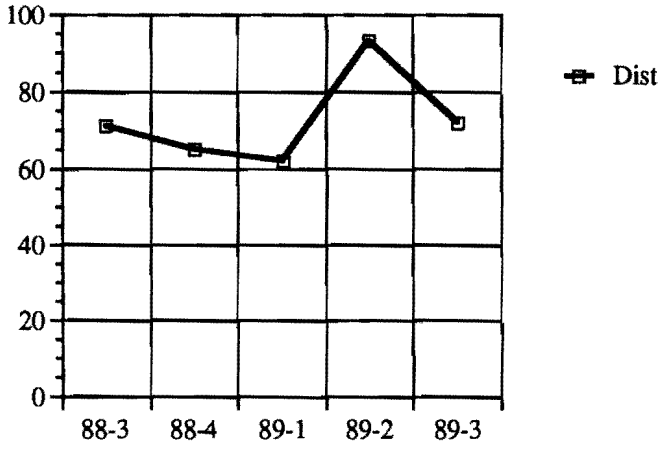


Figure 9 A. Kikimi

A. Couple-Months-Protection

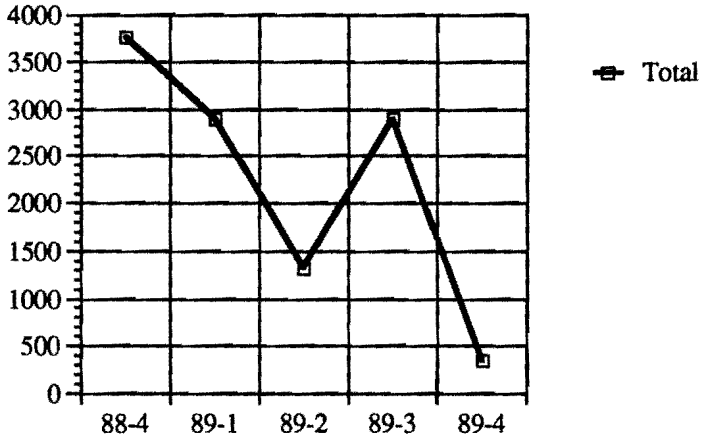
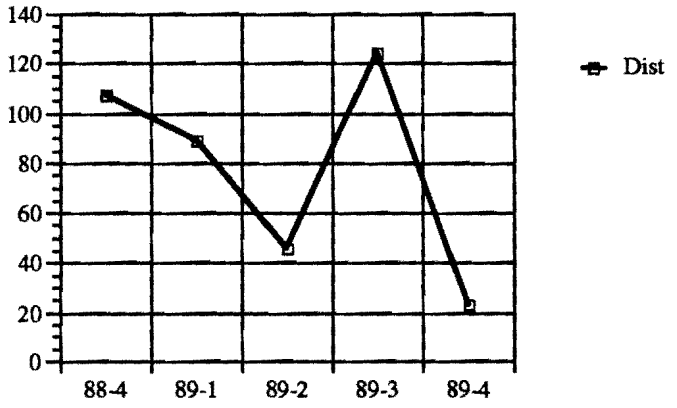


Figure 9 B. Kikimi

B. Mean CMP per Provider per Quarter



the feasibility of incorporating AIDS prevention activities into a CBD program. Programs in two zones—Makala and Kikimi—became operational in 1988 with a total of 24 and 38 distributors, respectively.

CMP data are presented in Figures 8 and 9 for the zones of Makala and Kikimi, respectively. Makala shows a fairly steady level of CMP for the five quarters for which data were available; the monthly average of 542 CMP for the program as a whole is similar to that of Mbuji Mayi. During this period the mean CMP on a per distributor basis varied between 20-30 CMP (or "users") a month.

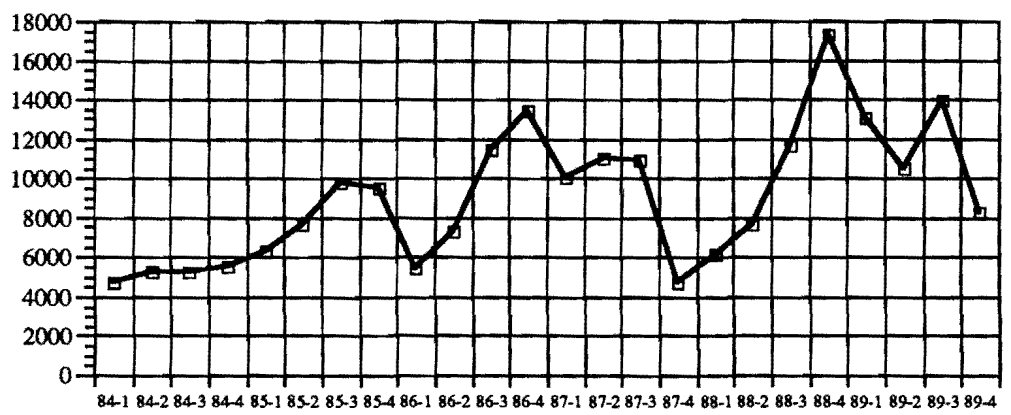
The pattern of sales was much different in Kikimi. First, the highest level of CMP was obtained in the first quarter of operation, followed by subsequent decreases, especially in the final quarter of 1989. (This final data point is being verified.) This pattern held both for the CMP for the program as a whole and on a per distributor basis. Second, the CMP produced by the program as a whole was higher in Kikimi (904 CMP per month, if one excludes the final data point, or 746 CMP including it) than in Makala. Given these relatively "fast starts" in Kinshasa, this suggests the desirability of concentrating further CBD expansion in the capital city, where in addition the costs of administration and supervision would be reduced.

PRODEF/All Sites Combined

The total CMP for all eight PRODEF sites combined is shown in Figure 10. There was a gradual increase in CMP over time, though not without fluctuations in the process. The decrease in CMP in late 1987 reflects two major events: (1) stock-outs in pill supplies at the central warehouse in Kinshasa, and (2) the disruption caused to the Nsona Mpangu project by the change in chief medical officer. The peak in the graph in late 1988 reflects the increased number of service providers in the program by that time. It is probable that the decreases during the final quarter of 1989 reflect limitations in available funds for program activity (such as supervision and inventory) as the Tulane project was drawing to its close and uncertainty over the future of

Figure 10. All Sites Combined

A. Couple-Months-Protection



the program.

Figure 11 reflects the per capita performance of distributors and of health centers/posts over the life of this project. It should be stressed that the 1984-85 data on this graph depict only Nsona Mpangu and Matadi; moreover, the distributor data for this period are based only on Nsona Mpangu. Thus, it is not surprising that the health centers and posts (half of which were located in the urban area of Matadi) did better on a per provider basis than did the individual distributors in the rural area of Nsona Mpangu. As of 1986 when distributors became operational in Matadi, the average CMP for health centers/posts decreased markedly, as noted above; in the post-1986 period the output per provider was only slightly higher for health centers/posts than for distributors. It should be stressed that this refers to health centers/posts participating in the PRODEF project; in these cities there was generally a larger hospital or clinic facility which would in fact have higher levels of CMP per provider than the service locations reported herein.

However, the most noteworthy aspect of Figure 11 is that level of output per distributor remained fairly constant over the program. We do not see the phenomenon whereby distributors in a program gradually build up a loyal clientele and thus produce higher levels of CMP. Rather, the increases in CMP result from adding more distributors to the system.

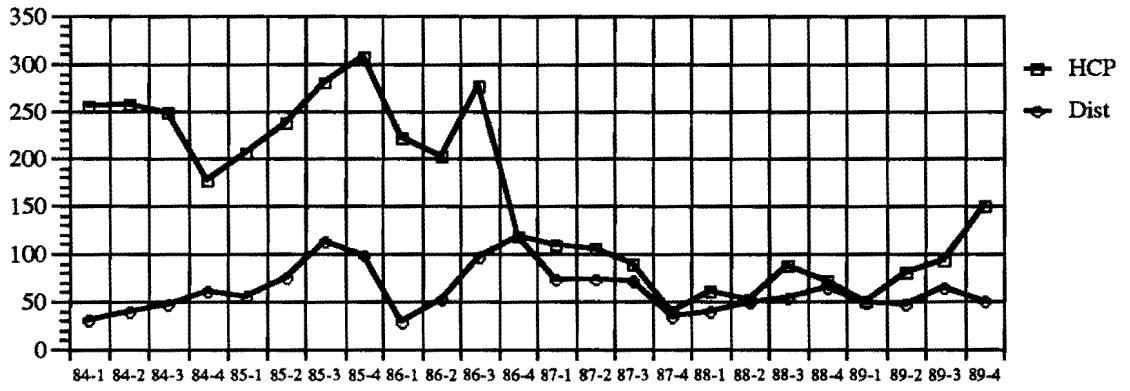
The final graph in this series on output (Figure 12) shows the relative performance of different sites, as measured by the mean monthly CMP for the project as a whole (based on the periods that each was operational). Where appropriate, this is further broken down by type of provider.

Matadi had by far the highest level of CMP (a monthly average of 1313, distributors and health centers combined)[1], followed by Nsona Mpangu (924 CMP), despite the dramatic

[1] The mean monthly CMP for the total program does not necessarily equal the sum of the mean monthly CMP for the two types of providers (health center/posts and distributors), since the distributors outnumbered the health centers/posts at each site which had both. The numbers presented here represent the total CMP for the project divided by the total number of months it was in operation.

Figure 11. All Sites Combined

B. Mean CMP per Provider per Quarter



decrease in activity in late 1987. These two sites are followed by the four remaining urban programs (Kikimi, 746; Makala, 542; Mbuji Mayi, 481; and Kisangani, 408). The sites with the lowest levels were Sona Bata (227) and Miabi (204). While this might be partially explained by lower population density and more traditional values in rural areas, the sustained success in Nsona Mpangu from 1981-1987 suggests that these factors may be counterbalanced by an active service delivery effort.

D. Cost Analysis

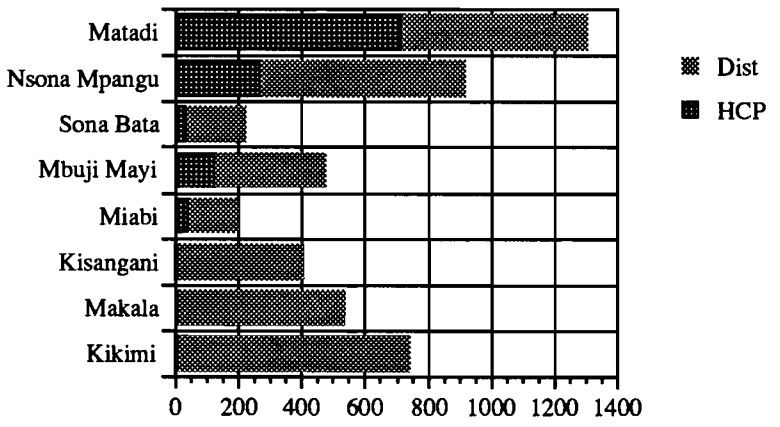
Cost analyses were conducted for five of the eight CBD sites: Nsona Mpangu, Matadi, Sona Bata, Mbuji Mayi, and Kisangani. They were not conducted in the other sites for two reasons. First, the Miabi, Kikimi and Makala programs only began service delivery in 1988, making for a very short period of analysis. Second, in the case of Makala and Kikimi, there was no separate bank account for these projects; moreover, a number of costs (supervision, training, transportation) were covered from the general operating expenses of the PSND/OR unit. Thus, many arbitrary allocations would have to have been made to arrive at estimates of the costs specifically attributable to these two CBD efforts.

The methodology for the estimation of costs is outlined in a manual developed under this project.[2] Briefly, each CBD project was required to submit a financial statement of its costs on a monthly basis to Tulane University for accounting purposes (under the cost-reimbursement subcontracts between Tulane and the projects). Although there were only two subcontractors on the Zaire FP/OR project, there were five separate financial units, each with its own bank account and the responsibility of preparing a monthly financial report. These were Nsona Mpangu/Matadi (a single unit), Sona Bata, Mbuji Mayi/Miabi (a single unit), Kisangani, and a general account at the PSND which handled the CBD activities of Makala and Kikimi, as well as all costs

[2] Mombela Kinuani, Mark McBride, Jane T. Bertrand, Nancy Baughman, "Manual for Analyzing the Costs of Community-based Distribution Programs in Zaire." December 1988.

Figure 12. CMP by Project Site

Mean Monthly CMP



related to subprojects #4, #7, #8 and #9 (listed in Table 1).

Based on these monthly financial reports, one staff member from each CBD project coded each expense for the month according to eight variables:

- date expense incurred
- date expense paid
- type of activity (service, research, administration, training, or other)
- type of expense (interviewer salary, office supplies, vehicle repair, etc.)
- exchange rate in effect that month
- identification number for the expense
- project site
- amount of expense in zaires (the local currency)

This same individual also entered the cost data for the cost analysis onto microcomputer at the field location (in addition to the data on the quantity of each contraceptive sold per month at that project site, used in the analysis of program output above). The cost data were sent to Kinshasa, where they were reviewed by one of the Zairians on the PSND staff for possible errors or omissions. Once corrected, these were forwarded to the project's cost analysis consultant.

The methodology for the cost analysis under this project was similar to that used in the earlier Bas Zaire project and described in its final report, with one exception. In the earlier project, the costs incurred in relation to technical assistance (the salary, per diem, travel expenses of the project director, the salary costs of the project back-stop at Tulane, operating expenses at Tulane, etc.) were also coded and analyzed. The final figures for cost

Table 5

In Zaire Costs by Project by Activity 1984 - 1988

	Bas Zaire - Two Sites							
Activity	Matadi	Nsona-Mpangu	M/NM: NT	Sona-Bata	Mbuji-Mayi	Kisangani	Total	%
Service	$6,880	$2,178	$12,158	$13,050	$5,631	$11,880	$51,778	13.5%
Administration	$12,222	$5,403	$36,574	$40,535	$11,850	$18,858	$125,442	32.7%
Training	$3,649	$1,689	$3,433	$3,541	$11,659	$13,765	$37,736	9.8%
Non-Traceable	$0	$0	$1,665	$0	$0	$0	$1,665	0.4%
Research	$3,664	$18,446	$34,683	$42,173	$39,294	$28,523	$166,783	43.5%
Total	$26,415	$27,716	$88,513	$99,299	$68,434	$73,026	$563,799	100%
%	6.9%	7.2%	23.1%	25.9%	17.9%	19.1%	100%	

Notes: All costs given in nominal dollars, translated from Zaires at the prevailing exchange rate for the month in which the cost was incurred; costs are through December 1988; "M/NM: NT" refers to Matadi or Nsona-Mpangu, non-traceable to the specific site.

per CMP were given both including and excluding the technical assistance which could be attributed to service delivery at the field level.

In the current report, all cost data refer to field costs incurred in Zaire. In comparison to the earlier projects when all technical assistance was given in support of project activities at just two sites, the technical assistance provided under the current cooperative agreement was channeled into a total of eight CBD sites, in addition to four subprojects on other subjects and three studies funded by other mechanisms. Thus any estimate of technical assistance for a specific CBD would have been based on a somewhat arbitrary allocation of costs.

For this reason, the cost analysis was limited to field costs only. Nonetheless, these estimates can be compared to those obtained from the earlier project, which also gave the "field cost" portion of the total cost per CYP for each site.

In-country Costs by Site

Table 5 indicates the total in-country costs for each project site from 1984 to 1988. (Complete cost data through December 1989 were not available for all projects, and thus this analysis covers the projects only through December 1988.) The information on total project costs given in this table differs from the financial data on the total amount of funds sent to the field, because of the constant devaluation of the zaire during this period.

As mentioned above, Nsona Mpangu and Matadi operated under a single budget and shared many costs, such as the salaries and fringe benefits of all personnel that worked in both the rural and urban zone, vehicle costs, equipment and supplies used in both zones, and so forth. This explains why a large portion of the Nsona Mpangu/Matadi expenses were classified as non-traceable between project sites.

