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FINAL REPORT

**FAMILY PLANNING OPERATIONS RESEARCH:  
THE PRODEF/TULANE PROJECT IN BAS ZAIRE  
(Contract: AID/DSPE-C-0089)**



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**February, 1985**

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Chapter I  
EXECUTIVE SUMMARY



Nsona Mpangu, Bas Zaire: Hospital and Market



## CHAPTER I

### EXECUTIVE SUMMARY

#### A. Background to the PRODEF Project

The Tulane Family Planning Operations Research Project in Bas Zaire (known locally as the Programme d'Education Familiale or PRODEF) is intended to increase the availability and acceptability of modern contraceptives in both an urban and rural area of Bas Zaire, Republic of Zaire. The urban program is vertical (family planning only), whereas in the rural program, family planning (FP) is integrated with three interventions for children under five: anti-malarial drugs, anti-helminthic drugs, and rehydration salts (Oralyte).

The project has been implemented in the urban area of Matadi (estimated population of 150,000-200,000, of which approximately 133,000 are included in the target area for this project) and in the rural zone of Songololo (estimated population of 36,000; the program covers 53 villages with a total of approximately 25,000 inhabitants). While the project began in October 1980 and is still in operation at present, this report only covers the period through December 1983.

The project is designed to test two alternative strategies to the delivery of FP services:

- a) Treatment A: Stocking of existing dispensaries with contraceptives (and the other products in the rural area), as well as an extensive outreach program consisting of group meetings, home visiting and the household distribution of contraceptives; and
- b) Treatment B: Stocking of existing dispensaries only, with no outreach activity.

In the rural area there is an additional source of supplies in certain villages: the matrone. This is a woman selected by the village to be trained by PRODEF and to serve as a depot for the contraceptive supplies and drugs for children under five in those villages that do not have a dispensary (which is the case in 44 of the 53 villages).

This final report of the PRODEF project assesses the extent to which the project achieved its objectives. These were:

1. To increase knowledge of modern contraceptives
2. To improve attitudes toward family planning
3. To increase the use of modern contraceptives
4. To decrease "ideal family size"
5. To increase the use of appropriate treatment for children under five who are reported to have malaria, intestinal helminths and dehydration due to diarrhea

The results of the research to date can be summarized as follows.

B. Service Activities: Achievement in Terms of Contraceptives and Drugs Distributed

Regarding family planning, program achievement was measured in terms of the volume of contraceptives distributed, which was translated into couple-months-of-protection (CMP), for the purpose of making comparisons over time and among the different types of providers (home visitors, dispensaries and matrones).

In the twenty-seven months of service delivery (October 1981 to December 1983), a total of 32,424 CMP were provided to the target population. Of this, almost three-quarters corresponded to the urban area (which has a far larger population).

In the urban area, the CMP per trimester generally increased over time, though with marked fluctuations in the curve (corresponding to the periods of most intensive home visiting). In the rural area, there was a steady, gradual increase in CMP over the first five trimesters, after which the level of CMP reached a plateau.

In the urban area, the level of CMP was higher for Zone A than Zone B, which can be attributed to (1) a larger population in Zone A, (2) women in Zone B buying contraceptives in Zone A, and (3) the effect of the outreach work in Zone A.

The efficiency of different service providers was measured crudely by the average CMP per individual provider per month. In the urban area, the dispensaries in Zone A reported more than double the CMP (154/month) of the home visitors (67 CMP/month) or the dispensaries in Zone B (60 CMP/month).

In the rural area, the overall level of CMP was much lower than for the urban area. Again, CMP was higher in Zone A than Zone B, which results from the larger population in Zone A and the outreach carried out in this area.

However, the level of CMP distributed per month reached a plateau in the rural area after one year of service delivery. Moreover, contraceptive distribution among the major provider of contraceptives-- the matrones -- actually decreased in the final months of the project included in this evaluation. Reasons for this are discussed in Chapter IV.

Data on the sale of the four drugs -- aspirin, chloroquine, mebendazole and Oralyte -- indicate that matrones were the major source of all four products, in part because they far outnumbered the other service providers. Interestingly, the average quantity of each product sold per individual provider per month was highest for the matrones on those products which were already familiar to the population (aspirin, chloroquine). However, the average quantity sold per provider per month was highest for the home visitors on those products which were new to the population (modern contraceptives and Oralyte) and required explanation.

Far more drugs than contraceptives were sold in the rural area, which reflects the relative demand for these products. However, this also indicates that the population accepts the concept of the matrone for the delivery of certain primary health care services.

C. The Impact of the Family Planning Interventions

In both the baseline and followup surveys and within both regions (urban, rural), the respondents in Zone A and Zone B were comparable on almost all the socio-demographic variables tested. Thus, differences between Zones A and B on family planning-related variables can not be attributed to underlying differences in the two populations, but rather suggest the impact of the PRODEF project.

Knowledge of modern contraceptive methods increased dramatically in both the urban and rural areas, and in both Zone A and Zone B in each region. However, the percentage that knew at least one method and the average number of methods known was higher in the urban than rural area; and within each area, it was higher for Zone A than for Zone B.

Approval of "methods for spacing births or avoiding pregnancy" was at least 90 percent in all groups on the baseline, and was virtually universal by the time of the followup survey.

The percentage of ever-married women who had ever used a contraceptive increased in all groups, though more so in the urban than rural area, and (within each area) more so in Zone A than Zone B. Nonetheless, withdrawal continues to be the method which the greatest percentage of the respondents had ever used.

One of the principal objectives of this project was to increase modern contraceptive use. In the urban area the percentage of married women 15-49 years old who were using a modern method increased from 4 to 19 percent in Zone A and from 5 to 16 percent in Zone B. At the same time, the percentage using a traditional method decreased by 16 percentage points in both zones.

The use of modern contraceptives also increased in the rural area: from 5 to 14 percent in Zone A, and from 2 to 10 percent in Zone B. The percentage currently using a traditional method decreased by 12 percentage points in each zone.

Preferred methods among urban users are the pill, female sterilization, Neosampon and condoms. By contrast, the most common methods among rural users were condoms, female sterilization and foam.

While this research design is limited by the fact that there is no control group (but rather two treatment groups), the results suggest that PRODEF has achieved its objectives in terms of increasing knowledge and use of modern contraceptive methods. The level of prevalence reached in Zone A of each region (which received outreach) was slightly higher than that observed in Zone B (no outreach), although the difference was not as great as the project directors expected.

#### D. Impact of the Child Health Interventions

The evaluation of the child health interventions consisted of determining whether there were changes in the percentage of children who had had a specific ailment just prior to the followup survey and who had received "preferred treatment" for that ailment. PRODEF made available chloroquine and aspirin for malaria; mebendazole for intestinal worms; and Oralyte for diarrhea. As mentioned above, the child health interventions were only implemented in the rural area, not in the urban.

The results of the surveys suggest that home visiting in the rural area had a slight positive effect on use of "preferred treatment" for two of the three products: mebendazole and Oralyte. In the case of intestinal worms, the percentage who received preferred treatment increased in Zone A (from 82 to 89 percent), while it decreased slightly in Zone B (87 to 85 percent). Similarly, the percentage that had been given Oralyte or sugar-salt solution in the event of diarrhea was slightly higher in Zone A (8 percent) than in Zone B (4 percent), although use of this treatment is still very limited.

The impact of the PRODEF project is much less clear-cut regarding the child health interventions as compared to the family planning component. Moreover, the impact of home visiting is only slightly greater than simply making the products accessible at low cost through dispensaries or matrones. Nonetheless, the child health interventions were very important for enhancing the value of the PRODEF program in the eyes of the community.

E. Cost Effectiveness Analysis of the Two Approaches

Cost data from ledgers at Tulane University and vouchers from Zaire were classified and coded to reflect the total costs for the implementation of the service components of this project (excluding research costs). In addition, resources donated to the project were shadow priced. Couple-months-of-protection (CMP) served as a measure of program output. The cost per CMP for this project in the urban and rural areas, as well as in the two treatment groups within each area, was as follows:

Service Cost per Couple-Month-of-Protection by  
Region and Treatment Group

	Oct 1980 to Sep 1981	Oct 1981 to Sep 1982	Oct 1982 to Sep 1983	Oct 1983 to Dec 1983	Oct 1980 to Dec 1983
Cost per CMP Overall	--	\$15.57	\$4.54	\$2.84	\$ 7.58
Cost per CMP by Zone					
Urban					
Overall	--	\$14.31	\$4.04	\$2.60	\$ 6.68
Zone A	--	14.45	4.16	2.59	6.82
Zone B	--	12.01	3.43	2.63	5.93
Rural					
Overall	--	17.50	6.01	3.87	10.05
Zone A	--	18.60	6.36	3.96	11.02
Zone B	--	13.64	5.23	3.76	7.76

Several interesting trends emerge in this table. First, the cost per CMP declined over the life of the project, reflecting the high initial start-up costs of this type of project. We would expect CMP to stay at this relatively low level from this point on. Second, the cost per CMP was lower in the urban than rural area. In fact, the real difference is greater than the figures in the table reflect, given that a large part of the CMP cost is nontraceable by region. Third, the cost per CMP is slightly higher in Zone A than in Zone B (by approximately \$1.00 in the middle period of the project). As mentioned above, home visiting (Zone A) can be seen to raise the output generated (CMP) in comparison to just making contraceptives available (Zone B). However, the CEA data suggest that the outreach program is buying a higher

quality CMP (in terms of client education and motivation) at a relatively low additional cost.

F. Qualitative Assessment of the Strengths of the Program and Difficulties Encountered

The Zairian project directors (Dr. Nlandu Mangani and Citne. Matondo Mansilu) assess the strengths of the PRODEF project to have been:

- adequacy of material resources
- non-authoritarian management style
- staff identification with the project
- determination to succeed
- support of the local political/administrative authorities
- collaboration of dispensary nurses and matrones

The problems encountered in implementing the project included:

- cultural resistance to family planning among some individuals
- dependence on a single project vehicle to cover all transportation needs
- a shipment of contraceptives (foam) which was near expiration by the time of its arrival
- devaluation of the Zairian currency by over 400 percent in September 1983
- communication problems, especially between Kinshasa and Nsona Mpangu.

## G. Conclusions

The lessons learned from the Bas Zaire project include the following:

1. The promotion of family planning, specifically modern contraceptives, has been culturally acceptable in Bas Zaire.
2. The vertical program (FP services only) proved to be acceptable in the urban area.
3. In the rural program, which included both family planning and child health interventions, the latter greatly enhanced the value of the program in the eyes of the community.
4. The matrones proved to be an efficient and culturally acceptable channel for the distribution of contraceptives and selected drugs for children under five.
5. The effects of the program were not immediate; rather, CMP increased gradually over the life of the project.
6. The pill and Neosampoon were the most popular methods among program clients, according to service statistics.
7. Simply making modern contraceptives available to the population through existing outlets and the matrones (the treatment in Zone B) was sufficient to increase contraceptive prevalence.
8. However, the level of contraceptive prevalence was greater in those areas that received both stocking of dispensaries and outreach (Zone A) than those who did not receive outreach (Zone B).
9. While the treatment which combines stocking of outlets and outreach is more effective in increasing contraceptive prevalence, it is also slightly more expensive.

10. The cost per CMP is slightly higher for Zone A than for Zone B; however, it probably represents a "higher quality CMP."
11. The cost per CMP is higher in the rural than in the urban area.
12. It is not recommended that similar programs use the home visitor approach in rural areas unless they can overcome the problems related to transportation.
13. If this project were to be replicated in other areas of Zaire (assuming somewhat comparable socio-demographic and cultural conditions), Treatment A (stocking of outlets with outreach) is recommended under the following conditions:
  - . the program will operate in an urban area (where it is not necessary to provide transportation to the home visitors)
  - . the cost of paying home visitors and the slight additional cost per CMP is not a concern
  - . an objective of the project is to increase contraceptive prevalence to the greatest extent possible
14. By contrast, Approach B (with stocking of outlets, but no outreach) is recommended under the conditions that:
  - . the program will operate in a rural area (especially if transportation is likely to present a problem)
  - . it is important to keep costs (both in absolute terms and in terms of cost per CMP) as low as possible
  - . the funding agency or project administrators are willing to sacrifice some gain in contraceptive prevalence to keep costs low.

15. Supervision of community volunteers must be constant if they are to continue to serve a productive role in the project.
16. Zairian project directors partially attribute the success of this project to having adequate material resources with which to carry out the activities. Management style and collaboration of others with the project also contributed to a positive outcome.
17. Tulane University attributes a great deal of the success of this project to the leadership of Dr. Nlandu Mangani, Citne. Matondo Mansilu and Citne. Butuena Mavambu.