Of interest to the present cost analysis were those items which were essential to the functioning of service delivery and which

The PRODEF/Matadi team set an example of dedication and enthusiasm.

would be necessary for a replication of the service component of the project in another site with similar characteristics. However, because these O. R. projects were designed to yield in-depth information on the projects (such as the cost per CYP and its impact on prevalence), they had a strong research component which would not be essential to the replication of the service activity elsewhere.

It should also be mentioned that the distinction between "service" and "administration" was often difficult to make. However, this does not affect the final results, since the rest of the analysis is based on all "non-research costs," i.e. it includes service, administration, training and non-traceable to a specific activity.

As shown in Table 5, the research costs accounted for 44% of the total field costs in the CBD projects included herein. This ranged from 39% of the total in Kisangani to 57% of the total in Mbuji Mayi. Service/administration accounted for 46% and training for 10% of the total.

Table 6 shows the non-research costs per quarter for each of the project sites. The column "subtotal" refers to the combined amount for Nsona Mpangu, Matadi and non-traceable between the two sites. The figures for Mbuji Mayi can be partially explained by the fact that Mbuji Mayi has a high cost of living by Zairian standards.

Table 7-A gives the breakdown of the total costs (including research costs) by type of expense over the life of the project. While these are useful, the figures are strongly affected by the duration of the project. For example, the director of the Nsona Mpangu/ Matadi project is shown to make over four times that of the director in Mbuji Mayi, when in fact much of this difference can be explained by the fact that cost data were available for a lesser number of quarters.

The time factor is controlled in Table 7-b, which shows the average annual cost per type of expense by project site. The fact that project costs were only available for three quarters in Mbuji Mayi means that the figures in table 7-a were multiplied by 1.33 to achieve a "one-year average." By contrast, figures for all other sites were divided by the appropriate factor to arrive at the annual average. From Table 7-b it is evident that the largest items are salaries (accounting for 33% of the total), transportation (18%), perdiems not related to training (13%), training (10%), consumable supplies (8%), and medicines used in the community programs (8%).

Cost per Couple-Month-Protection

Table 8 provides estimates of the cost per couple-month-protection (CMP). These were obtained by dividing the costs in Table 6 by the CMP shown in Table 4 for each quarter and for each project site. The following points merit comment.

Overall, the Nsona Mpangu/Matadi project had by far the lowest cost per CMP: $0.70 for Matadi and 0.55 per CMP for Nsona Mpangu (which are equivalent to $8.40 and $6.60 per CYP respectively). However, there was considerable fluctuation in the cost per CMP for these two sites. In fact, the cost per CMP was below these average amounts for most quarters through late 1987. However, with the steep decline in output in the rural area of Nsona Mpangu resulting from the change in chief medical officer, this caused the cost per CMP to increase in both the urban and rural areas.

(The cost per CMP for the urban area is comprised of the cost per CMP that can be specifically traced to the urban area, plus the cost per CMP which is non-traceable, constituting a joint administrative overhead for the two zones. Thus with the decreases in output in the rural zone, the cost per CMP corresponding to "non-traceable" rose and caused the cost per CMP in Matadi to rise as well.)

The remaining three project sites—Sona Bata, Mbuji Mayi and Kisangani—had costs which

Table 6
Non-Research Costs
by Project by Quarter

Quarter	Bas Zaire - Two Sites							Total
	Matadi	Nsona Mpangu	M/NM: NT	Sub-Total	Sona Bata	Mbuji-Mayi	Kisangani	
84-1	$542	$326	$1,296	$2,165				$2,165
84-2	$165	$219	$1,294	$1,678				$1,678
84-3	$152	$127	$1,465	$1,744				$1,744
84-4	n.a.	n.a.	n.a.	n.a.				$6,883
85-1	$304	$25	$3,263	$3,592				$3,592
85-2	$334	$294	$1,173	$1,801				$1,801
85-3	$143	$220	$2,198	$2,561				$2,561
85-4	$808	$302	$3,189	$4,299				$4,299
86-1	$1,334	$769	$3,604	$5,706				$5,706
86-2	$1,437	$300	$2,952	$4,689	$8,440			$13,129
86-3	$1,307	$792	$3,808	$5,907	$6,995			$12,902
86-4	$1,656	$664	$3,495	$5,815	$5,834			$11,649
87-1	$1,112	$670	$2,924	$4,707	$4,479			$9,186
87-2	$1,142	$558	$2,635	$4,335	$4,366		$1,947	$10,648
87-3	$1,099	$537	$3,078	$4,713	$6,685		$2,320	$13,718
87-4	$1,319	$603	$3,891	$5,813	$4,492	$8,900	$0	$19,205
88-1	$2,280	$393	$3,224	$5,896	$6,309	$5,038	$0	$17,243
88-2	$2,979	$406	$3,184	$6,568	$2,486	$4,805	$1,100	$14,959
88-3	$2,582	$293	$4,416	$7,291	$2,921	n.a.	$1,008	$11,220
88-4	$2,057	$1,773	$2,840	$6,671	$1,403	n.a.	$1,472	$9,546
Total	$22,752	$9,271	$53,929	$85,923	$54,410	$18,743	$7,847	$166,953

Notes: Includes all non-research costs. Training costs have been smoothed, as has the cost of drugs. Does not include the cost of donated contraceptives. Does not include data past Dec. 1988 due to incomplete data on the costs. Nominal cost refers to cost in Zaires translated at the exchange rate for the month the cost was incurred. "M/NM: NT" refers to Matadi or Nsona-Mpangu, non-traceable.

Table 7-A
In Zaire Costs
by Type, by Project
Total: 1984-1988

Description	Matadi / NM	Sona Bata	Mbuji Mayi	Kisangani	Total	%
1. Director Salary	$8,053	$4,380	$1,649	$4,100	$18,182	4.5
2. Other Administrators	17,014	4,582	1,582	3,689	26,867	6.7
3. Service Personnel	16,507	4,621	0	3,098	24,225	6.0
4. Research Personnel	10,850	6,477	16,482	7,373	41,182	10.2
5. Other Personnel	8,289	3,852	1,195	4,089	17,424	4.3
6. Fringe/Pers. Benefits	9,466	1,092	1,036	2,478	14,071	3.5
7. Training	6,796	3,392	10,603	5,166	25,957	6.4
8. Per Diems	17,717	8,375	13,516	4,419	44,025	10.9
9. Transportation	24,297	25,855	8,468	17,112	75,7321	8.8
10. Equipment	1,730	5,085	1,055	4,687	12,556	3.1
11. Consum. Supplies	5,651	23,130	2,812	5,656	37,249	9.2
12. Rental - Office Space	4,905	71	43	2,280	7,299	1.8
13. Medicines	30,528	4,783	3,882	4,824	44,017	10.9
14. Other Admin. Exp.	605	1,979	622	858	4,065	1.0
15. Other Research Exp.	79	1,676	5,487	3,059	10,300	2.6
Total	$162,485	$99,349	$68,431	$72,886	$403,151	

Table 7-B
In Zaire Costs
by Type, by Project
Annualized

Description	Matadi / NM	Sona Bata	Mbuji Mayi	Kisangani	Total	%
1. Director Salary	$1,695	$1,593	$2,199	2,343	$7,830	3.9
2. Other Administrators	3,582	1,666	2,109	2,108	9,465	4.7
3. Service Personnel	3,475	1,680	0	1,770	6,925	3.4
4. Research Personnel	2,284	2,355	21,976	4,213	30,829	15.2
5. Other Personnel	1,745	1,401	1,593	2,336	7,075	3.5
6. Fringe/Pers. Benefits	1,993	397	1,381	1,416	5,187	2.6
7. Training	1,431	1,234	14,137	2,952	19,754	9.7
8. Per Diems	3,730	3,045	18,021	2,525	27,321	13.4
9. Transportation	5,115	9,402	11,291	9,779	35,586	17.5
10. Equipment	364	1,849	1,406	2,678	6,298	3.1
11. Consum. Supplies	1,190	8,411	3,749	3,232	16,582	8.2
12. Rental - Office Space	1,033	26	58	1,303	2,419	1.2
13. Medicines	6,427	1,739	5,176	2,757	16,098	7.9
14. Other Admin. Exp.	127	720	829	490	2,167	1.1
15. Other Research Exp.	17	609	7,315	1,748	9,689	4.8
Total	$34,207	$36,127	$91,241	$41,649	$203,225	

Notes: The cost data for Matadi include the costs of medicine purchased directly by Tulane. The data in this table may differ slightly from those in Table 5, which smoothed training costs; (2) includes deputy director, coordinator, and/or administrator; (3) CBD supervisor, promoter; (4) interviewer supervisor, interviewer, coder, data entry personnel; (5) driver, secretary, other; (7) per diem, material, room rental, IEC costs related to training or conferences; (8) travel and per diem not related to training, (9) fuel, vehicle maintenance, vehicle rental; (13) used in program at the community level.

varied from $5.04 to $7.39 per CMP (or from $60-89 per CYP). By international standards, this makes them relatively "expensive". However, this cost analysis constitutes one of the first attempts to obtain detailed cost information on family planning service delivery in sub-Saharan Africa. Thus, these figures need to be assessed, not by the worldwide standards which are based largely on well-established programs in high prevalence countries, but rather on data from similar programs from sub-Saharan Africa, as such information becomes available.

Within Zaire, the social marketing program has a much more favorable cost per CYP, based on the very successful marketing of condoms; however, this program is directed primarily at AIDS prevention (often with extramarital partners) and thus is not entirely comparable with a program whose objective is birth spacing or limitation and whose primary clients are married couples.

It is important to note that in all three sites established under this cooperative agreement (Sona Bata, Mbuji Mayi, and Kisangani) the costs per CMP generally decreased over the life of the project. Thus, the figures on cost per CMP given herein tend to reflect the start up costs of a project at a time when the number of clients may still be low. By contrast, over time the cost per CMP becomes more favorable as the number of contraceptive users increases while routine project administration costs remain relatively stable.

The case of Kisangani illustrates the effect of "losing one's momentum." As described above, project activity was suspended in the last quarter of 1987 and the first quarter of 1988. When the project started up again with the recruitment of a new set of distributors, the start-up costs related to this activity were again reflected in the cost per CYP for the first two quarters following the re-initiation of project activity.

Table 8
Cost per Couple-Month-Protection
by Project by Quarter

Quarter	Matadi	Nsona Mpangu	Sona Bata	Mbuji-Mayi	Kisangani
84-1	$0.43	$0.53			
84-2	$0.30	$0.36			
84-3	$0.33	$0.33			
84-4	n.a.	n.a.			
85-1	$0.63	$0.53			
85-2	$0.26	$0.22			
85-3	$0.27	$0.26			
85-4	$0.54	$0.39			
86-1	$1.05	$1.04			
86-2	$0.99	$0.53	$11.98		
86-3	$0.69	$0.48	$8.77		
86-4	$0.50	$0.41	$5.98		
87-1	$0.51	$0.49	$6.71		
87-2	$0.53	$0.47	$8.83		$5.81
87-3	$0.75	$0.51	$8.13		$2.04
87-4	$1.72	$1.82	$6.81	$13.28	∞
88-1	$1.40	$0.98	$7.40	$8.48	∞
88-2	$1.47	$1.21	$4.04	$3.77	$5.05
88-3	$1.20	$1.12	$5.11	n.a.	$7.21
88-4	$0.88	$2.04	$1.13	n.a.	$2.70
Average	$0.70	$0.55	$6.48	$7.39	$5.04

Notes: Includes all non-research costs. Training costs have been smoothed, as has the cost of drugs. Does not include the cost of donated contraceptives. Does not include data past Dec. 1988 due to incomplete data on the costs. Nominal cost is cost in Zaires translated at the exchange rate for the month the cost was incurred. "M/NM: NT" refers to Matadi or Nsona-Mpangu, non-traceable. Non-traceable costs for Bas Zaire were allocated to Matadi and Nsona Mpangu on a per CMP basis. Costs are not available for Mbuji Mayi for the last two quarters of 1988.

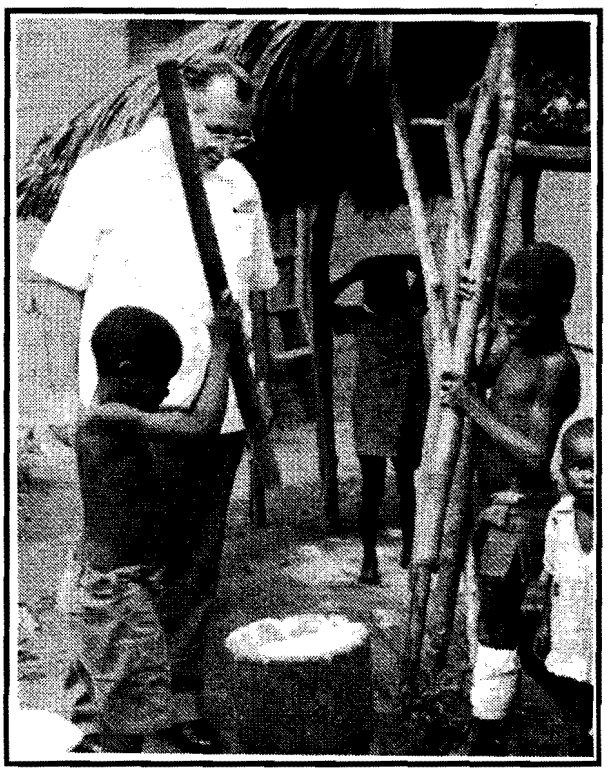
E. Impact on Prevalence

One widely used approach in evaluating a family planning program is to measure its impact on contraceptive prevalence, generally defined as the percentage of women of reproductive age, married or in union, using a contraceptive method. In the current evaluation, emphasis is placed on modern rather than traditional methods, since one of the objectives of the CBD programs was to increase knowledge and use of modern methods. Moreover, these methods are generally considered to be more effective in preventing pregnancy than are the traditional methods of rhythm or withdrawal.

Modern methods include pills, condoms and spermicides (all distributed through the CBD program), as well as IUDs, Depo-provera, and tubal ligation. While the latter three were not available through CBD programs (for the obvious reason that they require clinical procedures under sterile conditions beyond the competency of community personnel), they are nonetheless taken into consideration in this evaluation, since it is expected that the promotional work of CBD distributors would increase use of clinical methods as well.

Traditional methods include abstinence (usually practiced during the postpartum period), rhythm, withdrawal, and a traditional belt believed to ward off pregnancy. Several other folkloric methods were mentioned by respondents on the surveys, but not included in the tabulations of these methods herein.

The data on knowledge and use of contraceptive methods were collected through sample surveys of women of reproductive age (15-49 years old). Baseline data were collected in each for each of the eight project sites. Follow-up data were collected under this cooperative agreement for three of the eight (Nsona Mpangu, Matadi and Sona Bata) and by another project (Social Marketing) in a fourth (Mbuji Mayi). Results from Mbuji Mayi study are not yet available, through the probability of showing a significant increase is strong, given that prevalence of modern methods at the baseline was only one percent.

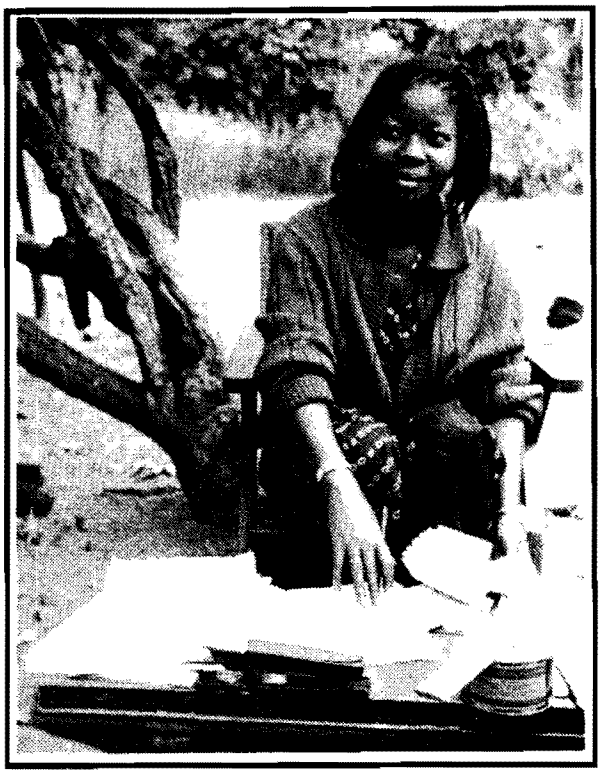


Dr. Eamon Kelly, President of Tulane University, supervising manioc preparation in Sona Bata.

1. The Nsona Mpangu Project

The original Nsona Mpangu project was designed to make contraceptives as widely available as possible in selected villages of the rural health zone of Nsona Mpangu in Bas Zaire, and to test the impact and relative cost effectiveness of (a) outreach consisting of household distribution in addition to increased availability of contraceptives, versus (b) simply increasing the availability of contraceptives. The "increased availability" consisted of training nurses from existing/functional health centers and posts in family planning service delivery and regularly resupplying them with contraceptives, and of establishing a CBD worker in communities which did not have close assess to a health center or post.

Thus, the villages to be included in this project



CBD supervisors, such as Kisani Mpasi, visited distributors each 1 - 2 months.

were allocated to treatments A or B, described above.

The intervention did result in significant changes in knowledge and use of modern contraceptive methods in the original project. Current use increased by eight percentage points in both treatment areas. Since the household distribution component did not result in significantly higher levels of use (in either the rural or urban area), it was decided that in the subsequent stage of the program the two zones would be combined into a single treatment area, receiving the intervention described for Area B above. Thus from 1984 onward, Zones A and B were identical.

In the original project, no comparison group was used. In retrospect, this was unfortunate, since it left open the possibility that the above changes could be attributed to something other than the program. Thus, a "post-hoc" comparison group was added (and surveyed) in 1985 to reflect what could be expected in the absence of the PRODEF intervention (Zone D). In addition, other villages were added to allow for expansion of program activities (Zone C, which had the same activities as Zone B but for a shorter length of time).

The PRODEF program in Nsona Mpangu continued actively through 1987, as shown by the CMP data above. However, in late 1987 the program began to experience the problems described earlier. Since the new chief medical officer of the zone had authority for all health activities and did not support the PRODEF activities (for which he wanted but was not given control), this had an extremely negative effect on the program. The PRODEF staff did continue to visit distributors for supervision and resupply (though less regularly), and from the distributors they learned of actions taking place to undermine the CBD activities.

The results are evident from Table 9. Knowledge of modern contraceptives remained high (even in the comparison group). Experimentation with modern methods (as measured by "ever use") was higher in the three treatment areas (ranging from 25-29%) than it was in the comparison area (20%). Of note, ever use was NOT as high in any of the groups surveyed in 1988 as it had been in 1983 among the group which had received the household distribution intervention (35% of whom reported ever use), suggesting that indeed that strategy had encouraged experimentation with modern contraception. Current use of a modern method, while higher than the pre-program level of 1981, had dropped off slightly since 1983.

In short, the survey data are consistent with the output data in showing the negative impact of the changes regarding PRODEF which occurred in this health zone. While there was great interest on the part of the PRODEF staff to resuscitate this component of the program once the chief medical officer had been removed from this post, this occurred late in

Table 9. Knowledge and Use of Modern Contraception

The Nsona Mpangu Project

		A	B	C	D
Socio-demographic:					
• Mean age:	1981	28	28	n.a.	n.a.
	1983/84	28	28		
	1988	29	29	29	29
• % literate:	1981	43	45	n.a	n.a.
	1983/84	53	52		
	1988	56	52	48	50
• % work in fields:					
	1981	93	91	n.a.	n.a.
	1983/84	93	94		
	1988	95	94	95	97
• % Catholic:	1981	37	33	n.a.	n.a.
	1983/84	36	34		
	1987	36	32	49	47
Family Planning:					
% know at least one modern method:					
	1981	75	92	n.a.	n.a.
	1983/84	92	86		
	1988	95	95	95	94
% that have ever used a modern method: (1)					
	1981	9	7	n.a.	n.a.
	1983/84	35	26		
	1988	29	29	25	20
% reporting current use of a modern method: (2)					
	1981	5	2	n.a.	n.a.
	1983/84	13	10		
	1988	9	8	9	6

(1) Based on women ever married or in union

(2) Based on women currently married or in union

the life of the program and at a point when the PRODEF staff was already working overtime to complete data collection on the follow-up surveys reported herein.

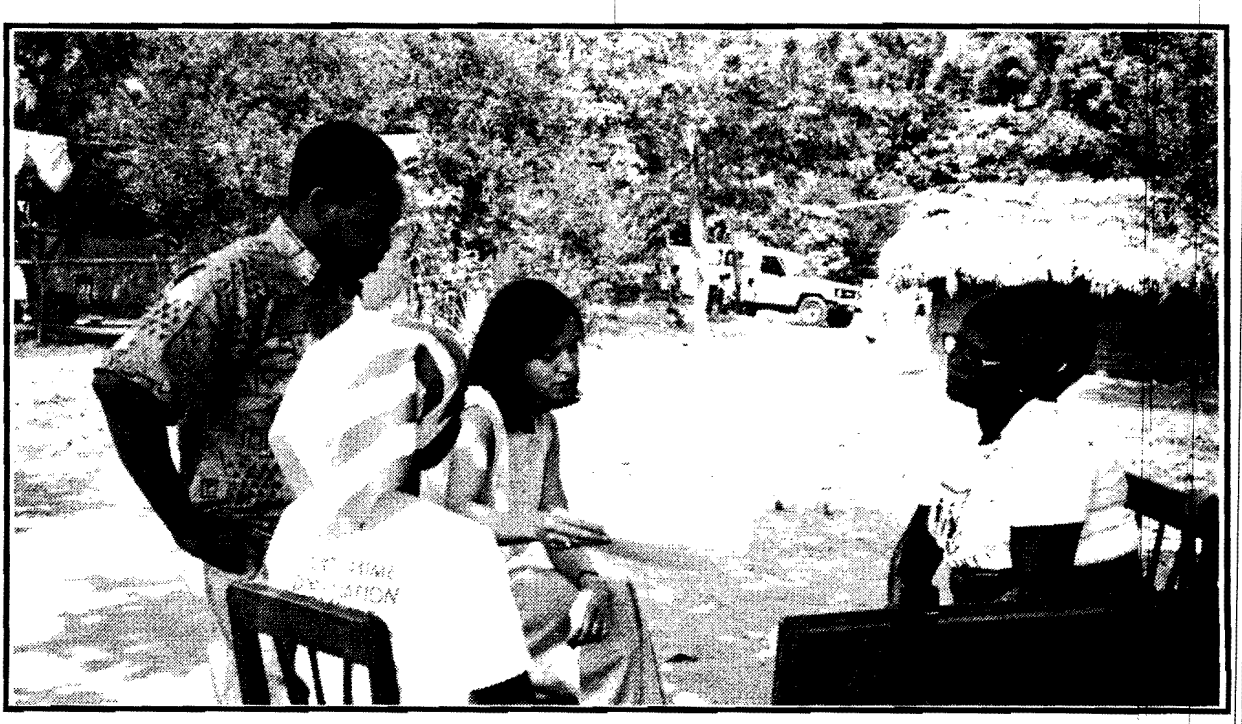
2. The Matadi Project

The original Matadi project (1981-85) had the same design as the Nsona Mpangu project, except that there were no permanent CBD workers established; rather, the CBD component consisted of household distribution in Treatment Area A, after which clients were to get resupplied at existing health centers and posts.

As in the case with Nsona Mpangu, the Matadi project was designed without the benefit of a comparison group, in an effort to get services to the greatest number of persons (i.e. not reduce the potential pool by designating part of the population as a control group). In retrospect, this provided to be methodologically short-sighted, and an effort was made to rectify the situation in 1985 by establishing a "post-hoc" control group consisting of persons living in areas on the outskirts of the city. However, results from a 1985 survey of this "comparison" population indicated that they were sufficiently different in socio-demographic characteristics from the Matadi population previously studied to make this comparison of dubious value. Thus, the 1988 follow-up study only covered the population studied previously in 1981 and 1983.

Details of the Matadi analysis are available elsewhere[3], and the highlights are presented in Table 10. These data reflect a growing acceptance of modern family planning among this population. While knowledge of both modern and traditional methods was high, even before the first program intervention in 1981, it further increased to the point where in 1989 97% of women (15-49 years old) knew at

[3] Jane T. Bertrand and Judith E. Brown. "Family Planning Successes in Two Cities in Zaire." In R.A. Bulatao (ed.), Effective Family Planning Programs. Washington, DC: World Bank (forthcoming).



Dr. Minuku Kinzoni, Jane Bertrand and Dissu Makela consult on the Sona Bata Project.

least one modern method.

Experimentation with modern methods among ever-married women also increased: from 10% in 1981 to 46% in 1983 to 64% in 1989. (By contrast, in the 1982-84 contraceptive prevalence survey of six sites in Zaire conducted in collaboration with Westinghouse, the percentage that had ever used a modern method did not exceed 30%, even in the major cities of Kinshasa and Lubumbashi.)

A key indicator in family planning evaluation is current use of a modern contraceptive among married women of reproductive age. In Matadi, this increased from 4% to 17% to 23% over the three surveys. This 1989 level of 23% represents the highest level of contraceptive use reported to date in Zaire.

In the early 1980s, PRODEF was the major player in family planning in Matadi. The national family planning program had not yet begun its activities in Bas Zaire at the time of the 1983 survey, which indicated a dramatic increase in prevalence to the level of 17% (more specifically, 19% in the section of the city which received outreach, 16% in the section that did not). Given that there were few instances of "spontaneous increases" in contraceptive prevalence due purely to economic or political factors reported in Africa, this change in prevalence could be reasonably attributed to the PRODEF intervention, even in the absence of a comparison group.

However, between 1984 and 1989, other service delivery interventions were initiated or reinforced by the PSND in collaboration with the private FP association AZBEF. (At the time of the 1989 survey, the social marketing program had not yet begun activities in Matadi.) As a result, family planning services were readily available from a variety of sources (two hospitals, four PSND/AZBEF-supplied health centers, seven PRODEF-supplied health centers, over 25 CBD distributors and a number of private pharmacies). The design of the research does not allow one to attribute the increase in contraceptive prevalence to a specific program or service provider. However, it does provide confirmation in the context of a Francophone sub-Saharan country of the often-stated hypothesis that making contraceptives readily accessible to the population through multiple channels and at an affordable cost will result in an increase in the prevalence of contraceptive use.

3. The Sona Bata Project:

The Sona Bata project was designed to test the relative effectiveness of the CBD approach in comparison to service delivery through existing health centers. The program intervention consisted of the following:

Zone A: recruiting and training 32 women from selected villages to become distributors of contraceptive methods and medications for children under five

Zone B: training nurses from 11 existing health centers and posts to deliver FP services, in addition to their regular primary health care services

Zone C: comparison area where there was no family planning intervention by project staff (nor was it believed there would be by other groups working in the area)

The baseline survey was conducted in a total of 66 villages in 1985. The followup was done in 1988. Multiple logistic regression has been used in analyzing the data, the highlights of which are presented in Table 11. From this table it can be seen that the composition of the study population was very similar among zones and at both times in terms of the mean age of the women (29-31 years). The average age at first marriage ranged from 17-18 years. The zones did differ on two variables which could potentially affect the outcome of the results: the percent literate and the percent Catholic. On both the baseline and follow-up surveys, the percent literate was significantly lower in Zone A (CBD intervention) than in

Table 10.

Knowledge and Use of Modern Contraception The Matadi Project

	1981	1983	1989
Total sample:	n=1797	n=1794	n=1615
KNOWLEDGE:			
% that have heard of:			
• at least one modern method	86	97	97
• at least one trad. method	95	99	94
EVER USE: (1)			
% that have ever used:			
• a modern method	10	46	64
• a traditional method	79	86	86
CURRENT USE: (2)			
% reporting current use of:			
• a modern method	4	17	23
• a traditional method	53	37	29
• any method	57	54	52
Method currently used:			
—Withdrawal	33	22	16
—Abstinence	14	13	7
—Pill	2	8	11
—Female sterilization	2	5	8
—Vaginal tablets	0	2	1
—Condoms	1	1	2
—IUD	0	1	0
—Injectable	1	1	2
—Rhythm	3	1	5
—Foam, cream	0	0	0
—Other	3	0	0

(1) Based on women ever married or in union

(2) Based on women currently married or in union

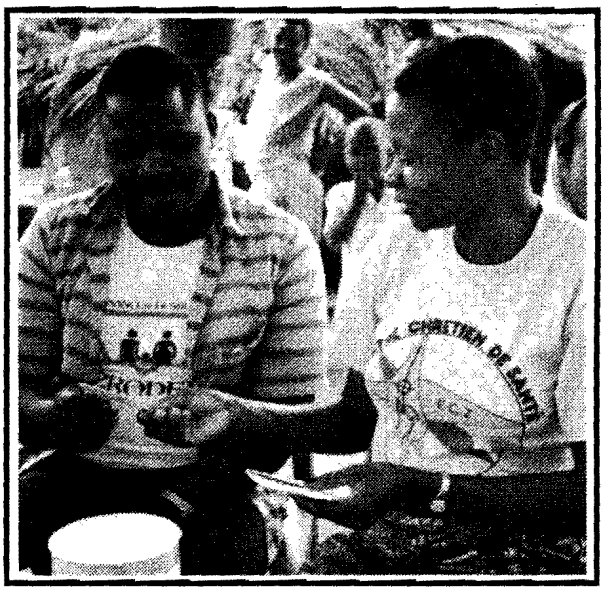
either of the other two zones. With regard to religion, the percent Catholic was significantly lower in Zone C (on both surveys) than it was in the other two zones.

Being illiterate or Catholic were hypothesized to have a negative impact on knowledge and use of modern family planning methods. The results from this study indicated that literacy was indeed associated with knowledge and use of modern family planning methods, whereas being Catholic was not. Thus, subsequent analysis did control for literacy in assessing the impact of the program.

With regard to knowledge of modern contraceptive methods, over 87% in all zones already knew at least one method before the program began. Between the two surveys, the percent that knew at least one modern method decreased in Zone A, remained the same in Zone B, and increased in Zone C (statistically significant at the .05 level). However, in controlling for literacy, the difference became only marginally significant. In short, the program did not succeed in increasing knowledge of methods based on this one indicator. With regard to a second indicator of knowledge (data not shown), the mean number of modern methods known did increase from 3 to 4 methods over the life of the project, but this occurred in all zones including the comparison group, such that it could not be attributed to the program.

Similar results were found for "ever use" of a modern method (which reflects experimentation with this practice) and current method use. Prior to the program, 5-8% of the women in these zones had ever used a modern contraceptive. This increased to 15-22% in all zones by the time of the followup. By 1988 the percent for "ever use" was higher in Zone B than in Zone C; however, the amount of change which had occurred was not significantly different among the three groups. In short, experimentation with modern methods did increase, but factors other than the program may have been responsible.

Current use of a modern method increased



PRODEF/Mbuji Mayi was the first to experiment with male distributors.

from 3% to 8% in the zone which had CBD workers. It increased from 4% to 9% in the zone with health centers/posts. However, it increased a similar amount (from 1 to 6%) in the comparison area. Thus, while there was a significant increase in prevalence of modern methods in the two treatment areas, the change was also experienced in the comparison zone, such that it can not be attributed to the program intervention.

In interpreting these findings regarding the Sona Bata project, two points come to mind. As shown above, the output for Sona Bata was relatively low (for the program as a whole and on a per distributor basis). However, this program did represent an improvement in access to contraceptive services over the pre-intervention situation. Thus, the survey data seem consistent with the output data in terms of indicating an increase in prevalence in the two treatment areas. Second, regarding the consistent increases which were also found in the comparison area, two possible explanations are (1) a spill-over effect from the treatment areas, since the villages were all in the same health zone, although the comparison villages were generally at some

distance from the treatment villages, and (2) family planning activities being conducted in the comparison villages which were not known to the project staff.