Chapter II  
RATIONALE AND OBJECTIVES



Outside the Nsona Mpangu Office: (L-to-R) Butuena  
Mavambu, Nlandu Mangani and Diasivi Nlandu

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## CHAPTER II

### RATIONALE AND OBJECTIVES

#### A. Rationale for the PRODEF Project

Zaire is a country of 32 million inhabitants, located in Western Africa. With a crude birth rate of 46 per 1,000 and a crude death rate of 17 per 1,000, Zaire is growing at a rate of 2.9 percent per year. Infant mortality is reported to be 82 per 1,000.

In sub-Saharan Africa there has been little support to date at the government level for programs that would decelerate population growth. Some governments feel that continued population growth is to their advantage in building military strength or expanding their populations into sparsely populated areas. Others are preoccupied with the more global issue of socio-economic development and may give little importance to the role that accelerated population growth plays in the process. While other countries recognize the problems inherent in rapid population growth, they may adhere to the belief expressed in the 1974 Bucharest Conference on Population, that "development is the best contraceptive." One of the strong reasons for limited population activity to date in sub-Saharan Africa is the deeply ingrained pronatalist tradition found in all countries of the region. In short, it is not surprising that the leaders of African nations have directed their limited resources to the most basic health and developmental interventions rather than to focus on an area which could be viewed as low priority or even as contrary to the pronatalist norms of the society.

However, Zaire is somewhat of an exception. In 1972 President Mobutu Sese Seko publicly announced his support for "naissances desirables" (desirable births) for the purposes of child spacing. This led the way for the establishment of the Comite National des Naissances Desirables (National Committee for Desirable Births or CNND), which was established in 1973 and later became affiliated with the International Planned Parenthood Federation.

In the late 1970s the CNND set up several family planning services in existing health facilities in Kinshasa, the capital city of Zaire. Moreover, they established links with other family planning service outlets which had been established in diverse locations throughout Zaire by missionary groups or other private voluntary organizations. As of 1980, the CNND reported approximately 100 such "antennae" services.

The Eglise du Christ au Zaire (ECZ) was also important to the evolution of family planning in Zaire. Through the efforts of Rev. Ralph and Mrs. Florence Galloway, several pilot projects funded by Pathfinder Fund were carried out. During the late 1970s the ECZ served to strengthen the role of the various missionary groups in the country in the delivery of family planning services.

As of 1979, the CNND and the ECZ were the primary institutions involved in family planning in Zaire. At the time the current program was developed, neither SANRU (a rural primary health care project) nor the Urban Family Planning Project were even under discussion (although these two projects since then are becoming the major vehicles for the systematic provision of family planning services in numerous rural and urban areas of Zaire).

It was these factors which led to the development of the current project. The initial efforts by CNND and the ECZ had shown promising results on a small scale. The President of Zaire had publicly announced support for family planning (for birth spacing), yet this had not been translated into the systematic provision of family planning services through the government health facilities. And at that point, plans were yet to be drawn up for the systematic expansion of services throughout the country. Moreover, there was very little documentation on the acceptability of modern contraceptives in francophone sub-Saharan countries.

The current project -- known locally as the Programme d'Education Familial (Program for Family Education) or PRODEF -- was designed to test the acceptability of making modern contraceptives available in the context of maternal/child health. The specific hypothesis (which has been confirmed in

a number of other developing countries but not previously tested in a francophone sub-Saharan country) is that improved access to modern contraceptives at low monetary cost will result in the increased practice of family planning.

Previous studies from Zaire and from other countries in the region have documented the deeply ingrained tradition of child spacing, which has been achieved in the past by traditional methods, often abstinence. With increasing modernization, exposure to Western ideas, and changes in social practices (such as the decrease in polygamy), it is hypothesized that many couples will be favorable to alternative means (i.e. modern rather than traditional methods) for controlling fertility. One of the main purposes of this service/research project is to determine the extent to which women in the target population will accept (use) modern contraceptives when they become available at low cost.

While this is a family planning project, it also has an important child health component. Prevalent health problems for the preschool-age population of Bas Zaire include malaria, intestinal helminths, and dehydration due to diarrhea (1). Thus, the project has been designed to include the provision of drugs to treat these problems among children under five. The child health component serves the double purpose of addressing important public health problems among children and also of placing the family planning activities in the larger context of maternal/child health (which is believed to enhance their acceptability).

Bas Zaire was chosen as the site for this project for several reasons. First, it was outside Kinshasa yet fairly accessible (five hours by car). Second, Dr. Nlandu Mangani, Director of the Hopital Evangelique in Nsona Mpangu, had expressed his interest to the Galloways of ECZ to incorporate

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1 Other public health problems for this age group included malnutrition and the need for vaccination. Nutrition education and/or food supplementation was felt to be beyond the scope of this project. The vaccinations were being covered by another organization and thus were not included herein.

family planning activities into the public health program which he had developed in his health zone. As such, the counterpart director was himself convinced of the importance of family planning. Finally, there was the opportunity to have both an urban component (in the city of Matadi, two hours from Nsona Mpangu) and a rural component (the zone of Songololo, for which Dr. Nlandu was responsible for all medical services) in the same project.

The current report describes the objectives, design and implementation of this project, in addition to the major research findings.

## B. Objectives

In light of the above described situation, the PRODEF project was designed with the following objectives:

1. To increase knowledge of modern contraceptives among women of reproductive age in the target population.
2. To promote a more favorable attitude toward family planning.
3. To increase the use of modern contraceptives in the target population.
4. To decrease the desired number of births among women of reproductive age.
5. To determine the relative effectiveness of two different approaches to service delivery in increasing contraceptive use.
6. To evaluate the two different approaches to service delivery in terms of cost effectiveness.
7. To increase the percentage of children under five in the population that receive appropriate treatment for malaria, intestinal helminths, and dehydration due to diarrhea.

Chapter III  
DESIGN AND IMPLEMENTATION OF THE  
PRODEF PROJECT



Matondo Mansilu: Visiting the Matrone in Bete,  
Training the Interviewer Team



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## CHAPTER III

### DESIGN AND IMPLEMENTATION OF THE PRODEF PROJECT

PRODEF constitutes a service/research project. The service component has consisted of establishing a new mechanism for the delivery of family planning and selected child health services, while the research component represents an attempt to monitor its progress and to document its impact, as described below.

#### A. Design of the Service Project

The PRODEF project has been implemented in an urban and a rural area of the region of Bas Zaire, Republic of Zaire (see Figure III-1). The urban area is Matadi, the major port city for the entire country, with an estimated population of 150,000 to 200,000, of which approximately 133,000 are included in the target area for this project. The rural location is the zone of Songololo (estimated population of 36,000), where the project has operated in a total of 53 communities, with a total population of approximately 25,000. These 53 villages include nine main villages (which have a dispensary participating in the project) and 44 "satellite" villages which are grouped around the main villages. (See Table III-1 for a complete listing of the main and satellite villages in the rural area.)

#### 1. Alternative Strategies for Service Delivery

The project was designed to test two alternative strategies for the delivery of family planning/child health services in both the urban and rural locations. During the actual implementation in the urban area it was decided to exclude the child health portion (i.e. community education and the provision of drugs to combat malaria, intestinal helminths, and dehydration due to diarrhea in children under five) from the project. These child health interventions were seen as competition for existing services in Matadi and would have placed PRODEF in an adversary role with members

of the health establishment. By contrast, there was so little family planning activity in Matadi that the creation of a new family planning service represented no threat to existing interests.

In both locations, the target population was divided into "Zone A" and "Zone B," as shown in Figure III-2 (urban) and III-3 (rural). The location of the dispensaries designated as "A" or "B" is shown on these figures. Ideally, the rural area should have been split geographically, as was done in Matadi (such that all "A" villages fell in one half and all "B" villages fell in the other), in an effort to minimize contamination between villages. However, this was not done for two reasons. First, it was necessary for local political reasons for two villages (Lufu and Minkelo) to receive the "complete" program (Zone A); the chiefs of these villages knew of the new program and expected to receive it. Second, dividing the area geographically (with Lufu and Minkelo together in what would then become Zone A) created an imbalance, in which Zone A (with the complete program) would have included a disproportionately large number of the villages with greater access to the outside world because they were located near the main road to Matadi. The final designation was made so as to avoid this potentially biasing factor.(1)

The two alternative strategies or "treatments" for the delivery of services were as follows (continued on p. 20):

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1 The issue of comparability of Zones A and B within the urban area and within the rural area is one of the main points covered in the report, "Results of the PRODEF/Tulane Survey in Bas Zaire. Part I. Population Characteristics, Reproductive Ideals, and Fertility Control," November 1982.

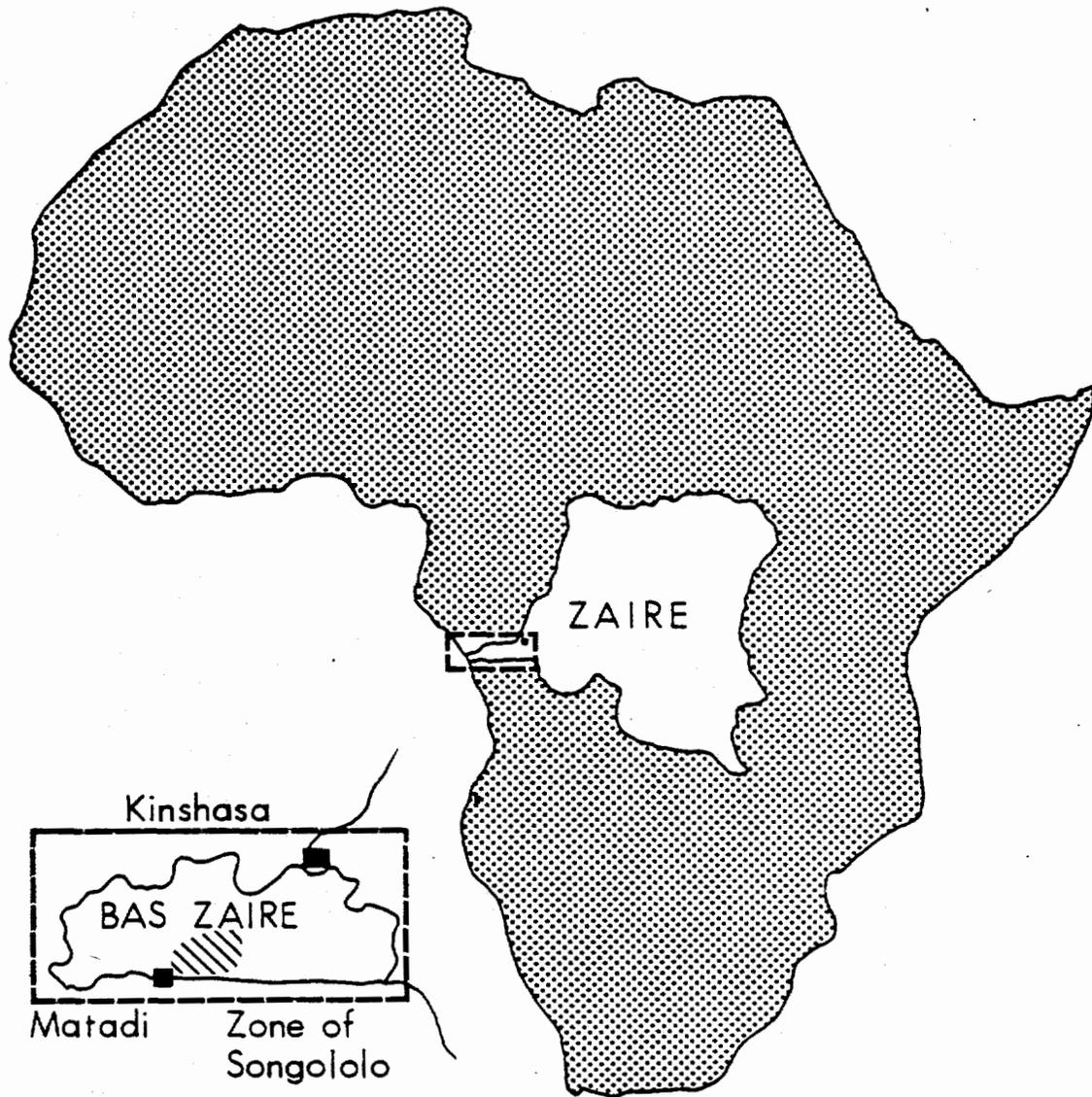
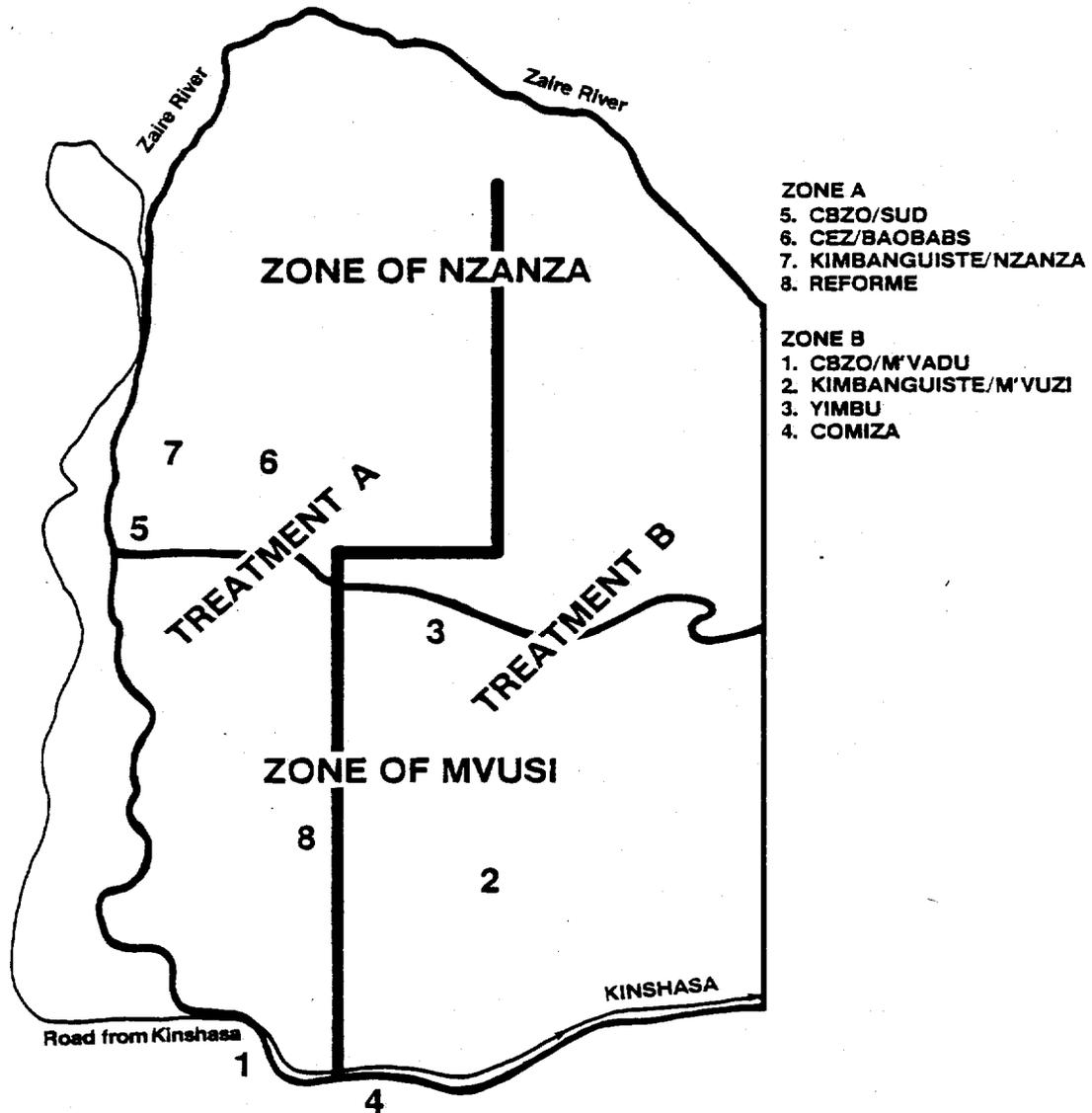