F. Characteristics of Successful Distributors

It is of interest to identify the characteristics of successful distributors in CBD programs as a means of determining appropriate selection criteria in subsequent stages of a program. In the case of Zaire, one of the main questions related to the relative effectiveness of males versus females in this position.

The original Bas Zaire projects used only women, on the assumption that they would be better able to discuss family planning with other women in the community. However, at the time the Mbuji Mayi project was developed, the project director felt the need to reach men as well, either to use contraceptives themselves or to support the idea of use by their partners. Whereas the original plan was to test one area with women distributors only in comparison to an area with distributors of both sexes, this proved impractical at the field level. Instead, it was decided to recruit male

Table 11
Sona Bata Project
Knowledge and Use of Modern Contraceptive Methods

	Zone A (CBD)		Zone B (HC/P)		Zone C (comp.)	
	1985	1988	1985	1988	1985	1988
	n=678	n=341	n=642	n=341	n=391	n=322
Socio-demographic characteristics:						
Mean age (years)	29	29	29	31	30	30
Mean age-first marriage	18	17	17	18	17	18
% literate	44	37	53	56	54	54
% Catholic	36	48	49	64	18	21
% work in fields	91	94	86	89	94	96
Modern Methods:						
% know at least one	94	89	92	92	88	91
% have ever used one (1)	5	16	8	22	6	15
% currently using (2)	3	8	4	9	1	6

(1) Based on ever-married women
(2) Based on currently married women

distributors based on the availability of viable and motivated candidates, whatever their place of residence within the zone. Subsequent programs in Kisangani, Miabi, Makala, and Kikimi also used a combination of male and female distributors.

In this analysis "distributor performance" was operationally defined by the mean monthly CMP produced by each distributor. Table 12 compares the output of male versus female distributors at each site. Of the five projects that used both male and female distributors, two of the five (Mbuji Mayi and Kikimi) showed similar levels of output; in the remaining three (Kisangani, Makala and Miabi), female distributors had a higher level of output than males.

The initial analysis of gender as a predictor of distributor performance was expanded to examine other socio-demographic characteristics as well. "Distributor performance" was again operationally defined as mean monthly CMP. Data on socio-demographic characteristics were obtained from a two page questionnaire which was administered to the distributors by the supervisor or other project staff in each zone.

Data were not systematically gathered in Nsona Mpangu (because of the programmatic problems of late 1987), nor in Kikimi (which had only recently initiated activity at the time of this data collection). Also, there were some problems in matching the codes of the distributors in the CMP data sets to the names of the distributors on the questionnaires. The results presented herein are based on an analysis of the 156 cases for which data were available and could be matched from the two sources.

Regression analysis was performed, using mean monthly CMP as the dependent variable. Independent variables included place of residence (i.e. project site), age, sex, level of education, religion, marital status, number of

Table 12.
Mean Monthly CMP by Sex of the Distributor

	Males	Females
Project sites with distributors of both sexes:		
Mbuji Mayi	14	16
Miabi	3	9
Kisangani	11	17
Makala	23	35
Kikimi	35	33
Project sites with female distributors only:		
Nsona Mpangu	—	18
Matadi	—	40
Sona Bata	—	6

Interviewers were welcomed into homes, especially in rural areas.

living children, years of residence in the community, use of a modern contraceptive method, employment status, and existence of an assistant to help with sales (in the absence of the distributor).

Overall, the variables included in the model explained 45% of the variance in mean monthly CMP. Of the variables tested, place of residence (i.e. the project site) was by far the strongest predictor. This suggests that the level of demand at the project site and factors related to program implementation were more important than the personal characteristics of the distributor. Regarding individual traits, only the age of the distributor was shown to be significantly related to performance: older distributors sold a higher volume of CMP than did their younger counterparts. The number of living children was only of borderline significance. Other variables including sex, education, religion, marital status, use of a modern contraceptive method, and occupational status were not shown to be significantly related to distributor performance.

The implications of these results are that in the recruitment of distributors for future programs, one should avoid selecting distributors that are too young (under 22-23). Otherwise, there is no reason to favor one "category" of individual over another. Rather, the subjective criteria of desire to serve the community and commitment to the concept of birth spacing may be more useful in furthering the goals of CBD in Zaire.

G. Conclusions and Recommendations

In sum, the experience with community-based distribution in Zaire has been mixed. On the positive side, there are the following considerations:

1. The CBD was culturally acceptable in all eight health zones where it was implemented; there was no type of organized opposition to the program by community leaders or members of the target population which was brought to the attention of the project staff.
2. The CBD was also well received by the local authorities. In the two (of eight) cases where "political problems" were experienced, the issue was one of turf rather than opposition to CBD per se.
3. The first city to experiment with CBD (in the form of household distribution under the earlier Tulane project) currently has the highest level of prevalence of modern method use in Zaire: Matadi with 23%. While other service providers have become active in FP delivery in the past five years, most of the increase (from 4% to 17%) came prior to these other interventions.
4. In the Matadi project, the addition of CBD distributors into the system in 1986 resulted in a 44% increase in average output from the PRODEF program over the previous period when services were available only through PRODEF-supplied health centers and posts.

5. The cost per CYP of $7-8 dollars (U.S.) for Matadi and Nsona Mpangu is high by international standards but is not unreasonable in the context of a program in a franco-phone sub-Saharan country whose objective is pregnancy prevention and whose target population are primarily married couples.

6. At the other CBD project sites with a higher cost per CYP, this was shown to decrease over time.

On the negative side there are the following considerations:

1. The programs proved to be very vulnerable to political in-fighting, as was shown by the experience in Nsona Mpangu and Kisangani.

2. The cost per CYP was $60-89 in the three "youngest" sites, in part a reflection of the high start-up costs of this activity, but in part a reflection of the expense involved in this type of program.

3. It was not possible to demonstrate any impact of the program on prevalence in two of the three sites for which data are available. In the case of Nsona Mpangu, the difficulties resulting from the change in chief medical officer had a deleterious effect on program output which was also reflected in the prevalence data in the followup survey. In the case of Sona Bata, use of modern methods did increase in the two treatment areas, but it increased by a similar amount in the comparison area.

One of the main accomplishments of the FP/OR project was to establish a functioning network of CBD agents which was incorporated into the routine activities of the PSND at the close of this cooperative agreement. The experiences to date lead us to the following recommendations regarding the future of CBD programs in Zaire.

1. CBD should be maintained as an alternative means of FP service delivery. It has given extremely positive results in one site (Matadi) and promising results in several others. This recommendation is based in part on the very positive experiences with CBD in other developing countries. Given that a network of distributors exists in Zaire, it would be unfortunate to withdraw support for this activity prior to giving it a more extensive test of time.

2. In contrast to the early phase of these projects which were very research-intensive, more effort should be placed on routine supervision, refresher training, and replacement of low-performance distributors.

3. Staffing (needed in part to support the research aspects of the earlier projects) should be reduced to what is essential for service delivery. This will lower cost per CYP.

4. In terms of recruitment of new distributors, experience suggest that on the average women outperform men in this job. However, since both sexes did equally as well in two of the five sites, programs should not exclude male candidates who have time available for this activity and are committed to the concept of birth spacing.

5. The PSND should make every effort possible to reinforce the esprit de corps which served as an important source of motivation to those participating in the CBD activities under this cooperative agreement. Constant surveillance of project activities in the form of review of service statistics, correspondence, and visits to the field would all serve to maintain this interest in the activity.

V. Voluntary Surgical Contraception

Voluntary surgical contraception (VSC) is the most widely used method of contraception in the world today. However, this is because of its widespread acceptance in more developed countries as well as selected countries in Asia and Latin America. To date, VSC has not been widely used in sub-Saharan Africa. Moreover, very little has been written on the topic of tubal ligation (and less on vasectomy) in the context of Africa. The Zaire FP/OR project offered in excellent opportunity to learn more about the reasons for the under-utilization of this method, and the prospects for its becoming more accepted. The research carried out under the cooperative agreement will also serve as a useful baseline as attitudes toward VSC evolve over time.

This research was conducted as part of a collaborative project with the Association for Voluntary Surgical Contraception (AVSC) to establish model centers for VSC in three urban and three rural locations in Zaire. AVSC was responsible for the technical assistance in training personnel, equipping the sites and establishing services. Tulane was responsible for the research on motivations and barriers to VSC.

The purpose of the research was:

- to identify factors which constitute motivations for and barriers to VSC for women.
- to analyze and present the results such that they would be useful to future training efforts of health personnel for VSC.

The research originally consisted of two separate studies:

- a series of 29 focus groups among three selected categories of the population: women who have undergone VSC, active users of reversible methods that have at least 5 children, and husbands of active users who have at least five children.
- a (quantitative) follow-up survey among at least 500 acceptors of VSC to learn more about the consequences of VSC in this society.

The PSND staff had clothing made of specially designed fabric to "broadcast" the FP message.

When the results of the focus group research became available, AVSC requested that a third study be added: a survey of the experience and attitudes of health personnel (service providers) vis-à-vis VSC. This third study was funded by AVSC, with technical assistance provided by Tulane.

Final reports are now available on all three studies: the first two in the form of journal articles (one published, one forthcoming), the third an unpublished report available from Tulane University. The main findings are as follows.

A. Focus Group Results on Attitudes toward VSC

Twenty-nine focus groups were conducted in 1987 among men and women in five regions of Zaire, including six groups of women who had undergone tubal ligation, 12 groups of women with at least five children who were using a reversible contraceptive, and 11 groups of men

Group meeting organized by a PRODEF distributor in Kisangani.

with at least five children whose wives were currently using a reversible contraceptive method.

Both male and female participants believed that VSC was justified only for medical reasons relating to difficulties with pregnancy or childbirth. At least half the acceptors had experienced complications with previous pregnancies and/or were advised to avoid another pregnancy for health reasons, often because of high parity. Economic hardship was not seen as sufficient grounds for having a tubal ligation, though a few women did admit that the economic factor had entered into the decision.

From the woman's point of view, the major obstacles to undergoing tubal ligation were: (1) pressure from the husband's family to have a large number of children, (2) fear that the husband might look for another wife if she could no longer produce children, even if he had given his consent to the operation, (3) fear that her own children could die, leaving her childless, and (4) fear of the operation itself.

The obstacles to greater acceptance of tubal ligation among males related to the prevailing attitudes that: (1) it is the wife's duty to produce a large number of children, in part to repay the dowry; (2) one's existing children could die, leaving one childless, (3) a husband who allows his wife to undergo a tubal ligation for nonmedical reasons is dominated by her, and (4) women who have been sterilized risk becoming either sexually promiscuous or unduly jealous or suspicious of the husband.

The main consequence of tubal ligation, perceived both by men and women who had not undergone the procedure, was marital conflict and dissolution, related to the wife's inability to have more children. In fact, one VSC acceptor was abandoned by her husband after she had the procedure, but this was not the experience of the majority.

Excluding the acceptors, a number of participants were unclear whether the operation was permanent or reversible. This confusion may stem from the fact that many claimed to know someone who had gotten pregnant after it was done.

Women who had had the procedure reported high levels of satisfaction with the operation, and none had become pregnant. The majority reported their health to be the same or improved following the operation. Nonetheless, there was total consensus among these acceptors that the operation should be a confidential matter. Moreover, despite their widespread satisfaction with the operation, most of these same women reported that they would be afraid to recommend it to others, for fear of becoming a source of conflict in that household, suggesting that VSC is still a sensitive issue in Zaire.[4]

B. Follow-up Survey among Acceptors of Tubal Ligation

While focus group research provides great insight into the attitudes, values and opinions of a given population, the methodology does not allow for quantification of the findings in terms of percentages, means, and so forth. For example, the focus groups described above yielded the general conclusion that almost all acceptors were satisfied with the operation, but this can not be expressed as a percentage of the total.

Thus, it was of interest to conduct a second study, specifically among women who had undergone tubal ligation, to confirm some of the results of the focus groups and to obtain more precise data on certain trends. To this end, an effort was made to identify all hospitals in Zaire which performed surgical contraception on an elective basis. Excluded were women whose last baby was delivered by cesarean section, on the grounds that her "decision" may have been predicated on compelling medical reasons.

A total of 12 sites were identified which fulfilled the criteria of (1) having performed at least 50 tubal ligations in the three years prior to the survey (excluding cesareans) and (2) having the names and addresses of the clients. Because these women often lived at some distance from the hospital and/or gave incomplete addresses, the final number of cases available for analysis was 453.

The results indicate that on the average, the acceptors were 37 years old and had seven living children at the time of the operation. Most acceptors were married and had discussed the operation with their husband, but only 40 % had spoken to another sterilized woman. Less than one-quarter had discussed their operation with other family members or friends. Health was the main motive given for having the operation, followed by already having enough children.

Regarding informed consent, over 95 % knew the method was permanent and knew of at least one other contraceptive option. However, 14 % felt they had been pressured into having the operation, by their husbands or by medical personnel.

Most had experienced no change at all or a change for the better in health, ability to do physical labor, and marital relations. However, 14 % admitted having some regret over the operation; regret was associated with having five or less children, feeling pressured into the decision, perceiving changes in the husband's behavior, or perceiving negative changes in health or ability to work. In general, the acceptors were positive about VSC, though reticent to discuss it openly.

This study of 453 acceptors of tubal ligation from 11 sites in Zaire constitutes the first in-depth quantitative follow-up study of VSC in sub-Saharan Africa. The results are scheduled for publication in early 1991 in International Family Planning Perspectives.

[4] Kashwantale Chibalonza, Chirwisa Chirhamolekwa, Jane T. Bertrand. "Attitudes toward Tubal Ligation among Acceptors, Potential Candidates, and Husbands in Zaire." Studies in Family Planning 1989, 20(5):273-280.

C. Attitudes toward VSC among Service Providers

The objectives of this study were to measure the attitudes of health professionals in Zaire toward tubal ligation, the extent of their experience with the operation, and their interest in establishing this service where it did not exist. To this end, 30 doctors and 90 nurses were interviewed in eight hospital/ clinic facilities in Zaire. These sites were selected such that four were urban, four rural; and that within each urban/rural group, half (two) offered tubal ligation for contraceptive purposes—herein referred to as "VSC centers"—while the other half (two) did not. Data collection was conducted in May-July 1989.

Because of the small sample size (n=120) and non-random selection of sites, these results can not be generalized to all of Zaire. However, they provide the first available data on service provider attitudes toward tubal ligation in Zaire, and among the first for sub-Saharan Africa in general.

The respondents from VSC and non-VSC centers were similar on a series of socio-demographic variables, including profession, age, number of living children, marital status, and sex. By contrast, they differed significantly on one variable: religion. The percentage Catholics was much lower at VSC than non-VSC centers.

There was almost universal approval of tubal ligation for medical reasons. However, only 77% approved it for contraceptive purposes (i.e. in the absence of compelling medical reasons). Of the variables tested as correlates of approval of tubal ligation for contraceptive reasons, only "presence of a VSC program" was significant.