FIGURE III-1 MAP OF AFRICA WITH INSERT OF BAS ZAIRE

FIGURE III-2 CITY OF MATADI



## Zone A: STOCKING AND OUTREACH

### Dispensaries

- Existing dispensaries were stocked with four contraceptives: oral pills, Neosampoon, foam and condoms; and (in the rural area only) with four drugs for children under five: chloroquine and aspirin for malaria, mebendazole for intestinal helminths, and Oralyte packages for dehydration due to diarrhea.
- At least one nurse per dispensary received training and a refresher course in the delivery of these products.

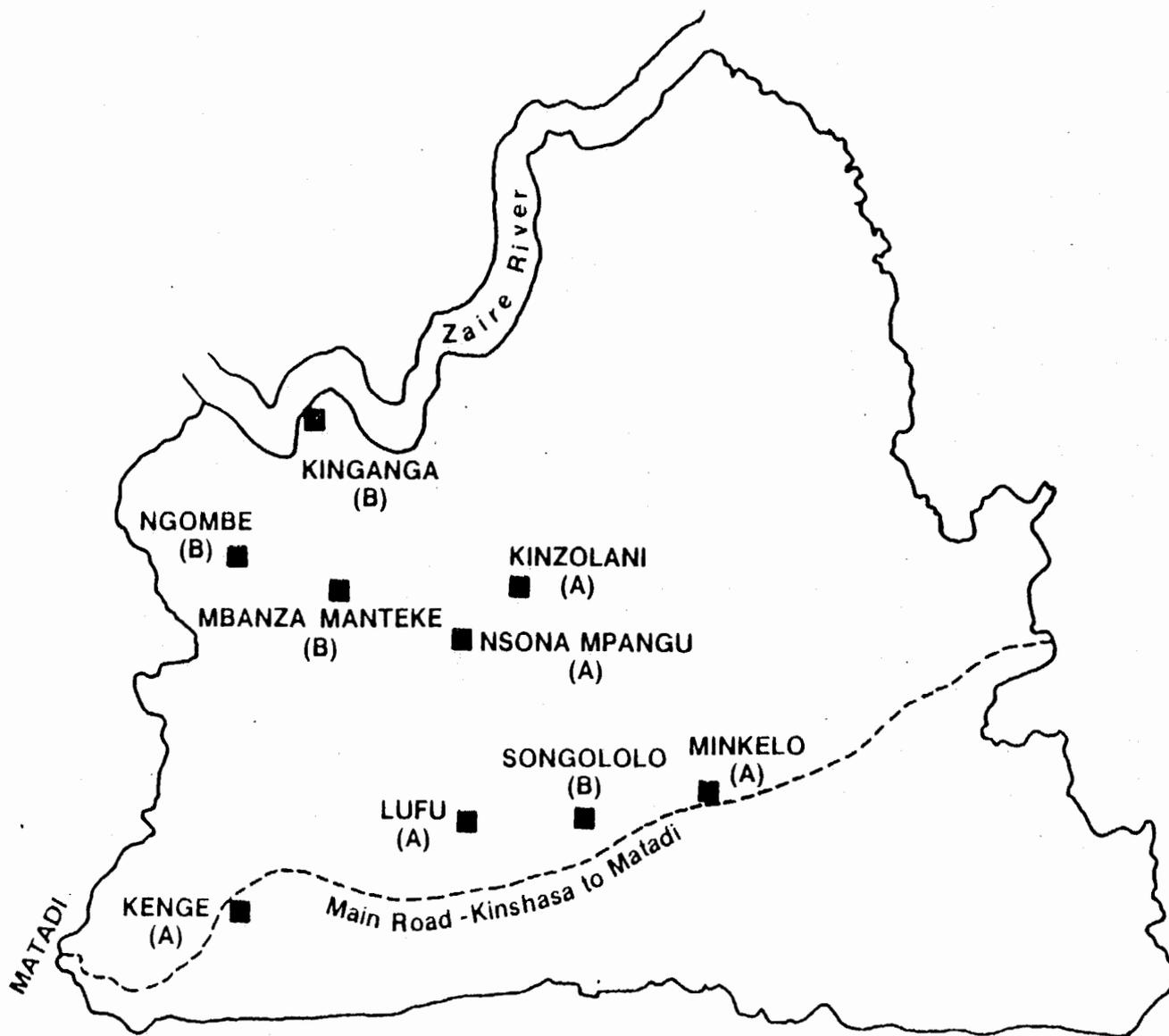
### Outreach Activities

- A team of ten home visitors in the urban area and five visitors in the rural area (1) were trained to give information/education regarding family planning and (in the rural area only) treatment for malaria, intestinal worms and dehydration due to diarrhea.
- Home visitors distributed contraceptives to eligible women, and (in the rural area) sold drugs for children under five.
- In the rural area the team began each round of home visiting with a group meeting to discuss the purpose of their visit and to summarize the main points of their educational work. In the urban area, group meetings were carried out to reinforce the home visiting, after it had already begun.

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1 During some periods of the project, the number of home visitors dropped to nine and three in the urban and rural areas, respectively.

FIGURE III-3 ZONE OF SONGOLOLO



ZONE B: STOCKING ONLY, NO OUTREACH

Dispensaries

-- Same as described for Zone A.

Outreach

-- None of the above described activities.

2. Modification of the Design to Include Matrones

The original proposal specified two sources of service delivery: dispensaries and home visitors. The idea of training community volunteers as "distributors" (such as is done in numerous community-based distribution projects around the world) was initially rejected by the Zairian counterparts as being culturally unacceptable.

Subsequently, it became evident that in the rural area the women in the main villages (with a dispensary) would have easy access to contraceptives; however, those in the satellite villages (with no dispensaries) would have considerable difficulty in getting resupplied.

Thus, an additional source of service was added to the design for both Zones A and B in the rural area: the matrone. Each village was asked to select one woman, who could read and write, to serve as a community "distributor" of both contraceptives and drugs for children under five. These women then underwent an initial training course and two refresher training courses at Nsona Mpangu during the project. Communities with a matrone are listed in Table III-1. Of the 44 communities with no dispensary, 36 had a matrone at some point during the project.

Matrones were trained and supplied in both zones (A and B), in an effort to keep the factor "access to contraceptives" comparable in both groups, while varying the factor "outreach." See Chapter IV regarding the comparability of the zones in terms of socio-demographic characteristics.

Table III-1

## VILLAGES INCLUDED IN THE PROJECT

<u>A R E A A</u>		<u>A R E A B</u>	
<u>OUTREACH AND STOCKING OF SERVICE OUTLETS</u>		<u>STOCKING OF SERVICE OUTLETS ONLY</u>	
<u>Nsona Mpangu</u>	D <sup>2</sup>	<u>Songololo</u>	D
Bete	M	Luvituku	None <sup>4</sup>
Ndemba	M	Kimbala Zolele	None <sup>5</sup>
Kumbi	M	Kinganga	D <sup>6</sup>
Mbata Bonde	M	Kintoto	M <sup>6</sup>
Landango	M	Nsumbi	M
Matombe	M		
Mansonso	M	<u>Mbanza-Manteke</u>	D
Ecole Primaire - Lunionzo	None <sup>4</sup>	Tendele	M
Kinsende	M	Vunda	None <sup>8</sup>
Lundu	M	Ntonbo Lukuti	M
		Kimpevolo	M
<u>Lufu</u>	D	Nlambazi	M
Mazonzi	M	Nsilu	None <sup>4</sup>
Kongo-Songololo	M		
Nkamuna	M	<u>Ngombe</u>	D
Vemadiya Km 70	None	Kemba	None <sup>4</sup>
Mavumba I	M	Mpumba	M
		Mbata-Kimenga	None <sup>7</sup>
<u>Kenge</u>	D <sup>3</sup>	Kimbembo	M <sup>6</sup>
Pompaga	M	Mativa	M <sup>6</sup>
Kimeza	M	Inga II	M
Kitadila	M		
Nlamba	M		
<u>Minkelo</u>	D <sup>3</sup>		
Lumueno	M		
Nionga	M		
Kiombia	M		
Kimfinda	M		
<u>Kinzolani</u>	D		
Kiesa Kiayenga	M		
Kinsala	M		
Nsonso	M		
Mbinda	M		

## SUMMARY

(As of December 1983)

	<u>A R E A A</u>	<u>A R E A B</u>	<u>T O T A L</u>
Number of villages	33	20	53
Number of dispensaries	2	4	6
Number of matrones	26	8	34
Number with no service outlets	5	8	13

<sup>1</sup> Code: H = hospital, D = dispensary, M = matrone

<sup>2</sup> Although Nsona Mpangu serves as the administrative headquarters for the project, members of the community supply themselves from the matrone in a nearby village.

<sup>3</sup> Trained nurse at dispensary left. Replacement has yet to be trained; service available from matrone nearby.

<sup>4</sup> Small village close to two others.

<sup>5</sup> Refused to send matrone for training.

<sup>6</sup> Matrone established but subsequently left.

<sup>7</sup> No matrone candidate available.

<sup>8</sup> Small village

### 3. Frequency and Nature of the Home Visiting

All houses in Zone A (both urban and rural) were mapped at the onset of the project. The teams of home visitors then attempted to visit every household in Zone A during three successive rounds of visiting, which took place approximately six months apart (see Table III-2 for the dates on home visiting). Women 15 to 49, or women slightly older who had a child under five, constituted the target population for the visits.

The home visitor approached each household and explained that she was part of the team from a local hospital that was visiting all the women to talk about the health of mothers and children. In rural areas, the visit began with the child health counseling regarding malaria, intestinal parasites and dehydration due to diarrhea. This segment included a participatory demonstration of the preparation of the rehydration solution. Interested women were then able to purchase chloroquine, aspirin, mebendazole and rehydration salts in limited quantities at nominal cost.

During the family planning discussion that followed, the husband was encouraged to be present. The discussion included the benefits of child spacing and an explanation of different contraceptives (the pill, foam, vaginal tablets and condoms, which the visitor carried, and the IUD and female sterilization, for which she could make referrals). If the woman was interested, the visitor would provide her with a limited free supply of one of the methods (one cycle of pills, one container of foam or vaginal tablets, or one dozen condoms).

As part of the program's effort to establish a source for contraceptive resupply, each woman who obtained contraceptives was also given a coupon entitling her to one month's resupply free at an existing dispensary or, in rural communities with no dispensaries, from the matrone. The home visitor explained that after the coupon was used, additional contraceptives could be obtained at a nominal charge from the local dispensary or matrone.

Table III-2

DATES FOR THE THREE ROUNDS OF HOME VISITING

U R B A N   A R E A

Round 1	June 29 - October 23, 1982
Round 2	November 19, 1982 - April 22, 1983
Round 3	May 30 - November 23, 1983

R U R A L   A R E A

Round 1	October 21, 1981 - February 6, 1982
Round 2	March 25, 1982 - August 30, 1982
Round 3	October 28, 1982 - February 18, 1983

4. Criteria Used in the Distribution of Contraceptives and Drugs

Three criteria were used to determine the eligibility of a woman to receive contraceptives during a home visit:

- o Husband present to give consent
- o Woman not pregnant at the time of the visit
- o Woman had no contraindications for using the pill (if this was the method she chose)

The reason for initially requiring the husband's consent was to avoid criticism that PRODEF was encouraging women to use a contraceptive method without their husband's knowledge. This conservative approach was considered advisable in this new and potentially controversial project. As for pregnant women in the first round, there was thought to be no reason for giving them contraceptives.

In later rounds of home visiting, the husband could give written consent for his wife to use contraceptives if he could not be present for the visit. In addition, pregnant women, who accounted for approximately one-third of the ineligible women, were allowed to receive contraceptives for use after delivery.

For women who expressed interest in using the oral pill, the home visitor screened for the following conditions: jaundice, tumors (breast or goiter), bleeding between periods or during sexual relations, varicose veins, hypertension, diabetes, and heart problems. If a woman reported to have none of these conditions, she was given her free cycle of pills plus a coupon for resupply.

In the first round of home visiting, project personnel were instructed to recommend a barrier method (foam, vaginal tablets or condoms) rather than the pill to lactating women. In July 1982 PRODEF medical consultants recommended that the pill no longer be

restricted to nonlactating women; rather, a new guideline was implemented which made the pill available to a lactating woman once her baby was at least six months old (assuming she had no other contraindication).

There were no restrictions or contraindications for the vaginal tablets, foam or condoms.

With regard to the distribution of drugs for children under five, it was originally intended that they be restricted to this age group. However, it became evident that this was impractical and unacceptable in rural villages with no other access to these products. Thus, the dispensaries and matrones sold these products for people of other ages as well. The one restriction was that they were not allowed to sell large quantities, since this could potentially lead to a problem of resale of the products in another market.

#### 5. Cost of Contraceptives and Drugs to the Community

Since one of the main objectives of the project was to give the population greater knowledge of and access to modern contraceptives, the initial distribution of contraceptives during the home visiting was free. Specifically, all women visited by PRODEF who were interested in and eligible to receive contraceptives were given one free supply (one cycle of pills, one container of foam or vaginal tablets, or one dozen condoms). As mentioned above, they were also given a coupon entitling them to one month's resupply free at an existing dispensary or from a matrone. Subsequently, users were required to pay for their supplies at a nominal fee; see Table III-3 for a price list for both contraceptives and drugs.

No free samples were given out for the drugs for children under five. The project director is working to develop a sense of responsibility within the community to pay for its own health needs, and he felt it was important that the contraceptives (after the

Table III-3

PRICES CHARGED TO THE POPULATION FOR CONTRACEPTIVES AND DRUGS

	<u>Oct. 81 to Sept. 83</u>		<u>Oct. 83 to Dec. 83</u>	
	Zaires	Dollars <sup>1</sup>	Zaires	Dollars <sup>2</sup>
<u>Contraceptives</u>				
Pill (one cycle)	1.50	0.27	5.00	0.19
Foam (one container)	5.00	0.88	10.00	0.37
Neosampon (one container)	2.00	0.35	5.00	0.19
Condoms (one dozen)	1.50	0.27	3.00	0.11
<u>Drugs</u>				
Aspirin (tablet)	0.10	0.02	0.50	0.02
Oralyte (packet)	2.00	0.35	5.00	0.19
Chloroquine (tablet)	0.30	0.05	1.00	0.04
Mebendazole (tablet)	1.00	0.17	2.00	0.07

<sup>1</sup> During the period October 1981 to September 1983 the value of the Zaire fluctuated between \$0.165 and \$0.195. An average of all monthly rates has been computed as \$0.177 and is used in this table.

<sup>2</sup> In September 1983 the Zaire was devalued by over 400 percent. The value of the Zaire for the period October 1983 to December 1983 was \$0.037.

initial home visiting) and drugs be made available on a paying basis.

6. Commissions Paid for Distribution of Contraceptives and Drugs

The home visitors were salaried employees of PRODEF and received no incentives based on the quantity of visits, acceptors or contraceptives distributed.

However, nurses in the dispensaries and matrones received no salary from PRODEF. To encourage their participation, a system was established (similar to that used in other countries with community-based distribution programs) whereby they would get a percentage of the sales. Both nurses and matrones were allowed to keep 50 percent of the revenue generated by the sale of contraceptives. The matrones, but not the nurses, were also given 50 percent of the revenue from the sale of drugs. (It was felt that the sale of these products was already an established part of the nurses' work and thus did not merit further compensation.)

This system was followed until October 1983, at which time it was decided to simplify the system by giving the nurses 25 percent of all sales (either drugs or contraceptives). The amount which this represents is reported in Table III-4.

B. Design of the Research

Because of the dearth of experience and information on implementing family planning programs in francophone sub-Saharan countries, one of the main purposes of this project has been to document this process. This has taken three forms, described below.

1. Service Statistics to Monitor Project Activity

From the outset of the project forms were designed for collecting information from home visitors during the three rounds of visiting,

Table III-4

AMOUNT PAID (IN DOLLARS) AS COMMISSIONS TO MATRONES AND DISPENSARY NURSES  
FOR THE SALE OF CONTRACEPTIVE (FP) AND DRUGS

	January to June 1982 <sup>1</sup>			July to December 1982			January to June 1983			July to December 1983 <sup>4</sup>			Total per Category of Worker
	No.	Commissions on		No.	Commissions on		No.	Commissions on		No.	Commissions on		
		FP	Drugs		FP	Drugs		FP	Drugs		FP	Drugs	
Urban: Nurses in Dispensaires	-	n.a.	n.a. <sup>2</sup>	6	\$345.34	n.a.	9	\$717.92	n.a.	9	\$404.95	n.a.	\$1,468.21
Rural: Nurses in Dispensaires	5	\$0.28	n.a. <sup>3</sup>	5	\$67.00	n.a.	6	\$79.44	n.a.	6	\$25.63	\$72.42	\$244.77
Rural: Matrones	32	\$39.00	\$394.00	35	\$236.00	\$861.00	36	\$210.00	\$1,203.00	36	\$115.50	\$607.49	\$3,665.99
Total Amount Received in Commissions per 6 month period		\$433.28			\$1,509.34			\$2,210.36			\$1,225.99		\$5,378.97

<sup>1</sup> Although the rural service program began in October 81, no commissions were paid until 1982.

<sup>2</sup> The urban service program began in late June 1982 and has provided contraceptives only (no drugs).

<sup>3</sup> Before October 1983, nurses did not receive commissions for the sale of drugs; see text.

<sup>4</sup> In September 1983, the Zaire (currency of Zaire) was devalued by over 400 percent; thus while the amount in dollars dropped during the period July to December 1983, the amount in Zaires actually increased. The conversion rates used in calculating this table were as follows: \$1.00 U.S. = 5.33 Zaires (January to July 1982); 5.80 Zaires (July to December 1982); 5.86 Zaires (January to June 1983); and 16.35 Zaires (July to December 1983).

from the dispensary nurses and from the matrones, which would reflect the level of project activity through key indicators, including:(1)

- o Number of home visits completed.
- o Number of women who accepted a contraceptive method for the first time.
- o Volume of contraceptives sold and distributed free of charge.
- o Volume of drugs sold for children under five to treat malaria, intestinal helminths and dehydration due to diarrhea.

The findings obtained from the monitoring of service statistics appear in Chapter IV.

## 2. Baseline and Follow-up Surveys to Measure Impact

The main evaluation of the PRODEF project is based on before-and-after surveys in both the urban and rural areas to determine whether change has occurred on key variables during the intervening period of 21 months. Specifically, the surveys have been designed to test whether the project has achieved its objectives in terms of

- o increased knowledge of modern contraceptives
- o improved attitudes toward family planning
- o increased use of modern contraceptives
- o decreased "ideal family size"
- o increased use of the drugs for children under five who are reported to have malaria, intestinal helminths, and dehydration due to diarrhea.

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1 Tulane University acknowledges its appreciation to Drs. Richard Osborne, Ismail Serageldin, and Ms. Nora Lewin of Johns Hopkins University for their assistance in the design of these forms.

Moreover, the before-after surveys measure the relative effectiveness of the two approaches to service delivery in terms of these same indicators. This comparison is intended to provide evidence regarding the claim that simply making contraceptives accessible is sufficient to increase their use versus the alternative claim that promotional (outreach) efforts are essential to stimulate any increase in use, especially in a population with little previous experience with modern contraceptives.

The results of the before-after surveys are presented in Chapters V and VI below, and form the basis for other publications, as outlined in Chapter IX.

### 3. Cost Effectiveness Analysis

This evaluation focuses not only on the relative effectiveness of the two approaches (stocking-plus-outreach vs. stocking only) in bringing about change, but also at the relative cost effectiveness of the two approaches. This analysis compares the two systems in terms of cost per couple-month-of-protection (a commonly used indicator of program output). The cost effectiveness analysis (CEA, explained in detail in Chapter VII) is based on two types of data:

- o Inputs: A tabulation of all costs incurred by the program from October 1980 to December 1983, which to the extent possible have been allocated to one of the two approaches under study; also, shadow pricing (estimation of cost) of donated goods.
- o Outputs: A tabulation of the quantity of contraceptives distributed to date under each system; this has been converted to "couple-months-of-protection" based on the length of time one unit of each type of contraceptive theoretically will protect a couple against pregnancy.

The results of the "historical analysis," as specified in the original contract, are presented in Chapter VII.

C. Production of a 16mm Film

In view of the dearth of family planning materials (especially films) available in French and appropriate for African audiences, it was decided to produce such a film as part of this project. This was not originally specified in Tulane's contract, but USAID/Washington and USAD/Zaire authorized use of project funds for this purpose.

The script was drawn up by the PRODEF staff in collaboration with the Principal Investigator from Tulane. Subsequently, the filming and editing was done by a Zairian film crew from RATALESCO (Radio Television Escolaire et Culturelle). Only the final stages of technical production were performed in the United States, since equipment is not available to make optical prints in Zaire.

The result is a 31 minute 16mm film entitled in French, "Bonheur sous Votre Toit" (Happiness in Your Household), which is currently available in French, Kikongo and Lingala. The film portrays various aspects of daily life in Zaire; the happiness which children bring to their parents; the importance of providing children with good health and education; the role of birth spacing in achieving this; modern methods of contraception which are available; and testimonials of women who have used these methods.

While the film has certain technical shortcomings, it nonetheless represents one of the few films produced by a national film crew which explicitly addresses the issues of birth spacing and family planning in the context of a francophone sub-Saharan country.