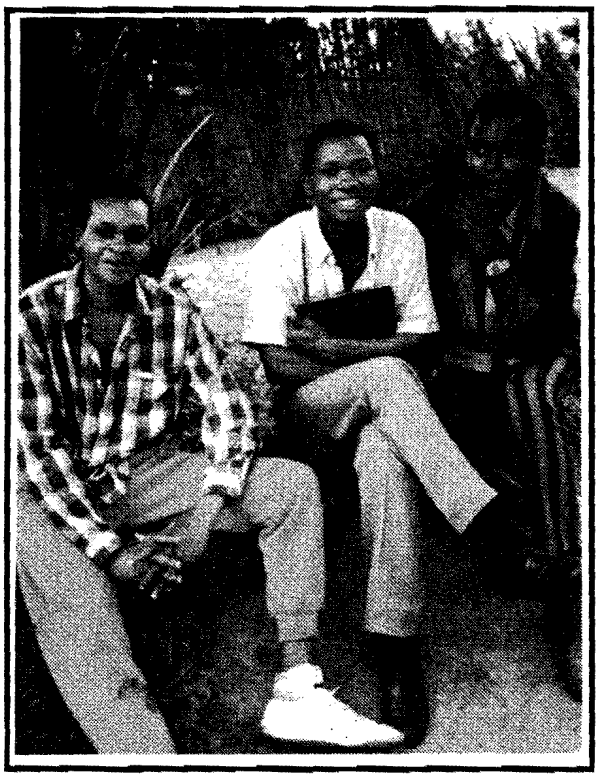
Approximately half (53%) believed that there should be a minimum age for tubal ligation, whereas three-quarters (75%) believed that a woman should be required to have a minimum number of children. Among this group, the mean number given was 5.3 children. In

Butuena Mavambu (right) and Diasivi Nlandu review questionnaires.

comparison to 77% who approve of tubal ligation for contraceptive purposes in general, the percent approving dropped if the woman had children of only one sex: to 63% if they were all boys and to 59% if they were all girls. It is noteworthy that the difference was not greater, depending on the sex that "was missing."

Most respondents (82%) believed that a woman who wants a tubal ligation but belongs to a religion which does not approve of tubal ligation should nonetheless be able to have the operation done if she so wishes. Less than one-quarter felt that it was necessary for the couple to ask for the permission or approval of extended family members. Similarly, 90% felt that the couple was justified in going ahead with tubal ligation even if the woman's mother were against the idea.

While the respondents generally respected the couple's decision to have a tubal ligation, as reflected in the paragraph above, the majority (61%) nonetheless felt that the local population would not accept the idea of a woman having



The Mbuji Mayi staff recognized the importance of male involvement.

a tubal ligation for contraceptive reasons.

D. Recommendations

The three VSC studies were conducted in support of the service delivery activities. Preliminary results of the focus groups were presented and discussed at a training session on communication techniques for family planning/VSC held in 1988 for nurses from the model sites.

Together, these three studies provide considerable information on the socio-cultural context in which the ongoing VSC services are offered. On one hand, they indicate the generally positive experiences of the few women who have undergone tubal ligation; on the other, they point up the barriers which still exist to the more widespread acceptance of this method. Specific recommendations which emerge from this research include the following:

1. With regard to information-education-communication:

(a) Service providers must take a lead role in informing the public about this method, since there is little interpersonal communication on this topic and even satisfied users are hesitant to discuss their experiences.

(b) The messages should focus on the health benefits of the operation (or conversely, on the risks associated with high parity), as opposed to the economic hardship of having large families, an underlying theme of IEC programs for VSC in many other countries.

(c) Messages should provide assurance about the permanent nature of the operation, in light of rumors that the tubes may reopen.

(d) The messages should inform the public that the new surgical techniques are safe and simple, thus allaying some of the fears associated with operations.

(e) The messages should also address the other main obstacles to the more widespread use of the method (outlined in section V-A, above).

2. With regard to training of service providers in VSC programs:

(a) The training should sensitize service providers to the fact that the population accepts tubal ligation for health reasons more readily than for others; this should be stressed in their counseling of clients.

(b) It should emphasize that the decision for VSC may have more far-reaching social consequences in this society than in other regions of the world, and that service providers should be prepared to do in-depth counseling for potential clients.

c) The training should include sessions on values clarification to explore service providers' own attitudes toward VSC for contraceptive reasons, which could

influence the way in which they present this contraceptive option to others.

3. With regard to service delivery:

(a) Service providers need to guard complete confidentially regarding the procedure, given that sterilization for reasons other than medical necessity is still viewed with strong suspicion.

(b) A policy of age and parity criteria should be established, if not at the national level, at least at each service facility, to avoid having individual service providers impose their own standards on potential clients.

E. Problems and Limitations

This set of studies has provided a wealth of information on voluntary surgical contraception, a topic on which little has been published in the context of sub-Saharan Africa. Moreover, it has yielded very concrete suggestions for strengthening VSC efforts in Zaire in the future.

From the start, it was decided that AVSC would be responsible for service provision, whereas Tulane would be responsible for conducting the research described above. It was seen as a strength of this project that each organization would do "what it did best" toward a common goal of expanding VSC services in Zaire.

However, in retrospect, the goal of expanded services might have been better served if the research had focused more directly on different components of service delivery, rather than on issues relating to the decision-making processes. The service component of the project was to establish six model centers, but there were administrative and logistic problems such that only three were truly functional by the end of this project.

Had the Tulane research focused more directly on training, supervision, counselling, or other components of service delivery, this might have led to Tulane's providing more support for the development of these components, with the goal of making all six model sites truly functional. This was especially true in that Tulane had a resident advisor in country, whereas AVSC did not.

A familiar routine for rural women.

VI. AIDS: Behavorial Aspects and Prevention

AIDS emerged as a major public health problem in Kinshasa during the mid-1980s, and numerous institutions were asked to join the National AIDS Committee in developing strategies for its prevention. Not surprisingly, the national family planning project, the PSND, was among them. Moreover, the research capability of the O.R. Unit made the PSND one of the few institutions in Kinshasa who could assist in the social research needed to better understand AIDS-related knowledge and practices.

In late 1986, USAID/Washington decided to become actively involved in AIDS prevention (although in a support role to the World Health Organization, which established the Global AIDS Program). Thus, USAID/W strongly encouraged the development of a project on AIDS to respond to the needs and opportunities which were fast emerging in Kinshasa in late 1986.

The subproject which was designed and conducted in collaboration with the PSND had the following objectives:

1. To assess the feasibility of incorporating an educational component on AIDS into the community-based distribution of family planning services.
2. To increase knowledge among the target population of the nature of AIDS, modes of transmission, and measures of prevention
3. To increase the use of modern contraceptive methods among the married women 15-44 in the target population
4. To increase the use of condoms among males and females in the target population
5. To reduce the number of sexual partners among males and females in the target population.

The design called for (1) identifying a total of five zones out of the 24 administrative zones in Kinshasa, three to be used as treatment areas and two as a comparison, (2) conducting a baseline survey in all five zones, (3) conducting focus groups on the topic of AIDS, (4) establishing a CBD system for contraceptive service delivery, including condoms, (5) conducting group meetings at the community level to inform the population about AIDS, (6) monitoring the quantity of contraceptives sold, number of community meetings, and number of brochures distributed, and (7) conducting a follow-up study to measure the impact of the program.

At the time the baseline survey was designed in 1987, there was a groundswell of interest among the international community regarding the growing AIDS epidemic in Kinshasa, but little information was available on the social and behavioral aspects of AIDS among the general population. The possibility of extending the five-zone baseline study to all 24 zones of Kinshasa was discussed with USAID/Zaire and the CTO at USAID/W. Both were favorable, and USAID/Zaire was able to provide additional funding for this purpose. The result was the 1988 Kinshasa Contraceptive Prevalence/AIDS KAP survey.

Once the survey data were collected, the CBD program with an AIDS education component was then established in two zones: Makala and Kikimi. The third zone, Kitokimosi, had been identified to receive this intervention; however, the public health infrastructure of this zone proved to be very limited. It was decided to invest the limited project resources in strengthening the program at the two functional sites, rather than establishing services at a third.

The expansion of the baseline survey from five to 24 zones proved to be an extremely ambitious undertaking which required far more time than originally scheduled. This had the effect of delaying the onset of the CBD service component of the project (until late 1988). Although the original design called for a follow-up study, this would have meant evaluating the intervention after it had been in operation for less than 12 months. In light of

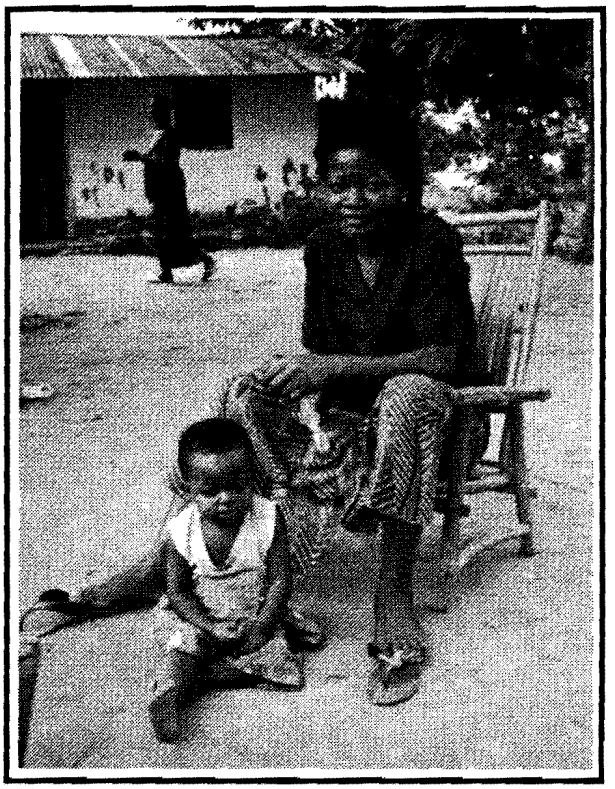
this, it was decided in conjunction with the USAID CTO to eliminate the follow-up study on the grounds that too little time had passed to show impact.

Despite the modification in design, this project yielded some very useful information for those responsible for AIDS prevention campaigns in Zaire, and it represented the first attempt in Kinshasa for AIDS education at the community level based on small group meetings. This was particularly important, given that funding to the National AIDS Committee for a similar activity never materialized.

A. AIDS-related Knowledge, Attitudes and Practices: Kinshasa 1988

The 1988 AIDS/KAP survey was cited by the New York Times (Oct. 10, 1988) as the most exhaustive of its kind in sub-Saharan Africa. It yielded data on a random sample of 3140 men and 3485 women of reproductive age from all 24 administrative zones of Kinshasa. Highlights of the findings include the following.

- In 1988, awareness of AIDS was almost universal in Kinshasa, and over 9 in 10 respondents knew the four main modes of transmission. However, almost half believed in transmission by mosquitos, while 20-30% thought transmission was possible through casual contact.
- 36% of men and 45% of women at the time of the survey believed there was an AIDS vaccine, while 40% of men and 21% of women believed that a person with AIDS could be cured.
- The vast majority had been reached with messages on AIDS via the mass media, the most commonly cited being radio (over 80%) and television (over 70%).
- Nine in 10 respondents believed that AIDS could be prevented through behavioral changes.
- Over 90% of married and single men, 77% of married women and 61% of single women had heard of condoms, though relatively few had ever used them.
- Condom use was more frequent for extramarital relations; 12% of men reporting extramarital relations used them "always" or most of the time compared to less than 2% of married men with their wives.
- Over 52% of all male respondents believed that condoms tear during sexual relations, they can stay in the vagina after sex and that they diminish sexual pleasure.



Most Zairian women place great importance on birth spacing.

These findings served to evaluate the efforts to date in informing the public about the AIDS problem. Moreover, they underscored the need in future AIDS prevention efforts to:

- combat prevalent misconceptions that AIDS can be transmitted by casual contact and by mosquitos
- reinforce the need for total mutual fidelity, or short of this, use of condoms

- improve the image of condoms
- stress that there is no vaccine or cure for AIDS
- direct educational messages at teens as well as adults, since by age 17 half of males and females have had their first sexual experience.

The complete results are available in both French and English.[6] In addition, they will be published in the American Journal of Public Health in January 1991.

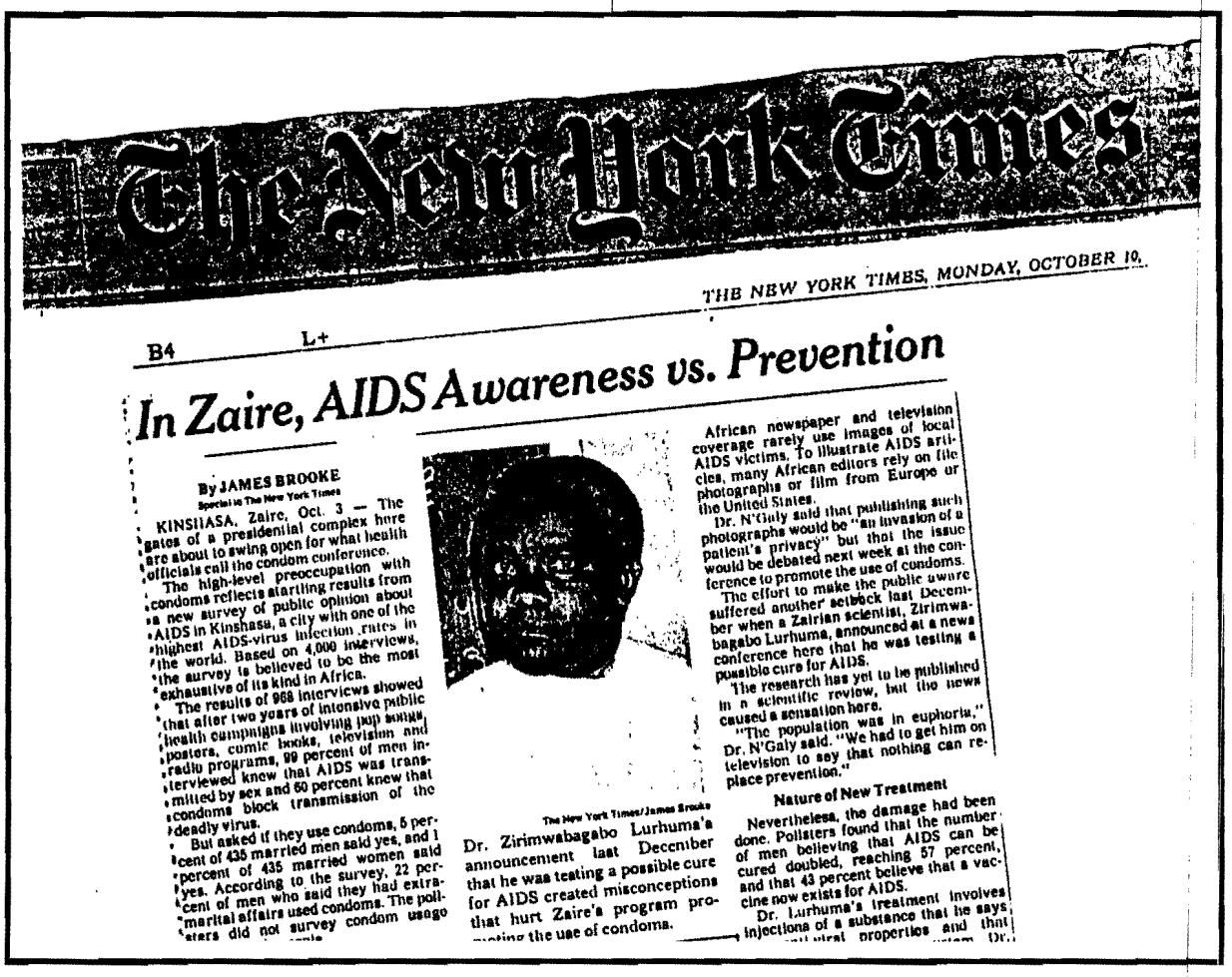
[6] Jane Bertrand, Bakutuvwidi Makani, Kinavwidi Lewu Niwembo, Balowa Djunghu. "Connaissances du SIDA, Comportement Sexuel et Utilisation des Condoms dans la Prévention du SIDA à Kinshasa, Zaire." Kinshasa, Projet des Services des Naissances Désirables (PSND), 1989.

B. Integrating AIDS Prevention into CBD Activities

The service component of this project consisted of first establishing a network of CBD distributors in the selected zones, then integrating the AIDS education activities, including the promotion of condoms.

The CBD component in Makala and Kikimi was similar to the PRODEF activities established elsewhere. The nature of the program and output as measured by CMP are described above. Actual service delivery began in Makala in the third quarter of 1988 and in Kikimi in the fourth quarter of 1988.