D. Timetable for Service/Research Activities

This project officially began on October 1, 1980, with the subcontract starting on November 15, 1980. Most of the first year was devoted to the baseline survey in both areas. The first service activities in the rural area (recruitment and training the home visitors) began in June 1981, while the urban service activities were initiated in April 1982. The service program had been in the field for 21 months in both areas when the follow-up survey was initiated.

E. Institutions and Personnel Involved

The Tulane University School of Public Health and Tropical Medicine, New Orleans, Louisiana, has served as the main contractor for this project. The key Tulane personnel have been Jane T. Bertrand, PH., D., Principal Investigator, and Patricia Jessop, M.P.H., Administrator. Other Tulane personnel who have provided assistance on this project are listed in Appendix A.

The subcontractor for implementation of the project in Zaire has been the Baptist Mission of West Zaire (Communaute Baptiste du Zaire Ouest). The project is headed by Nlandu Mangani, M.D., M.P.H., who is Director of the Hopital Evangelique in Nsona Mpangu. He has been assisted throughout the project by Citne. Matondo Mansilu, who during Dr. Nlandu's year of study in the United States was promoted from Deputy Director to Acting Director.

Citne. Butuena Mavambu is Coordinator for project activities in Matadi. Citne. Nlandu Diasivi has served as Supervisor for both the baseline and follow-up surveys, in addition to supervising field activities in Matadi. Supervision of the rural home visitors was done by Citne. Lumfuankenda Lelo.

Cit. Mombela Kinuani has been responsible for several aspects: coding on surveys, data entry onto the microcomputer in the follow-up survey, and resupply of rural service outlets. Cit. Diakadulua Nlandu has assisted with these same

activities in the urban area. A complete listing of the Zairian staff appears in Appendix A.

During the first 18 months, the project received technical assistance from the Johns Hopkins School of Hygiene and Public Health in two areas: development of forms necessary for a cost effectiveness analysis (from Dr. Ismail Serageldin, Dr. Richard Osborne, and Ms. Nora Lewin) and development of the service delivery system, including the training of the rural team of home visitors. Tulane University is extremely grateful to Dr. Maria Wawer and to Dr. Melvin Thorne for their technical expertise and enthusiastic collaboration in this project.

Two other individuals who have played an important role on this project are Dr. William E. Bertrand, who was responsible for the sampling procedures on the two surveys and for the installation of a microcomputer system which permitted data entry in the field; and to Dr. Mark McBride, who since 1982 has directed all work relating to the cost effectiveness analysis.

Chapter IV  
PROGRAM ACHIEVEMENT IN THE DISTRIBUTION OF  
CONTRACEPTIVES AND DRUGS



Matadi: the Urban Home Visitors



## CHAPTER IV

### PROGRAM ACHIEVEMENT IN THE DISTRIBUTION OF CONTRACEPTIVES AND DRUGS (1)

#### A. Access to Services

In summary, the PRODEF service activity has consisted of three types of service outlets in the urban and rural areas:

	<u>URBAN AREA</u>			<u>RURAL AREA</u>		
	<u>ZONE A</u>	<u>ZONE B</u>	<u>TOTAL</u>	<u>ZONE A</u>	<u>ZONE B</u>	<u>TOTAL</u>
Dispensaries	4	4	8	4	4	8
Home Visitors	10	---	10	5	---	5
Matrones	---	---	---	26	8	34

In the urban area the population is fairly mobile. Thus, it is entirely possible that women in Zone A might seek services in Zone B and vice versa. Also, one of the four dispensaries which serves Zone B is actually located close to the (imaginary) border between the two. Nonetheless, this is not a major methodological issue, since the difference between the interventions in the two zones was the home visit, which could be geographically targeted to one group and not the other. Thus, it can be considered that access to family planning services in the two zones of Matadi is comparable.

In the rural area it was more difficult to assure comparability. Although both Zones A and B started with four dispensaries, products were eventually withdrawn from two of the dispensaries

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<sup>1</sup>  
The authors are grateful to Amy B. McConnell for processing the data and preparing the graphs used in this chapter.

in Zone A when the nurses involved were not cooperative or reliable. (The population could however obtain services from a nearby matrone.) Thus, the population in Zone A had less access to services from dispensaries.

This is somewhat offset by the fact that the population in Zone A had greater access to family planning and child health services of the matrones. While an attempt was made to identify, recruit and train one matrone from every village in the rural area that did not have a dispensary, the process was more successful in Zone A (in which 26 of the 31 villages without a dispensary, or .84 had a matrone) than in Zone B (in which 8 of 16 villages without a dispensary, or .50 had a matrone). This discrepancy can be explained in part by the fact that the home visiting and group meetings conducted in Zone A created greater interest on the part of the community to select a matrone. Moreover, it was logistically easier for the PRODEF team to contact the population in Zone A, because of the home visiting in every village.

B. Project Achievement Regarding the Distribution of Contraceptives

One of the main purposes of the PRODEF project was to test the acceptability of introducing modern contraceptive methods into a population that to date has had little previous experience with them (10 percent of urban women and 7 percent rural women, aged 15 to 49, had ever used a modern contraceptive prior to the project). Of particular interest was the issue of household distribution of contraceptives, which is generally considered one of the most direct approaches in family planning promotion now in use in developing countries.

The results of the PRODEF experience with regard to household distribution have been published in International Family Planning Perspectives; a reprint of the article appears in Appendix B. However, this article was written and published well before all service statistics data became available. Moreover, it focuses on the home visitors' activity only. By contrast, the current report covers service activities from all three

types of outlets for the life of the service project (September 1981 through December 1983)(1).

1. Measurement of Achievement

Program achievement has been measured herein by the number of couple-months-of-protection (CMP) provided through this project. The CMP index is based on the volume of contraceptives sold (or distributed to clients free of charge), which is then converted to a measure of "protection." Specifically, the quantity of each contraceptive distributed is multiplied by a conversion factor that estimates the amount of protection conferred by the method (see Table IV-1 for the conversion factors used herein).

It is not possible to sum quantities of different contraceptives (one cycle of pills, one can of foam, and one condom, etc.) and arrive at a meaningful figure. By contrast, these quantities translated into CMP do provide a very useful summary indicator of program achievement, especially with regard to trends over time and comparisons between different components of a project (urban vs. rural; Zone A vs. Zone B), as shown below.

The source of data on the volume of contraceptives distributed is the inventory record kept in the urban and rural offices. In the urban area the data were compiled from the inventories taken monthly at the dispensaries and for the home visitors.

In the rural area, the inventory process was more complicated because none of the service providers was inventoried on a monthly basis. In the case of the home visitors, the inventory was taken at the end of each round (lasting 4-6 months). With regard to the

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1

While services are still being provided by the dispensaries and matrones, December 1983 was selected as a cutoff date for the purposes of this evaluation.

Table IV-1. Conversion Factors Used in Calculating Couple-Months-of-Protection

<u>Unit of Contraception</u>	<u>Assumptions Used in calculating CMP</u>	<u>Conversion factors (amount of protection provided by each unit of contraception)</u>
1 cycle of pills	1 cycle covers 28 days; there are 365 days in a 12 month year or 30.4 days/month. One cycle protects for 28/30.4 or .92 of a month	.92
1 can of foam	20 applications per container will protect a couple for 1.67 months, based on an average of 12 relations per month	1.67
1 container of Neosampoon	20 applications per container will protect a couple for 1.67 months, based on an average of 12 relations per month	1.67
1 condom	If a couple has relations 12 times a month, 12 condoms will be needed; each condom provides 1/12 of a month's protection (or 0.08).	0.08

dispensaries and matrones, many of the villages in question were quite far from Nsona Mpangu. The person responsible for the inventories would ride a motorbike to the village to collect the data. Data collection was impeded by mud during the rainy season, a nationwide fuel shortage, breakdowns on the moped, and matrones being absent because of their work in the fields. Therefore, inventories were taken at irregular intervals.

This system would have resulted in a very high level of program "achievement" for those months in which inventories were conducted and low levels in the other months. To adjust for this, the volume of each product sold was evenly distributed over the months since the previous inventory (e.g. if a matrone who had not been inventoried for 4 months sold 12 cycles of pills in the intervening period, 3 cycles were allocated to each of the four months). As such, the fluctuations in the graphs in this chapter can not be explained by the irregular inventory schedule, but rather reflect other factors, discussed below.

It should be noted that there are different scales used in the graphs in this chapter. The quantities of the products distributed by the different outlets in the different areas varied significantly, making it necessary to use different scales.

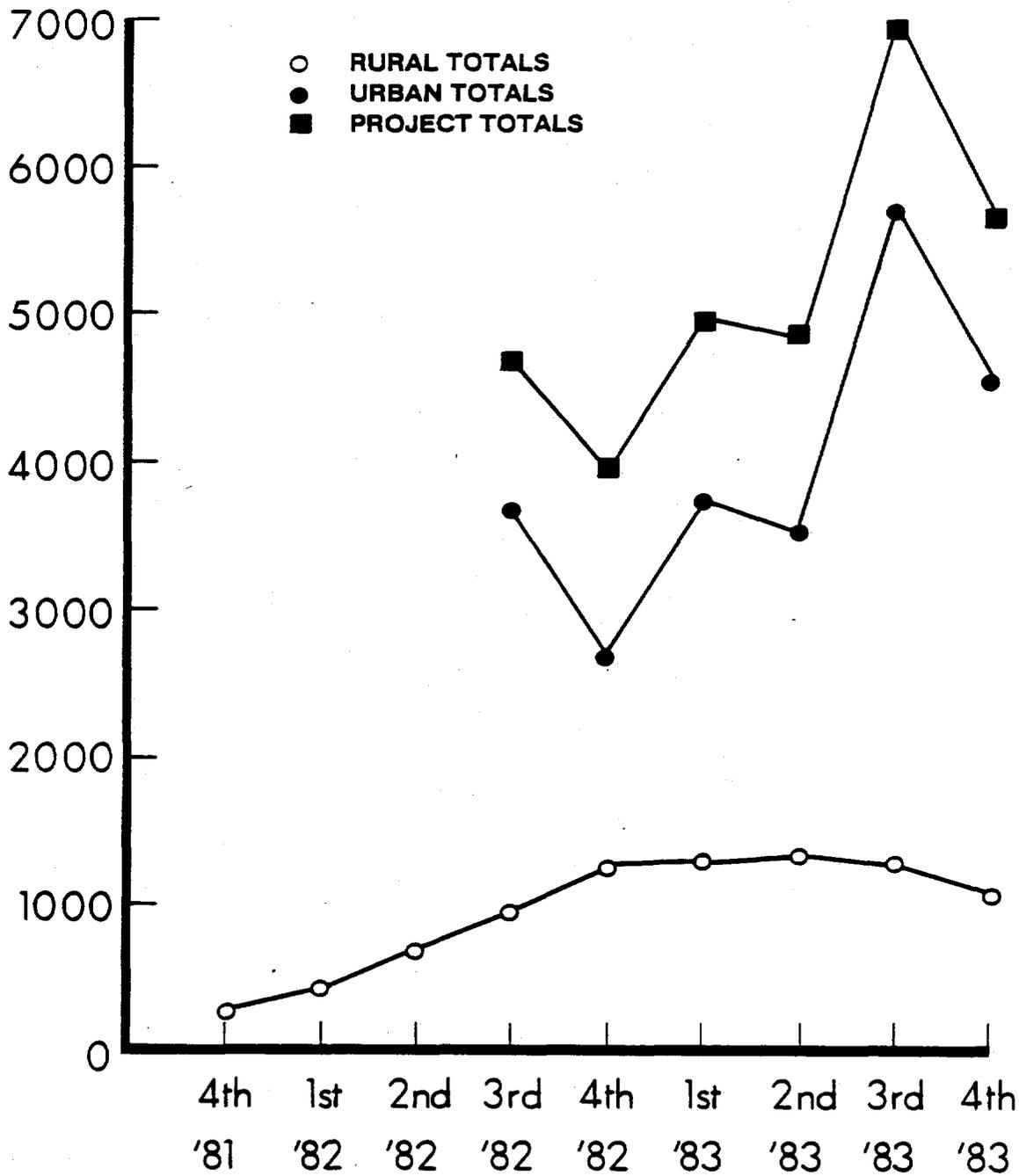
The CMP data reported in this chapter correspond to the non-clinical methods only, although the PRODEF project made referrals for the IUD and female sterilization. Moreover, in the rural area these procedures were performed at the hospital in Nsona Mpangu. However, they are not reported herein since these statistics were not systematically collected in either the urban or rural area. This is a shortcoming of the project which will be corrected in the future.

## 2. CMP: Urban and Rural Programs

In the 27 month period between October 1981 and December 1983, a total of 32,424 couple-months- of-protection were conferred to

FIGURE IV - 1

**COUPLE-MONTHS-OF-PROTECTION: URBAN,  
RURAL AND TOTAL PROJECT BY TRIMESTER**



this population. Almost three-quarters (23,773 CMP or 73 percent) of this total corresponded to the urban area, while 27 percent (8,651 CMP) corresponded to the rural area. This is not surprising, given that the target population of the urban area is approximately five times as large as in the rural area.

One can not translate CMP into number of active users in the program; however, for non-clinical methods, one CMP is roughly equivalent to one couple served for a given month. In the urban area (in which the program had operated for 18 months as of December 1983), average monthly CMP was 1,321, compared to 320 in the rural area (where the program had operated for 27 months). While the averages allow one to translate CMP into something slightly more tangible, they do not accurately reflect the changes in CMP which occurred over the life of the project.

The number of CMP for the urban area, rural area and total project by trimester is shown in Figure IV-1. This figure further illustrates the fact that the quantity of contraceptives distributed in the urban area far exceeded the number of the rural area, even though the urban service program was in operation for fewer trimesters (six) than was the rural program (nine trimesters).

Moreover, Figure IV-1 illustrates the trends over time regarding CMP. In the urban area, the CMP per trimester generally increased over time, though there were marked fluctuations in the curve. In the rural area, there was a steady gradual increase in CMP during the first five trimesters of the project, after which the level of CMP appears to have reached a plateau.

### 3. Comparison of CMP by Treatment Group (Zone)

Figures IV-2 and IV-3 show the number of CMP distributed by type of treatment group (A vs. B) in the urban and rural programs, respectively. In both the urban and rural projects, the population of Zone A was greater than for Zone B. Thus, these figures must be

FIGURE IV - 2

URBAN AREA: COUPLE-MONTHS-OF PROTECTION BY ZONE

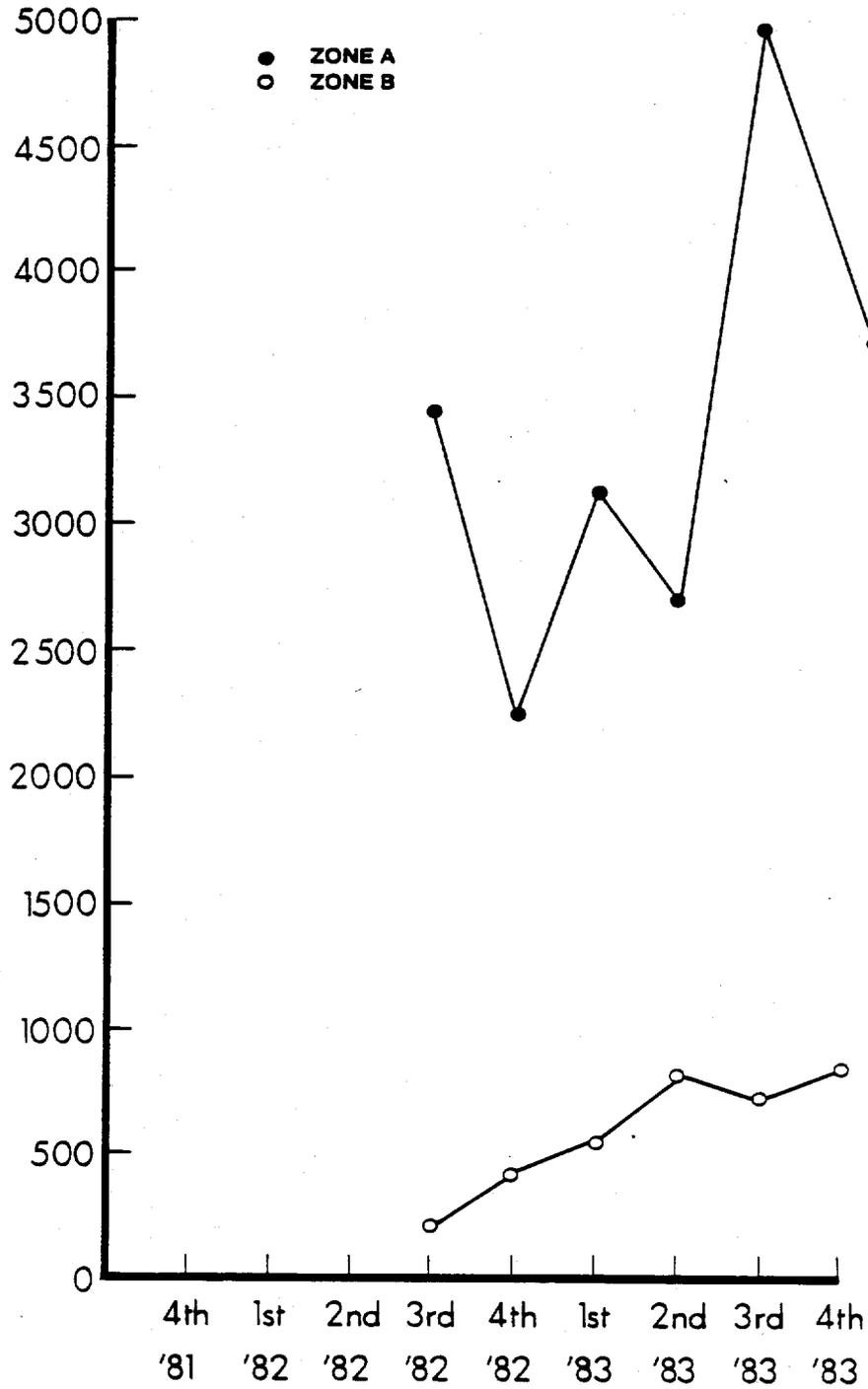
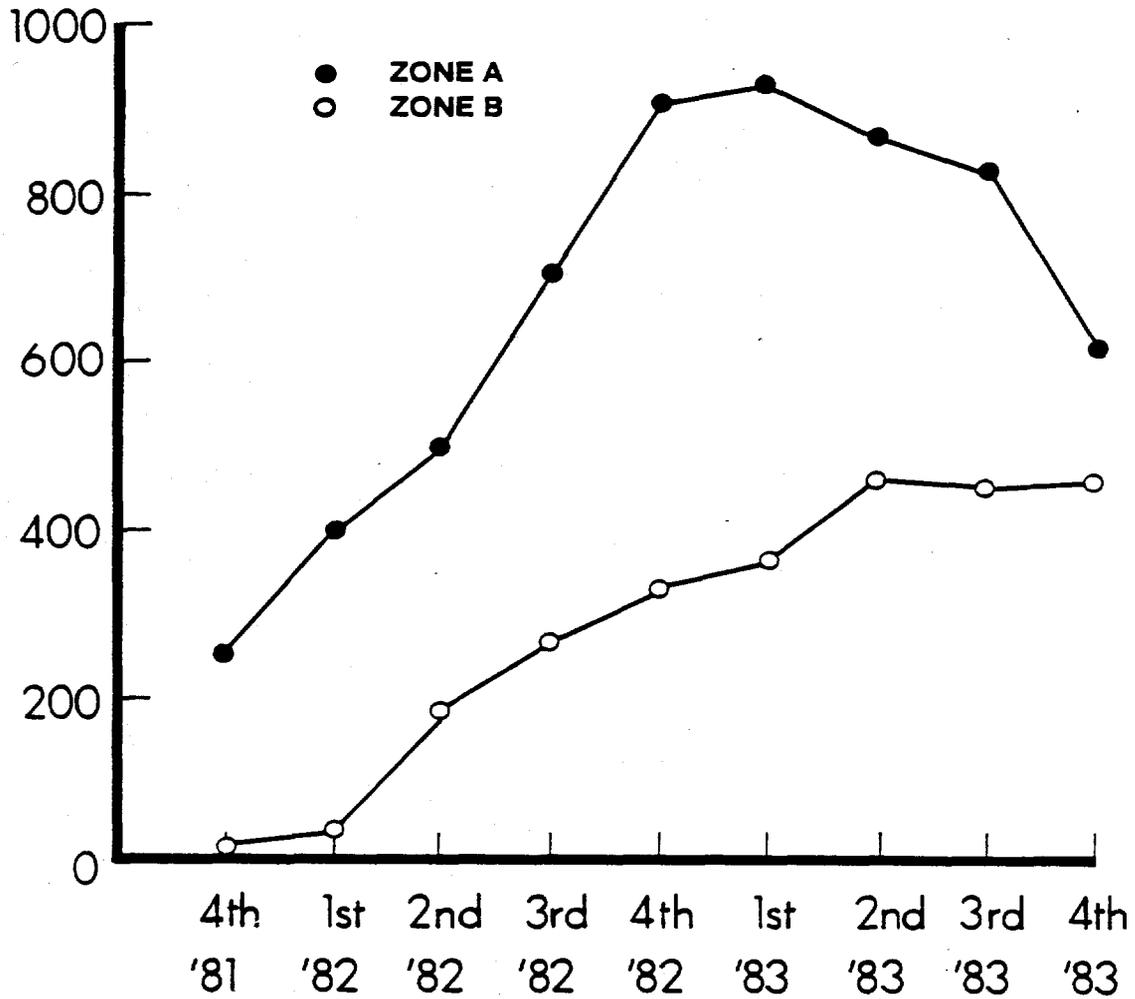


FIGURE IV - 3

RURAL AREA: COUPLE-MONTHS-OF PROTECTION BY ZONE



interpreted cautiously. (A more precise evaluation is provided by the baseline and followup surveys, reported below, where the figures on contraceptive prevalence are not biased by the size of the population in each zone). Nonetheless, it is of interest to compare CMP for the two types of treatment groups, as an indicator of program output in each.

The results for the urban area (Figure IV-2) show a far greater level of CMP for Zone A than for Zone B. The three peaks for the Zone A curve (3rd trimester - 1982, 1st - 1983, and 3rd - 1983) correspond to trimesters in which the household distribution of contraceptives was in operation during all three months of the trimester. By contrast, a much lower volume of contraceptives was distributed in Zone B; however, there was a steady upward trend over the life of the project, suggesting that few people knew of these services initially, but as they learned of them, demand increased.

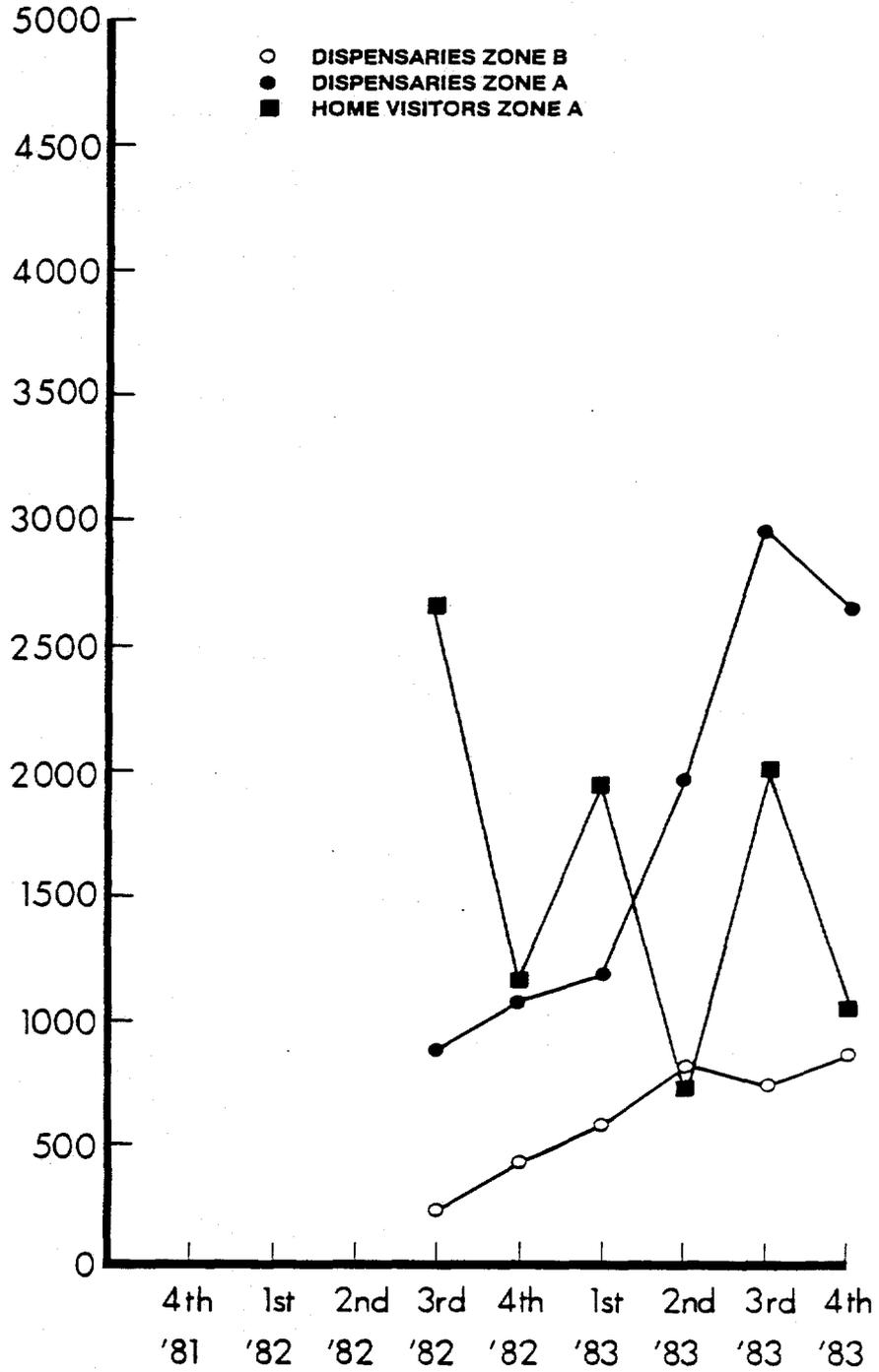
Figure IV-3 contrasts CMP achievement for Zones A and B of the rural area. Again, the volume of contraceptives distributed is higher in Zone A than in Zone B (reflecting in part the size of the population in each). However, the difference in the shape of the curves is important. The curve for Zone A shows a dramatic rise during the first six trimesters of the project, which corresponds to the period of active outreach work (home visiting and group meetings). However, in subsequent trimesters CMP begins to decline. By contrast, the curve for Zone B is similar to that seen in the urban area: there is a steady upward trend over time, which would seem to reflect a gradual process of adoption as people learn about these services.