The AIDS component of the project consisted in recruiting and training seven individuals



The New York Times

THE NEW YORK TIMES, MONDAY, OCTOBER 10,

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In Zaire, AIDS Awareness vs. Prevention

By JAMES BROOKE

Special to The New York Times

KINSHASA, Zaire, Oct. 3 — The gates of a presidential complex here are about to swing open for what health officials call the condom conference.

The high-level preoccupation with condoms reflects startling results from a new survey of public opinion about AIDS in Kinshasa, a city with one of the highest AIDS-virus infection rates in the world. Based on 4,000 interviews, the survey is believed to be the most exhaustive of its kind in Africa.

The results of 968 interviews showed that after two years of intensive public health campaigns involving pop songs, posters, comic books, television and radio programs, 99 percent of men interviewed knew that AIDS was transmitted by sex and 60 percent knew that condoms block transmission of the deadly virus.

But asked if they use condoms, 5 percent of 435 married men said yes, and 1 percent of 435 married women said yes. According to the survey, 22 percent of men who said they had extramarital affairs used condoms. The pollsters did not survey condom usage

The New York Times/James Brooke

Dr. Zirimwabagabo Lurhuma's announcement last December that he was testing a possible cure for AIDS created misconceptions that hurt Zaire's program promoting the use of condoms.

African newspaper and television coverage rarely use images of local AIDS victims. To illustrate AIDS articles, many African editors rely on file photographs or film from Europe or the United States.

Dr. N'Galy said that publishing such photographs would be "an invasion of a patient's privacy" but that the issue would be debated next week at the conference to promote the use of condoms.

The effort to make the public aware suffered another setback last December when a Zairian scientist, Zirimwabagabo Lurhuma, announced at a news conference here that he was testing a possible cure for AIDS.

The research has yet to be published in a scientific review, but the news caused a sensation here.

"The population was in euphoria," Dr. N'Galy said. "We had to get him on television to say that nothing can replace prevention."

Nature of New Treatment

Nevertheless, the damage had been done. Pollsters found that the number of men believing that AIDS can be cured doubled, reaching 57 percent, and that 43 percent believe that a vaccine now exists for AIDS.

Dr. Lurhuma's treatment involves injections of a substance that he says

Article in the New York Times, October 10, 1988.

from each of the two zones to become AIDS educators. In the case of Makala, this included several persons who were already distributors in the CBD program. In Kikimi, the persons were selected primarily from neighborhood health committees.

In spring of 1989 these 14 individuals underwent a four-day training course, conducted by staff from the PSND and from the Central Coordinating Bureau (BCC) of the National AIDS Committee. The main topics covered during the training were the clinical definition of AIDS, symptoms, modes of transmission, means of prevention, treatment of individuals with AIDS, and referrals to appropriate facilities, in addition to the role of the AIDS educators in the program.

The communication activities were directed at three target groups: the political-administrative personnel in the zone (whose authorization was needed for performing any activity), adults in their reproductive years, and young persons aged 15-18.

The activity was launched with relatively few problems in Makala, where as of July 1989, 64 group sessions had been held among a total of 666 men and 580 women. Observation of these groups indicated a high level of interest on the part of participants, many of whom were obviously appreciative of the opportunity to clarify doubts and obtain more information.

In Kikimi (and to a lesser extent Makala) problems arose over the volunteer nature of the work. The zone of Kikimi had strong regulations about giving any type of incentive to a community "volunteer" for an activity such as conducting educational sessions; however, this problem did not surface until the persons were already trained. When it did, it had the effect of significantly hampering the implementation of the activity in Kikimi. By contrast, this was not a problem in Makala, where the educators received a small fee for each session given, and thus were motivated to carry out these activities. Moreover, because several of the Makala educators were also CBD distributors, they felt that the talks (one message of which was to promote condom use) would have a positive impact on their own sales. Whereas it was initially thought that the average educational level of the distributors was too low for them to be AIDS educators, the experience in Makala and Kikimi suggests that in fact it would be preferable to combine the two roles in future programs.

Future details regarding these activities and community reactions to them are given in the Proceedings from the Conference on the O.R. Findings, held in July 1989 (cited below).

One of the five objectives of this activity was to increase the use of condoms. Unfortunately, this is not a valid reflection of the demand for condoms among this population, given that there was a chronic shortage of condoms at the central PSND warehouse in Kinshasa during this period, and thus the number of condoms available to the project was substantially less than could have been sold. In short, there is very little in the way of quantitative evaluation of the AIDS prevention strategy, other than to demonstrate that it is feasible and politically acceptable to link AIDS prevention and CBD in a community-level program.

C. Sexual Behavior and Condom Use in 10 Sites in Zaire

Based on the 1988 AIDS/KAP survey in Kinshasa, the director of the National AIDS Program requested a similar study, to be conducted in multiple sites throughout the country. While the Tulane FP/OR project did not cover the research costs of this survey (which were funded by UNICEF-Zaire), it did provide salary support for technical assistance. Moreover, many of the persons trained under the OR project participated in the study.

The research was conducted among 1000 men and 1000 women in five urban and five rural sites in Zaire to obtain information on sexual behavior, especially practices which affect the risk of HIV transmission. Highlights of the findings are as follows. Mean coital frequency

was 1.7 relations per week for the total population, compared to approximately 4 relations per week among the "sexually active." One-half of men and one-third of women reported having changed their behavior because of AIDS. However, 18% of men reported more than one sexual partner in the past 30 days; 10% of married men and 12% of single men had visited a prostitute in the past 30 days. While condom use was higher among those who had had multiple partners and/or visited a prostitute, two-thirds of these men reported never having used condoms. From these data it was clear that a small but important minority persist in high risk behavior despite widespread knowledge of AIDS and modes of transmission.[7]

In summary, the national family planning program in Zaire was called upon to participate in the fight against AIDS. This was logical in that traditionally family planning organizations have been responsible for the distribution of condoms and they are constantly in contact with the sexually active population in the communities where they work. In fact, the PSND had had very limited success in promoting condoms as a contraceptive method. However, through the work conducted under the FP/OR project, the PSND was able to make an important contribution to better understanding attitudes and behaviors related to HIV transmission, research which has served in guiding the design of IEC efforts since then. Moreover, the project provided concrete evidence of the feasibility of integrating AIDS education into ongoing CBD activities, an idea which was applauded by the BCC.

[7] Based on the abstract of the manuscript submitted for publication in the journal AIDS.

VII. Utilization of Services and Quality of Care

This final group of projects focused on issues related to the utilization of services and quality of care. The specific subprojects were as follows.

A. An Experiment to Increase Utilization of the Kintambo Clinic

The "Centre Libota Lilamu" (CLL) was established in late 1984 as a model clinic, adjacent to the administrative offices of the PSND in the zone of Kintambo, Kinshasa. This facility was to serve as a training center in the clinical aspects of FP service delivery for health personnel, as well as a source of service for the population in the surrounding zones of Kintambo, Bandalungwa and Ngaliema.

Although this clinic was well-staffed and well-equipped, had a constant supply of a variety of contraceptives, operated in clean, air-conditioned offices, and provided methods at low cost, it drew far fewer clients that expected (less than 70 new acceptors per month in the first year, falling to less than 50 in the second year). Thus, an OR project was designed to determine the reasons for the under-utilization of this clinic and subsequently to increase its clientele.

The project consisted of four phases:

1. A K-A-P survey among women in the zone of Kintambo to learn more about attitudes vis-a-vis family planning in general and the CLL in particular (July-November 1985)
2. A series of 20 focus groups among both men and women to gain further insight into the reasons for the sub-utilization of this facility (February-April 1986)
3. A person-to-person IEC program within the zone of Kintambo, designed to increase clinic utilization (September 1986-February 1987)
4. An evaluation of the impact of the IEC program, based on the clinic service statistics.

Dr. Wembodinga Utshudinyema (right) and Capitaine Matumbu Makasa, PRODEF - Kisangani.

The results of these different activities are described in detail in French in the publications listed in section VIII-A-4 under "PSND Etudes de Recherche, numbers 001 to 003." A summary of these three reports is available in English under the title "The Kintambo Motivation Project to Increase Clinic Utilization, Kinshasa, Zaire."

The KAP survey revealed a number of points which would tend to favor the acceptance of family planning: over 90% of the women knew at least one modern and one traditional method, 79% did not wish to become pregnant at that time, one-third believed ideal family size to be less than five children, the majority recognized the benefits of birth spacing, and the level of education among this population was relatively high by Kinshasa standards. Nonetheless, the percent of married women actually using a modern contraceptive method was low (8%), and misconceptions about contraceptives were widespread. Of particular interest, half the women interviewed had never heard of the CLL and only 3% of married women had ever visited it.

Kankolongo Kalala counsels a women in Mbuji Mayi on family Planning.

The focus groups provided additional insight into the acceptance of family planning. They confirmed that birth spacing was important to this population. However, there were widespread misgivings about modern contraceptives. Many respondents recounted the experiences of others or speculated on the very negative effects of modern methods on a woman's health. In each group a few participants (but not all) had heard of the Centre Libota Lilamu. Those who had heard of it (and the even fewer who had ever visited) gave generally favorable impressions of it.

Based on these findings, an educational program was designed, consisting of small group meetings on a block-by-block basis within the zone of Kintambo. The team of educators included two men and two women who were experienced in this type of work but underwent additional training for this purpose. In the first weeks, the male and female sessions were held separately. However, because fewer men attended and because there was interest in presenting family planning as a joint decision, the subsequent sessions were mixed. During a six month period, a total of 3,572 women and 893 men participated in these small group meetings.

The evaluation of this project was based on the service statistics collected at the CLL. It was hypothesized that the education sessions would increase utilization of the center's services as shown by the following indicators:

- number of new acceptors
- number of active users
- number of total visits to the CLL
- number of clients seeking counseling for problems of infertility

Service statistics for the period December 1984 (22 months before the start of the motivation program) through June 1987 (four months after the program ended) showed no increases in the number of new users or in the number of consultations for infertility. There were increases over this period in the number of active users and in the total visits to the CLL, but these trends predated the intervention and thus the increases could not be attributed to them.

This was one of the first attempts to evaluate the effectiveness of an IEC program in Zaire. The lack of impact may relate to the fact that the CLL offers only family planning/infertility services, whereas most FP services in Zaire are offered in the context of an MCH program, thus allowing a client to maintain greater confidentiality over her use of contraceptives. The results also suggested the need to pursue alternative types of service delivery mechanisms, such as social marketing or CBD, to reach certain segments of the population who are not likely to use clinic-based programs.

B. Study of Contraceptive Continuation and Reasons for Discontinuation in Kinshasa

In 1987 the Kinshasa chapter of the private FP association (formerly CNND, now AZBEF)

submitted a research project to USAID Zaire for funding consideration. The topic of this study was contraceptive continuation and reasons for discontinuation in Kinshasa, Zaire. The Population Officer at USAID/Zaire encouraged Tulane to support this project. Around this same time, Family Health International (FHI) approached the PSND regarding possible collaborative research, though FHI did not have funding available. This led to the development of the current project, in which the Kinshasa chapter of AZBEF conducted the fieldwork; FHI provided technical assistance on the research design, data analysis and report preparation; the PSND supervised the payment of research expenses; and the Tulane FP/OR project provided funding and assisted in data entry.

The initial objectives of the study were:

a. To assess characteristics of contraceptive acceptors;

b. To determine what percentage of new acceptors in the five study clinics return for services within six months of acceptance;

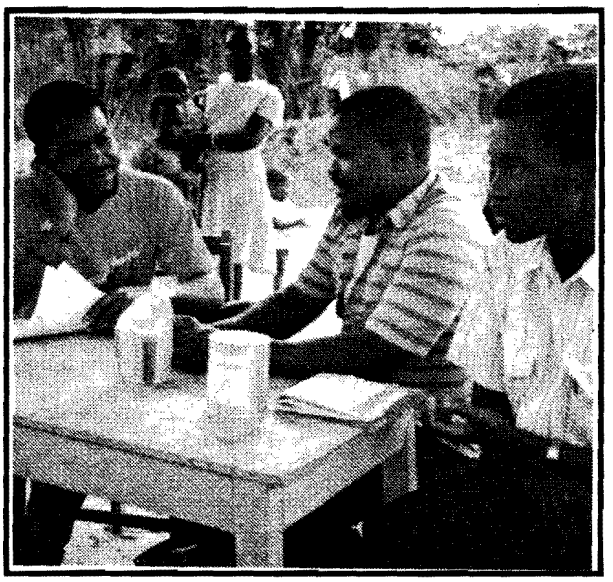
c. To determine what percentage of new acceptors continue using contraceptives seven months after initiation;

d. To compare discontinuation rates among clients by clinic and by method;

e. To assess reasons for discontinuation of specific contraceptive methods and to determine why clients stop attending clinics; and

f. To assess clinic procedures that influence which methods are given to which clients.

A prospective study of family planning clients from the five most active clinics in Kinshasa (Mama Yemo, Bandal, Bumbu, Barumbu and Matonge) was conducted from April 1987-September 1988. All women visiting one of the five clinics for the first time were admitted to the study and followed up for 6 months. Women who did not return to the same clinic for a scheduled follow-up visit were

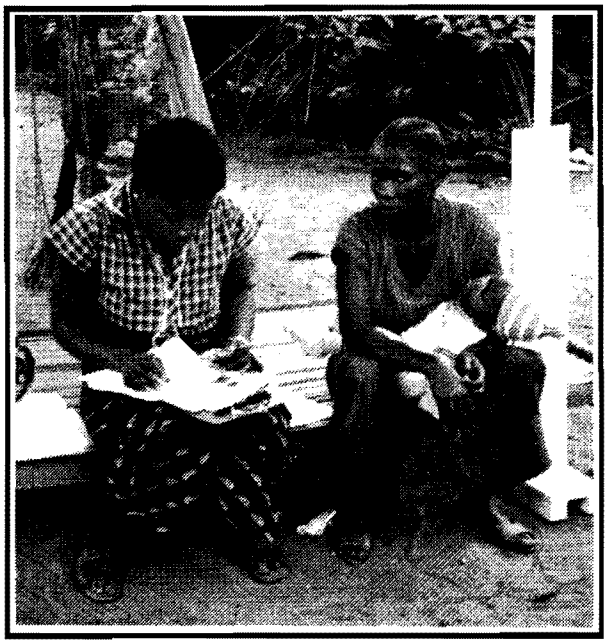


Mukoka Makolo (left) and Dr. Mulumba (right), during a site visit to Mbuji Mayi.

interviewed at home to determine whether they were still contracepting, and if so, why they did not return to the clinic. The original study design called for four questionnaires: an admission questionnaire, a supplemental questionnaire (for women who didn't receive a method on their first visit but did at a later date), a questionnaire for clinic follow-up, and a home visit questionnaire.

A number of events disrupted the study. Both the original study coordinator and the coder resigned, and there was no overlap with their replacements. Some study documents and questionnaires were destroyed in a fire before all data entry and verification was complete. A number of questionnaires which were entered onto micro-computer were later inadvertently destroyed before essential verification was possible.

A total of 1300 new acceptors were to be included in the study. In fact, a total of 1140 admission, 1408 follow-up and 209 home visit questionnaires were collected. Because of data discrepancies and lost questionnaires, only 1134 follow-up questionnaires representing 667 clients could be linked to an admission questionnaire. In addition, 101



Interviewing a mother in Bas Zaire regarding her knowledge and use of family planning.

home visit questionnaires were completed, matched, and available for analysis.

Because of these methodological problems, no attempt was made to determine continuation rates. Rather, the data analysis focused on client characteristics and reasons cited for discontinuation.[8] The median age of new acceptors was 29 years; 95% had attended some level of school. Most clients were married, with 63% in a monogamous relationship and 10% in a polygamous relationship. The median age at first pregnancy was 17 years. One third of all clients had a child under one year of age at the time of entering the study and 53% were breastfeeding.

Regarding reasons for using family planning, 71% wanted to space their births while 24% wanted to limit them (and 5% had other reasons). At the time of admission, the clients stated the following preferences for methods: injectable (44%), pill (27%), IUD (26%) and barrier methods (3%). The distribution of methods actually given differed somewhat, as follows: injectables (38%), pill (21%), IUD (21%), barrier methods (17%) and information only (3%).