#### 4. A Comparison of CMP by Type of Service Provider

Figure IV-4 illustrates the number of CMP corresponding to the different service providers in the urban area over the life of the project. An earlier figure showed that a much greater quantity of contraceptives had

FIGURE IV - 4

URBAN AREA: COUPLE-MONTHS-OF PROTECTION  
BY TYPE OF PROVIDER



been distributed in Zone A than in Zone B. From Figure IV-4, it can be seen that both the home visitors and the dispensaries in Zone A played an important role in this distribution. The three "peaks" on the curve for home visitors correspond to the trimesters in which the visitors were in the field for all three months (the valleys occur when they worked only a portion of the trimester, the remaining time being used for refresher training and office work). However, the efforts of the home visitors apparently fueled demand for contraceptives obtained from the dispensaries, since the level of CMP for the dispensaries also rose steadily throughout the period under study. By contrast (and as mentioned above), the dispensaries in Zone B -- depending entirely on word-of-mouth or patient counselling in the clinic -- yielded lower levels of CMP, but which rose gradually over the life of the project.

For the rural area, it is easier to interpret the curves when they are presented separately for Zones A and B, as shown in Figures IV-5 and IV-6. In Zone A (with outreach) the matrones constituted the major source of supply for contraceptives. The home visitors provided a lower number of CMP, in part because there were far fewer of them than matrones. Moreover, the visitors presumably created the demand for contraceptives provided by the matrones. The fact that CMP for the matrones declined in the fourth trimester of 1983 may reflect the effects of having discontinued home visiting a number of months earlier. By contrast, the dispensaries in Zone A of the rural project distributed few contraceptives, although a slight improvement can be noted in the final trimester of 1983.

In the absence of outreach in the rural area (Figure IV-6), the dispensaries and matrones appear to be more equal in terms of their CMP performance.

A comparison of the level of CMP for the matrones in Zone A and Zone B (Figure IV-5 and Figure IV-6) show a much higher level in Zone A. However, Zone A has more matrones and a larger target population. In this sense, the

FIGURE IV - 5

RURAL AREA, ZONE A. COUPLE-MONTHS-OF-PROTECTION BY TYPE OF PROVIDER

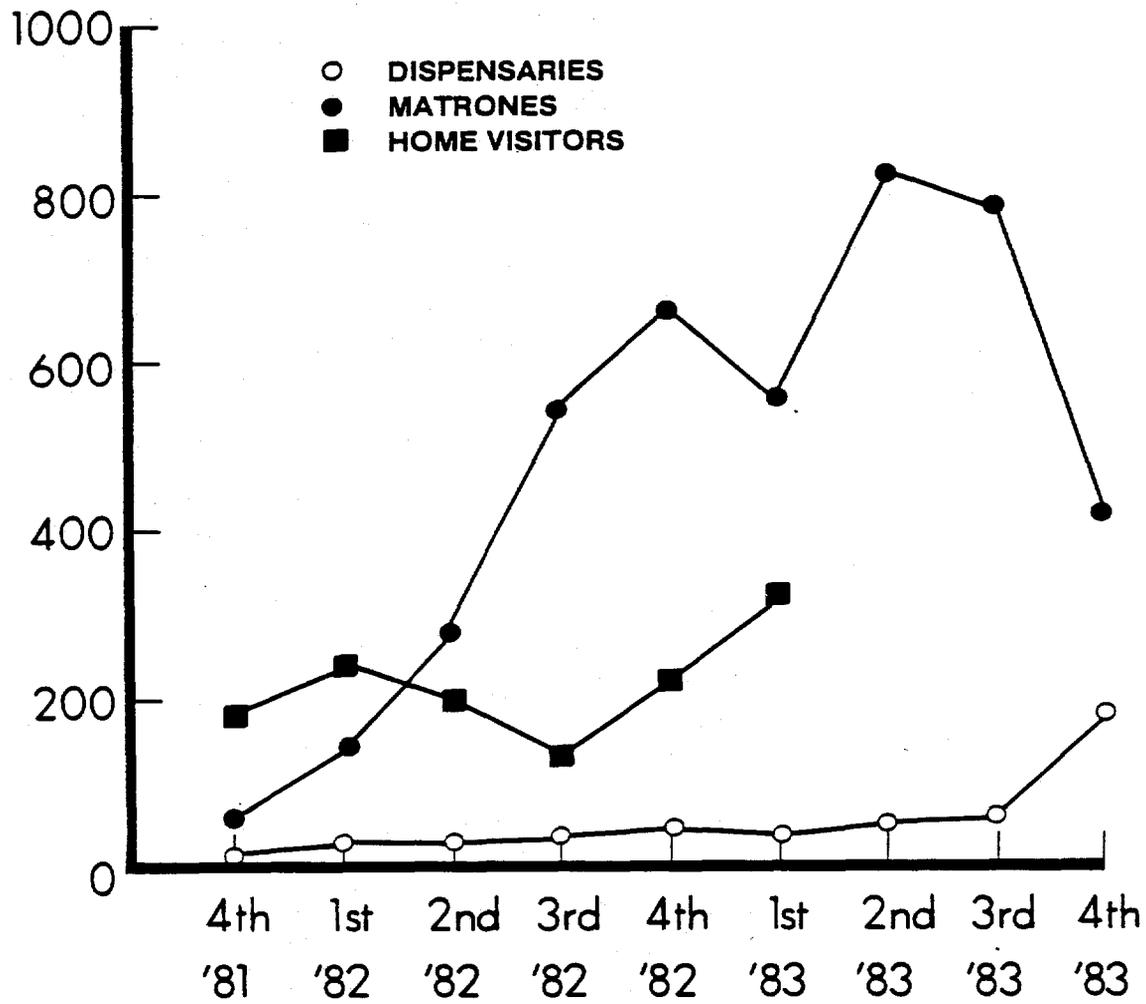
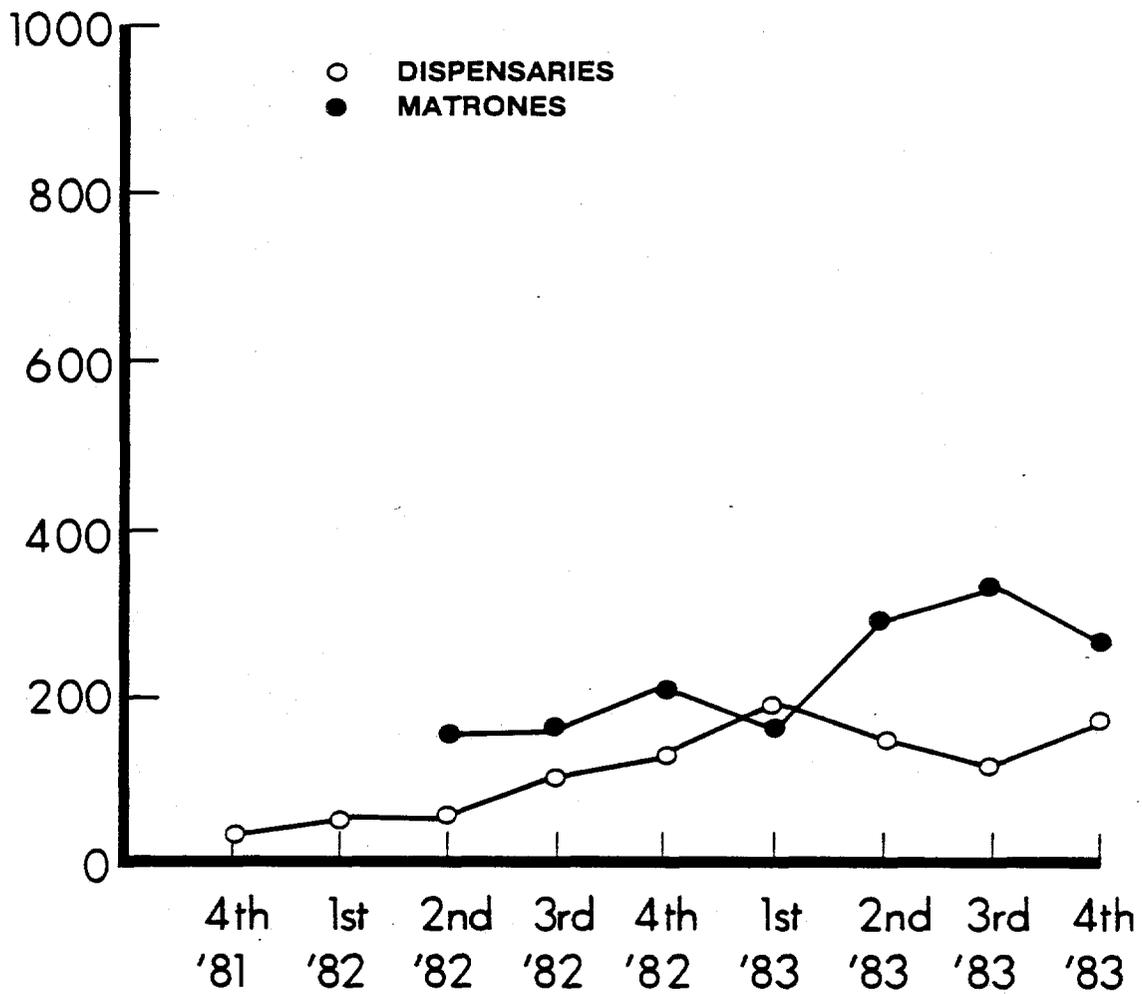


FIGURE IV - 6

RURAL AREA, ZONE B. COUPLE-MONTHS-OF-PROTECTION BY TYPE OF PROVIDER



survey data on contraceptive prevalence (presented in Chapter V) are important in providing a more accurate picture of impact.

5. Relative Efficiency of All Service Providers in the Program

Before leaving this analysis based on service statistics (specifically CMP), it is of interest to consider the relative efficiency of the different providers of contraceptive methods participating in this project. One very crude means of doing this is to calculate the average CMP per individual provider per month (1) over the lifetime of their activities. The providers include each home visitor, dispensary, and matrone working in the project. The results are presented in Table IV-2.

From this table it is evident that in the urban area, the dispensaries in the zone where home visiting was conducted had by far the highest CMP per provider per month (154 per month). In fact, it was more than double that of the urban home visitors (67 CMP per month) or of the dispensaries in the zone not receiving outreach efforts (60 CMP per month).

By contrast, the average CMP for the rural providers is markedly lower. In Zone A (receiving outreach) the home visitors had the highest average CMP per month (21 per month), while the dispensaries and matrones delivered only 7 CMP per month on the average. It should be recognized, however, that the home visitor figures may be slightly inflated by the fact that many of the contraceptives "accepted" during home visiting may not have been used.