Of the 101 women visited at home because they had not returned to the clinic, 13 were pregnant. Of the 88 remaining women, 39 indicated that they were still using the same method received during their last clinic visit, and 19 had discontinued using their method; no information was available for the 30 other women. Among those who discontinued, the most frequently cited reason was perceived side effects, followed by absence from partner, family problems, having forgotten, and husband's refusal.

The final report recommends (1) improving dissemination of information to clients about where FP services can be obtained, (2) expanding VSC services, (3) giving clients more specific instructions about the correct use of methods, (4) giving clients more complete information about side effects and their management, (5) expanding the period during which women can receive a method other than barrier methods, and (6) exploring the possibility of changing the criteria for the eligibility of injectables.

In retrospect, this study suffered from two problems. First, it had more than its share of logistic problems beyond the control of those providing technical assistance. The second reason does relate to the technical assistance. Tulane and FHI both had a role in this project, but neither felt uniquely responsible for making sure it "stayed on track." On one hand, Tulane's project director was resident in Kinshasa, and thus was in a better position to monitor the evolution of this project. However, the original plans called for minimal technical input from Tulane on this activity (the exception being for entering the data onto microcomputer). As problems arose on this study, the Tulane project director gave preference to those activities to which her time

[8] For full details, see Family Health International, "Contraceptive Continuation and Reasons for Discontinuation in Kinshasa, Zaire." September 1990.

had been previously committed. The FHI advisor who worked very diligently on the technical aspects of this project during periodic visits to Kinshasa was handicapped by not being able to be present at all key times, such as when the study director resigned and his replacement needed to be trained. Despite goodwill among all parties involved, the dual leadership on this project proved to be a weakness in the final analysis.

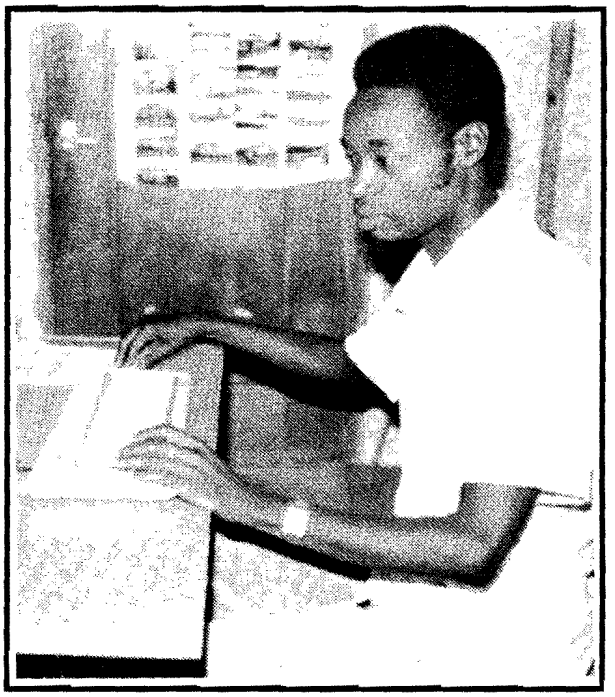
C. Development of a Model for Evaluating the Quality of Care in CBD Programs in Zaire

This activity was not funded as a separate subproject, but rather grew out of the need to monitor the quality of care in the various CBD projects which did constitute subprojects. The objectives of this activity were:

1. To assure that women who use the services of CBD workers were properly screened for use of the pill (if that was the method they chose), that they received correct information about the products and how they were to be used, and that they were referred to other levels in the health system when appropriate.
2. To strengthen the position of existing CBD programs if they were to come under attack in the future over the issue of quality of service.
3. To develop a methodology which could be used in other CBD programs outside of Zaire as well.

Rather than a study per se, this activity involved the development of basic documentation in support of the CBD service delivery programs, as well as the development and testing of a methodology to assess the quality of care given by distributors.

The two principal documents produced were the above-cited Guide pour la Réalisation du Programme de Distribution Communautaire des Contraceptifs au Zaire, and a manual for the training of distributors in CBD programs.



Nguidi Mfumu demonstrates the use of micros in the field setting.

These two documents served to standardize many of the procedures used in these programs, and to give certain norms for service delivery.

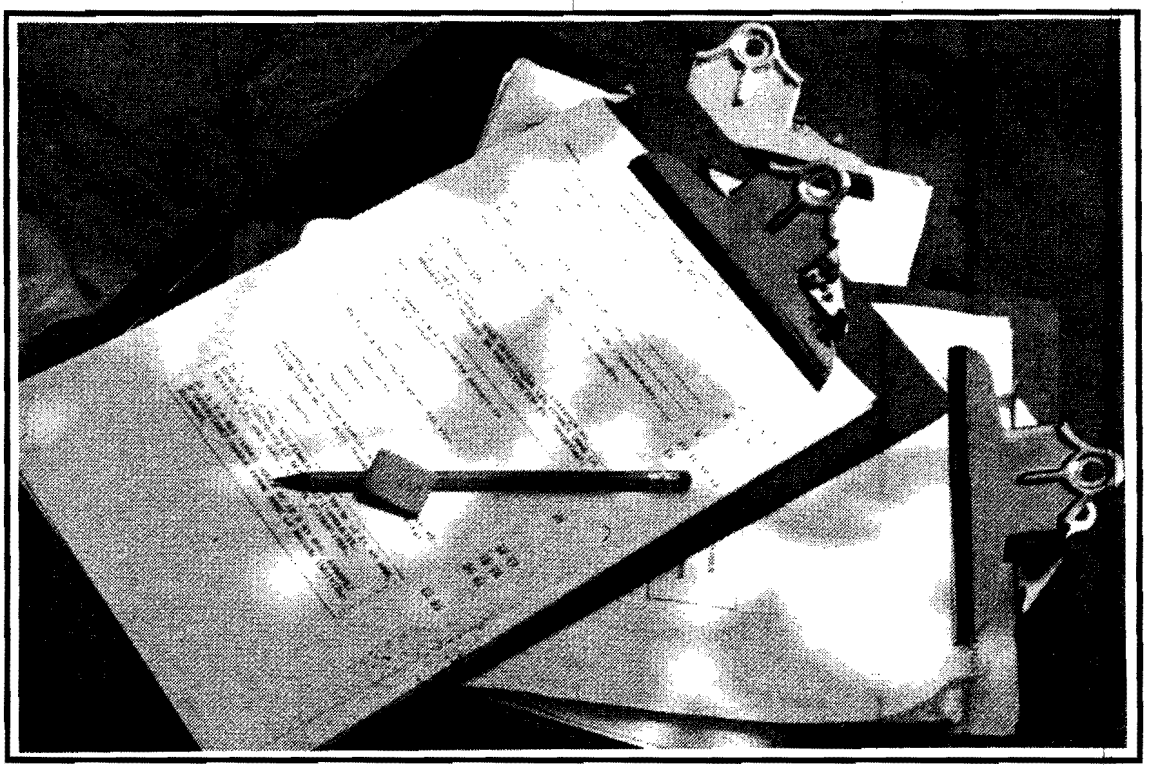
A methodology was subsequently developed for evaluating distributor performance which included three components:

- **a knowledge test** for distributors: to assure that they were able to answer basic questions about the contraceptives and other medications they sold (correct use, side effects, contraindications).
- **an "observation guide,"** consisting of a list of points which a distributor should cover during visits to a potential (new) client as well as to a continuing user; also included was a subjective measurement of rapport between distributor and client.
- **a short questionnaire** to be administered to clients of distributors in the program, to determine whether the clients knew the correct use of the method chosen and whether they were satisfied with the services

of the distributor.

This three-pronged approach to the evaluation of distributor performance was tested at two sites: Kisangani and Matadi. The knowledge test was also administered in Mbuji Mayi and Miabi. While the knowledge test proved to be a quick way to determine whether distributors were informed on key points, the full evaluation approach proved too labor-intensive to be practical as a tool for continuously monitoring distributor performance.

Three concrete products have emerged from this activity. First, a manual outlining the procedures used in the three-part evaluation is available in both French and English. Second, based on their experiences with the "full evaluation model," the PSND staff developed a supervisory form which included some of the same elements but was practical for routine use in the field. Third, a short article on supervision has been written and submitted for publication in the International Quarterly of Community Health Education.



The survey work in this project was conducted in at least seven languages or dialects.

VIII. Dissemination of Results

The results of this project have been disseminated both within Zaire and to the larger international population community through a number of different mechanisms: in-country workshops and conferences, a 25 minute video of the CBD activity, monographs and reports in French, publications in population/public health journals (primarily in English, though one was also translated and published in French), presentations at professional meetings, and working papers. The following is a complete list of the material produced under this cooperative agreement.

A. Within Zaire and/or for a Francophone Audience

1. In-country Workshops and Conferences

Workshop on Community-based Distribution, June 25-27, 1987

The CBD workshop, attended by 30 participants, represented the first attempt under this cooperative agreement to share the experiences learned in the different CBD projects with other Zairian professionals. The main ideas which emerged from this workshop formed the base of the manual of guidelines developed for implementing CBD programs in Zaire.

Workshop on Family Planning Operations Research in Francophone African Countries, Sept. 12-30, 1988

The workshop, organized jointly by the Tulane FP/OR Project, the PSND, and the Zaire School of Public Health, was conducted in Kinshasa and attended by four participants from other African countries and by seven representatives of (four) Zairian institutions involved in family planning service delivery or policy formation. It offered theoretical instruction in operations research, hand-on microcomputer training, and a field experience in data collection on one of the CBD projects.

Final Conference for the Presentation of Results from the Family Planning Operations Research Project in Zaire, July 19-21, 1989.

This three-day conference was held in the "Palais du Peuple" and attended by some 80 health professionals working in Zaire; an additional 20 professionals working in the field of AIDS prevention attended a special session on AIDS on the morning of the third day. Although the final results from all OR projects were not available at the time of the conference, there was more than sufficient material to present in this forum.

This conference represented the first "scientific meeting" on family planning-related issues in Zaire since the conference on sexually transmitted diseases in 1986. It reflected the ability of local institutions to conduct quality research in the field of family planning. In addition to serving to diffuse the findings from the FP/OR project, it offered Zairians who had been working with the project the experience of presenting their results in a public forum.

A summary of the papers presented at the Conference was compiled and is available under the title, "Conférence sur les Résultats des Recherches Operationnelles en Naissances Désirables au Zaire, Juillet 1989."

2. Video on Community-based Distribution in Zaire

In preparation for the final OR conference in July 1989, Tulane produced a 25 minute video (in French) which outlines the need for family planning in Zaire, the role of CBD in service delivery, and the preliminary findings from the O.R. projects to date. The footage for this video was shot entirely in Zaire by the local educational radio/TV production studio, while the titles and graphs were generated by

computer in the U.S. . This video will be useful in illustrating the nature of CBD and the benefits of this approach to service delivery both within Zaire and in other Francophone African countries considering the establishment of a CBD program. Copies have been sent to key institutions in the field, for possible use in the training of program managers and service providers.

3. "How-to" Documentation in French

- Guide pour la Réalisation du Programme de Distribution Communautaire des Contraceptifs au Zaire (A Guide for Carrying Out CBD Programs in Zaire), by Kashangabuye Mahama, Nlandu Mangani, Jane Bertrand and Susan McLellan, 1988.
- L'Evaluation Qualitative des Distributeurs dans un Programme de Distribution Communautaire des Contraceptifs, by Jane T. Bertrand, Samuel Wishik, and Denise Daly, 1988. (Also available in English).
- Manuel pour l'Analyse des Couts dans un Programme de Distribution Communautaire, (Manual for Cost Analysis of Community Based Distribution Programs), by Mark McBride, Mombela Kinuani, and Jane T. Bertrand, 1988. (Also available in English).

4. Monographs and Reports in French

- PSND Etude de Recherche No. 001. "Naissances Désirables et le Centre Libota Lilamu: Connaissances et Utilisation par la Population Feminine de la Zone de Kintambo," Août 1986.
- PSND Etude de Recherche No. 002. "Opinions et Attitudes des Hommes et des Femmes de Kintambo envers les Naissances Désirables," Kinshasa, Sept. 1986.
- PSND Etude de Recherche No. 003. "Résultats du Programme de Motivation dans la Zone de Kintambo pour Augmenter l'Utilisation du Centre Libota Lilamu." Kinshasa, 1986.
- Bertrand, Jane T., Bakutuvwidi Makani, Kinavwidi Lewu Niwembo, Balowa Djunghu. "Connaissances sur le SIDA, Comportement Sexuel et Utilisation des Condoms dans la Prévention du SIDA " Kinshasa, Zaire." Kinshasa, PSND: Fevrier 1989.
- Bertrand, Jane T., Bakutuvwidi Makani, Balowa Djunghu, Kinavwidi Lewu Niwembo. "Connaissances du SIDA et Comportement Sexuel dans 10 Sites au Zaire." Juillet 1989.(**)
- Bertrand, Jane T. "Vente des Produits Contraceptifs au Zaire, 1988-89. Une Etude de Postes Sentinelles," Rapports no. 1, 2, et 3. New Orleans, Tulane University. (**)
- Makani, Bakutuvwidi, Kinavwidi Lewu Niwembo, and Jane T. Bertrand. "Fecondité et l'Utilisation des Méthodes Contraceptifs " Kinshasa, 1988." (scheduled for completion in December 1990).

(Note: the next two items were based on data from the original Bas Zaire contract but published during the period of this cooperative agreement.)

- Bertrand, J.T., Nlandu Mangani, Matondo Mansilu, Mark McBride and Jeffrey Tharp. 1986. "Stratégies pour la fourniture de services de planning familial au Bas Zaire." Perspectives Internationales du Planning Familial, (numero special): 2-10.
- Nlandu Mangani, Matondo Mansilu, and Jane T. Bertrand. 1986. La Promotion des Naissances Désirables au Bas Zaire. New Orleans, LA: Tulane University. (Monograph)

** The items marked with a double asterik indicate activities funded from other source, with technical assistance provided from the Tulane FP/OR project.

B. For the International Population Community

1. Publications in English in Professional Journals

- Chibalonza, Kashwantale, Chirwisa Chirhamolekwa and Jane T. Bertrand. "Attitudes toward Tubal Ligation among Acceptors, Potential Clients, and Husbands in Zaire." Studies in Family Planning 1989, 20(5):273-280.
- Bertrand, Jane T., Chirwisa Chirhamolekwa, Kashangabuye Mahama, Balowa Djunghu and Kashwantale Chibalonza. "Post-partum Events and Fertility Control in Kinshasa, Zaire." Journal of Biosocial Science 1990, 22: 197-211.
- Bertrand, Jane T., Kashwantale Chibalonza, Balowa Djunghu, Nancy Baughman, Chirwisa Chirhamolekwa. "Social and Psychological Aspects of Tubal Ligation in Zaire: A Follow-up Study of Acceptors." Forthcoming in International Family Planning Perspectives.
- Bertrand, Jane T. and Judith Brown. "Family Planning Successes in Two Cities in Zaire," in R.A. Bulatao (ed.), Effective Family Planning Programs. Washington, DC: World Bank (forthcoming).
- Hassig, Susan E., Jane T. Bertrand, Balowa Djunghu, Minuku Kinzonzi, Nlandu Mangani. "Duration and Correlates of Post-partum Abstinence in Four Sites in Zaire." Forthcoming in Social Science and Medicine.
- Bertrand, Jane T., Bakutuvwidi Makani, Susan Hassig, Kinavwidi Lewu Niwembo, Balowa Djunghu and Chirwisa Chirhamolekwa. "AIDS-related Knowledge in Kinshasa, Zaire." Forthcoming in the American Journal of Public Health.
- Irwin, Kathleen, Jane T. Bertrand, Ndilu Mibandumba et al. "Knowledge, Attitudes and Beliefs about HIV Infection and AIDS among Healthy Factory Workers and their Wives, Kinshasa, Zaire." Forthcoming in Social Science and Medicine. (**)
- Ward, Victoria, Jane T. Bertrand, Lisanne Brown. "The Comparability of Focus Group and Survey Results: Three Case Studies." Forthcoming in Evaluation Review.

Note: the following two items report results from the original Bas Zaire project, published under the current agreement.

- Bertrand, Jane T., Nlandu Mangani, Mark E. McBride, Matondo Mansilu, and Jeffrey Tharp. "Strategies for Delivery of Family Planning Services in Bas Zaire." International Family Planning Perspectives 1986, 12(4): 108-115. (French version cited above).
- Tsui, Amy O., Julia DeClerque, and Nlandu Mangani. 1988. "Maternal and Sociodemographic Correlates of Child Morbidity in Bas Zaire: The Effects of Maternal Reporting." Social Science and Medicine 26(7): 701-713.

2. Working Meeting on Cost-Effectiveness Analysis, Dec. 2-4, 1985

Tulane organized this meeting for the purpose of providing researchers involved in measuring the cost-effectiveness of family planning interventions with an opportunity to discuss the approaches being used and methodological problems encountered. This meeting, held in New Orleans, was attended by 15 persons representing a dozen USAID cooperating agencies and other family planning organizations. A summary of the proceedings was issued and has been cited in a number of papers on cost analysis since then.

** The items marked with a double asterik indicate activities funded from other source, with technical assistance provided from the Tulane FP/OR project.

3. Presentation of Results at Professional Meetings

- "AIDS-related Knowledge, Attitudes and Practices in Kinshasa, Zaire 1987-88," by J.T. Bertrand, B. Makani, K.L. Niwembo, C. Chirhamolekwa, S.E. Hassig. IV International Conference on AIDS, June 12-16, 1988, Stockholm.
- "Attitudes toward AIDS, HIV Infection and Condom Use in Healthy Textile Workers and their Wives in Kinshasa, Zaire." Kathleen Irwin, J.T. Bertrand, et al., IV International Conference on AIDS, June 12-16, 1988, Stockholm. (**)
- "Evaluation and Promotion of Quality in the Educational Components of Family Planning CBD Services in LDCs," by Jane Bertrand and Samuel Wishik, presented at APHA, Boston, Nov. 14-17, 1988.
- "Knowledge and Perceived Risk of AIDS among the Adult Population of Kinshasa, Zaire," by J.T. Bertrand, Bakutuvwidi Makani, Kinavwidi Lewu Niwembo, Susan Hassig, Chirwisa Chirhamolekwa. Presented at the V International Conference on AIDS, Montreal, Canada, June 1989. Abstract No. 7081.
- "Factors affecting Performance of Distributors in the Community-based Distribution of Contraceptives in Zaire." By J.T. Bertrand, Chirwisa Chirhamolekwa, Balowa Djunghu, Mukoka Makolo. Presented at the American Public Health Association meeting, Chicago, Ill, October 22-26, 1989.
- "Recent Lessons from Operations Research on Service Delivery Mechanisms," by Jane T. Bertrand. Presented at the International Conference and Workshop on Operations Research in Family Planning, Columbia, MD, June 11-14, 1990.
- "Behavioral and Cultural Factors Affecting the Use of Postpartum Contraception: The Case of Zaire." Jane T. Bertrand. Presented at the International Conference on Postpartum Contraception, Mexico City, Mexico, Sept. 17-19, 1990.

4. Submitted for Publication in Professional Journals

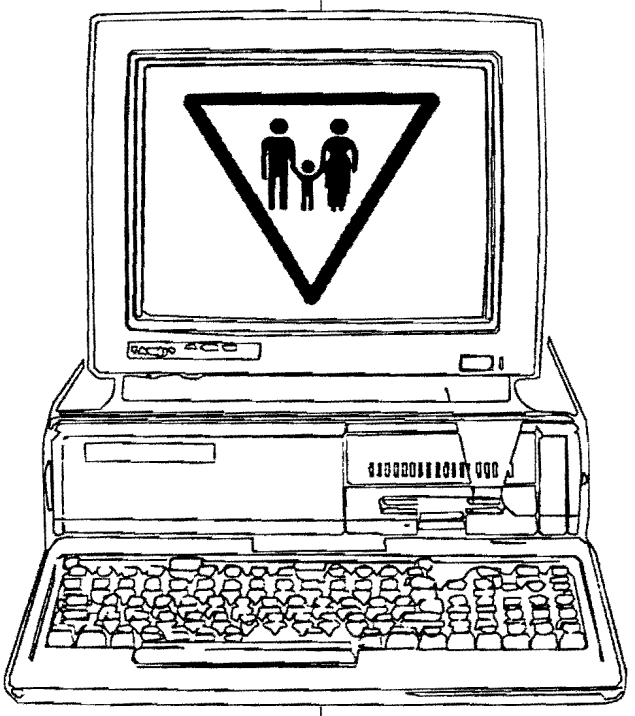
- Bertrand, Jane T., Bakutuvwidi Makani, Balowa Djunghu, Kinavwidi Niwembo. "Sexual Behavior and Condom Use in 10 Sites in Zaire." Submitted to AIDS in August 1990. (**)
- Wishik, Samuel and Jane T. Bertrand. "Field Supervision for Quality Control of Family Planning Workers in Less Developed Countries," submitted to International Quarterly of Community Health Education in October 1990.

5. Unpublished Papers in English

- McBride, Mark and Jane T. Bertrand (rapporteurs), "Summary of the Working Meeting on Methodological Issues in Cost-Effectiveness Analysis for Family Planning Programs," organized by Tulane University, New Orleans, December 2-4, 1985.
- McBride, Mark, Mombela Kinuani, Jane T. Bertrand, and Nancy Baughman. "Calculation of Cost per Couple-Year-of-Protection. Preliminary Findings from PRODEF-Matadi/Nsona Mpangu, Zaire, 1985-87," July 1988.
- Bertrand, Jane T., Chirwisa Chirhamolekwa, Kashwantale Chibalonza, Kashangabuye Mahama, and Balowa Djunghu. "The Kintambo Motivation Project to Increase Clinic Utilization in Kinshasa, Zaire." September 1988.

** The items marked with a double asterik indicate activities funded from other source, with technical assistance provided from the Tulane FP/OR project.

- Bertrand, Jane T. and Judith Brown. "Techniques for Analyzing Focus Group Data." November, 1988.
- Bertrand, Jane T., Kashwantale Chibalonza, Amundala Twafoka Lwaforla et al., "Attitudes toward Voluntary Surgical Contraception among Health Personnel from Eight Sites in Zaire." Kinshasa, PSND, and New Orleans, LA: Tulane University. March 1990.
- Bertrand, Jane T. "Contraceptive Marketing in Zaire, 1988-1989. A Sentinel Site Survey." Reports #1, 2, and 3. New Orleans: Tulane University. (**)



** The items marked with a double asterik indicate activities funded from other source, with technical assistance provided from the Tulane FP/OR project.

IX. Conclusion

It is difficult to condense the experience of six years into a single set of conclusions. Recommendations for specific projects are outlined in connection with the different topics presented above and are not reiterated here. Rather, we conclude this report with some reflection on "the roads not taken," as well as an assessment of the main accomplishments of the Zaire FP/OR Project.

A. Limitations

Given the benefit of hindsight, there are areas in which Tulane would have done well to focus more of its attentions.

1. The Tulane project invested many of its resources in testing the CBD approach as a useful complement to clinic-based services. More focus should have been given to using operations research to identify the problems and test solutions for the principal service delivery effort: the clinic-based program which operates through the PSND network of participating hospitals and health centers.

2. The CBD projects had a heavy research component, which resulted in each subproject's staff spending a large part of its energies on data collection and processing. This was especially true in that all projects were originally designed to have a baseline and follow-up survey among a large, randomly selected sample of the population. While a certain amount of data collection was essential for management purposes, the emphasis on research undoubtedly reduced the amount of time which staff could give to service delivery. In short, had there been less number crunching, there might have been more and/or higher quality CYP.

3. Similarly, in the case of the AIDS research, the overly ambitious baseline survey (which included over 6500 adults in Kinshasa) consumed the time and energy of the project staff to the point that it was only possible to introduce the service program in two of the three zones targeted for the activity. Moreover, because of the delay in starting the service program, it was not possible to evaluate its impact within the time frame of the project.

4. The research on VSC focused largely on social and psychological aspects of decision-making. More attention could have been paid to the actual components of service delivery (such as training, supervision, counseling, etc.) and how improvements might be made in these areas.

B. Principal Accomplishments

At the same time, the Zaire FP/OR project made a major contribution to understanding the dynamics of family planning acceptance and to promoting more widespread contraceptive use in Zaire. In the final analysis, the ten principal accomplishments were:

1. Establishing community-based distribution as an alternative delivery systems for contraceptive distribution in Zaire. At the close of project activity in December 1989, the national family planning program incorporated this network of over 270 distributors in eight project sites into its program of ongoing activities.

2. Demonstrating that the community-based distribution approach is culturally and politically acceptable in the context of an important Francophone sub-Saharan country, Zaire.

3. Providing one of the first detailed analyses of the cost per couple-year-protection (CYP) for a family planning service in a sub-Saharan program.

4. Demonstrating from the Matadi project that contraceptive prevalence of modern methods can increase dramatically when contraceptives are made readily available through convenient channels at low cost.

5. Providing some of the first data available to

date from sub-Saharan Africa on attitudes toward voluntary surgical contraception. Information obtained from women who had undergone tubal ligation, users of reversible methods, husbands of users of reversible methods, and medical personnel responsible for these programs provided a comprehensive view of the motivations for and barriers to more widespread acceptance of this method, which have important implications for the expansion of VSC services in this country.

6. Conducting an in-depth survey of knowledge-attitudes-practices (KAP) related to AIDS among men and women in the capital city of Kinshasa, the results of which have been used in the development of subsequent IEC activities aimed at prevention. This same study provided an update to the contraceptive prevalence survey of 1982, with the important addition of data from men as well as women.

7. Demonstrating the feasibility of combining AIDS prevention activities into ongoing CBD programs, the common link being the sale of condoms.

8. Establishing a research capability within the national family planning program in the form of the Operations Research Unit; training personnel in quantitative and qualitative research techniques, as well as microcomputer applications. This was further reinforced when they in turn trained fellow Zairians in these same techniques.

9. Disseminating these results within Zaire and to the larger international population community through four conferences and workshops, a 25 minute video on CBD in Zaire, three "how-to" manuals and nine research reports in French, eight articles in international population journals in English, and several unpublished papers.

10. Creating a strong sense of identification with the goal of of operations research in Zaire; the esprit de corps which developed among the Zairians and Americans collaborating on the OR projects greatly increased productivity and strengthened commitment to producing quality work, despite the temporary set-backs and logistical difficulties which are not uncommon in Zaire.

Appendix A

Personnel Associated with Zaire FP/OR Project

Tulane University Full-time and Part-time Project Staff:

Jane T. Bertrand, *Project Director*

Bradley Barker, *Project Liaison*

Nancy C. Baughman, *Project Liaison and Data Analyst*

Michael P. Edwards, *Data Analyst*

Susan E. Hassig, *Epidemiologist (AIDS)*

Penny Jessop, *Administrator*

Evelyn Landry, *Project Liaison and Data Analyst*

Felix Lee, *Computer Specialist*

Cameron Smith, *Graphics and Desktop Publishing*

Gene White, *Clerk*

Tulane Faculty Serving as Consultants:

William E. Bertrand, *Microcomputer Applications*

Janet Hughes, *Statistical Consultant*

Nancy B. Mock, *Survey Research/anthropometrics*

Janet Rice, *Statistical Consultant*

Other Consultants:

Mark E. McBride, *Cost Analysts and Video Production*

Amy Ong Tsui, *Demographic Analysts*

Bakutuvwidi Makani, *Kinshasa Contraceptive Prevalence Survey*

Kinavwidi Lewu Niwembo, *Kinshasa Contraceptive Prevalence Survey*

Samuel Wishik, *Quality of Care in CBD Programs*

Belen Baas, *Cost Analysts*

Desk Top Publication of Final Report:

Betsy Gleckler, *Graphics and Desktop Publishing*

Tulane Students who Worked in Zaire:

Denise Daly, *Evaluation of Distributor Performance*

Amelia Duran, *Training of Survey Personnel*

Susan McClellan, *Community-based Programs*

Fran Priddy (Brown University), *Data Processing*

Cynthia Stanton, *Monitoring of Fieldwork — Kintambo Survey*

Catherine Toth, *Data Processing*

Leslie Traub, *Microcomputer Training*

Zairian Project Staff and Collaborators:

Projet des Services des Naissances Désirables (PSND),

Administrative personnel:

Chirwisa Chirhamolekwa, *Director*

Ngoie Mbuya, *Assistant Director in Charge of Administration*

Kidiadi Mavuela, *Accountant*

Staff of the Operations Research Unit, PSND:

Mbadu Muanda, *Division Chief*

Kashwantale Chibalonza, *Head of Applied Studies*

Balowa Djunghu, *Head of Computer Services*

Mukoka Makolo, *Head of Community-based Distribution*

Muhemeri Chirezi, *Research Assistant*

Mombela Kinuani, *Assistant in Computer Services*

Chigangu Munyerenkana, *Administrative Assistant*

Ahuta Moenge, *Wordprocessing*

Kasela Kanyimbu, *Secretary*

Amundala Twafoka Lwaforla, *Supervisor/interviewer*

Communauté Baptiste de Zaire Ouest (CBZO):

Charles Moore, *Representative*

PRODEF Matadi/Nsona Mpangu (Bas Zaire):

Dr. Nlandu Mangani, *Director*

Matondo Mansilu, *Deputy Director*

Butuena Mavambu, *Coordinator*

Diasivi Nlandu, *Supervisor*

Diakadulua Nlandu, *Inventory*

Mabena Kwizibuani, *Driver*

Kimbwende Niangara, *Secretary*

Bafwanga Umba, *Consultant*

Bibimbo Kuwana, *IEC consultant*

PRODEF Sona Bata (Bas Zaire):

Dr. Minuku Kinzonzi, *Director*

Dissu Makela, *Coordinator*

Kisansi Mpasi, *Supervisor*

Nkusu Nzolantima, *Promoter*

Nsimba Minuku, *Clerk*

Tangu Bamikina, *Inventory*

Mutuza Munyololo, *Secretary*

Ngwati Mata, *Driver*

Nguidi Mfumu, *Coder and data entry*

Nkanga Mapadi, *Coder and data entry*

PRODEF Mbuji Mayi (Kasai Oriental):

Dr. Ntumbak Kalala, *Director*

Kankolongo Kalala, *Supervisor*

Lukusa Muya, *Secretary Administrator*

Dr. Mulumba Kathashi, *Coordinator in Miabi*

Mutombo Kabongo, *Coder and data entry*

Mukendi Kalenga, *Driver*

Benak Kalala, *Aide*

PRODEF Kisangani (Haut Zaire):

Dr. Wembodinga Utshudinyema, *Director*

Captain Matumbu Makasa, *Administrator*

Nyongombe Utshudi, *CBD Supervisor*

Dr. Kanda Luhaka, *Consultant (Chief Medial Officer of Zone)*

Dr. Yagi Sitolo, *Consultant (from University Hospital)*

Mulamba Nkongolo, *Secretary*

PRODEF Kinshasa, Zone of Makala:

Dr. Liyeye Kota Kasi, *Director*

Mulumba Kanku, *Supervisor*

PRODEF Kinshasa, Zone of Kikimi:

Dr. Kubuimana Ozili, *Director*

Asele Ansu, *Supervisor*

Cognizant Technical Officers, USAID/Washington:

Elizabeth Maguire, 1984

Maria Mamlouk, 1985

Anna Quant, 1985

John Burdick, 1985

Jerry Bailey, 1986-87

Carol Dabbs, 1987-90

Ann Way, 1990

USAID/Zaire (Population Officers/Advisors):

Ken Heise, 1984-85

Gael Murphy, 1985-87

Lois Bradshaw, 1987-89

William Martin, 1989-90

Beth Stanford, 1989-90