Where no outreach was available (Zone B) in the rural area, the matrones and dispensaries were similar in terms of average CMP per provider (9 and 10 per month,

---

1

It was necessary to take a monthly average, since different providers worked for different numbers of months.

Table IV-2: Average CMP Distributed per Provider per Month

	<u>No. months in opera- tion(1)</u>	<u>Mean # of providers working/ month(2)</u>	<u>CMP distri- buted(3)</u>	<u>Mean CMP/ provider/ month</u>
<u>URBAN</u>				
Zone A				
Dispensaries	17	3.7	9,673	154
Home visitors	16	8.9	9,523	67
Zone B				
Dispensaries	17	3.4	3,426	60
<u>RURAL</u>				
Zone A				
Dispensaries	26	2.3	421	7
Matrones	26	23.7	4,308	7
Home visitors	16	3.9	1,307	21
Zone B				
Dispensaries	26	4.0	1,017	10
Matrones	21	8.3	1,547	9

1

The project design called for activities to be implemented in a staggered fashion; thus, the number of months in operation differed between the urban and rural projects and by provider within each area of the project.

2

Since the number of providers in certain categories varied over the life of the project, an average was obtained by dividing the total number of man-months worked by the "number of months in operation."

3

Urban data for December 1983 are not included in these totals, through an administrative oversight.

respectively).

## 6. Method Preference

It is of interest, especially in a new program, to determine the population's preferences for the different contraceptive methods available. One means of doing so is from a survey of the target population, such as is reported in Chapter V.

A second means is to compute the percentage of CMP which corresponds to each method offered through the program. As has been shown elsewhere, the calculation of method mix based on CMP data yields similar results to the calculation based on number of active users, in the case of non-clinical methods (the pill, condom, and spermicidals)(1), which are the main methods provided by PRODEF.

To allow for examination of urban/rural differences in method preferences, as well as possible changes over time, the CMP data were subdivided into four (all-inclusive) categories:

- Urban: 1981-1982 (2)
- Urban: 1983
- Rural: 1981-1982 (3)
- Rural: 1983

<sup>1</sup> Bertrand, Jane T., Maria Antonieta Pineda, Roberto Santiso, and Evelyn G. Landry, 1984. "Active Users vs. Couple-Months-of-Protection: The Comparability of Two Indicators of Performance in Family Planning Programs." Evaluation Review 8(5): 645-662.

<sup>2</sup> Urban service delivery did not begin until July 1982; thus, this period includes only 6 months.

<sup>3</sup> Rural service delivery began in October 1981; thus, this period includes 15 months.

The results in Figure IV-7 show marked differences between the regions and between time periods. In the urban area, the pill and Neosampoon constituted a large, similar percentage of total CMP (43 percent, each). Foam represented only 13 percent of total CMP, and condoms less than one percent.

During the second year that the urban project was in operation, the percentage of CMP corresponding to the pill increased (to 59 percent); CMP for Neosampoon dropped slightly (to 38 percent); and CMP for foam and condoms constituted less than 3 percent.

Two possible explanations of the changes over time are as follows. First, in July 1982 PRODEF authorized the dispensary nurses and home visitors to make the pill available to lactating women (with the stipulation that the baby be at least six months old), which could explain increased pill use. Second, anecdotal evidence suggests that foam was not a well-accepted method. When both types of spermicidals were offered, Neosampoon was greatly preferred.

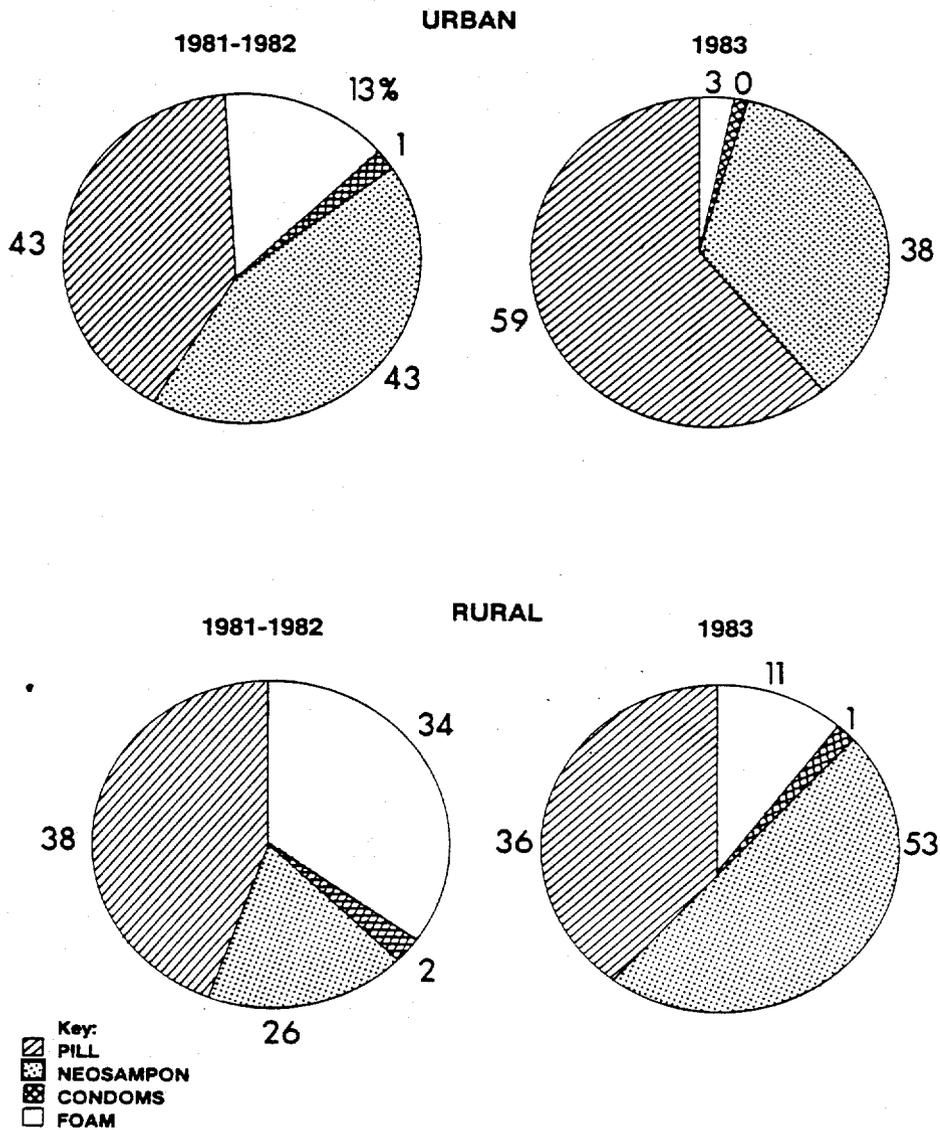
Data on the rural area for 1981-82 resemble those for the urban area for two of the methods; the pill had the highest CMP (38 percent), the condom the lowest (2 percent). However, preference for the two spermicidals was just reversed: in the rural area during 1981-82, the CMP corresponding to foam (34 percent) was higher than CMP for Neosampoon (26 percent).

By the final year in the rural area, Neosampoon emerged as the method of choice (53 percent of the total CMP); the pill constituted 36 percent of total CMP; foam dropped to 11 percent of CMP; and condoms remained at a lowly 1 percent.

These data on the rural area show the widespread use of spermicidal methods, which may stem from fear of taking the pill while breastfeeding. Moreover, these data also reflect a preference for vaginal tablets over foam. This is not seen in the 1981-82 data because Neosampoon was only introduced into the project in mid-1982; up to that point, foam was the only spermicidal available. However, the rural data for 1983 indicate the population's strong preference for

FIGURE IV - 7

METHOD PREFERENCE IN THE URBAN AND RURAL PROJECT, BASED ON C.M.P. DATA



Neosampoon when both methods were equally available.

Before leaving this section, one final comment is in order regarding the comparability of the findings on method preference based on CMP (this chapter) and those from the followup survey, presented in Chapter V. There is some discrepancy which can be explained in part by the fact that the survey findings on current use represent preference at the time of the interview, whereas the CMP findings reflect use over the lifetime of the project.

C. Project Achievement Regarding the Sale of Drugs for Children Under Five

The distribution of four products for children under five--aspirin, chloroquine, mebendazole, and Oralyte-- was an important component of the project in the rural area, for reasons explained above. While the evaluation of the impact of the PRODEF project focuses mainly on the family planning component, it is of interest to examine the volume of each product distributed by the different providers over the life of the project.

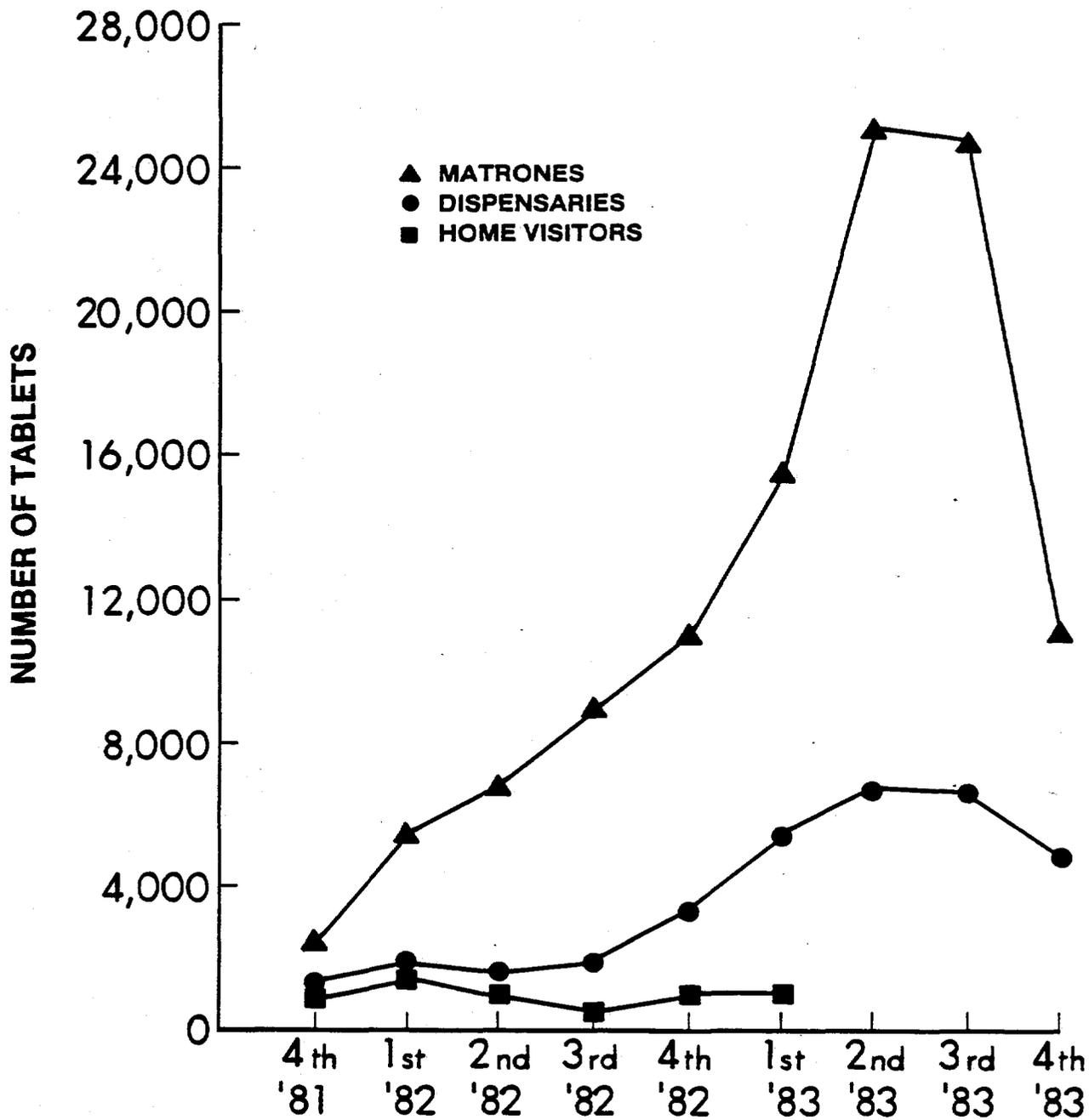
1. Aspirin

During the 27 month period under study, a total of 29,017 aspirin tablets were sold to members of the rural population. As shown in Figure IV-8, the volume of aspirin distributed increased over the life of the project, although a sharp decrease in sales occurred for the fourth trimester of 1983.

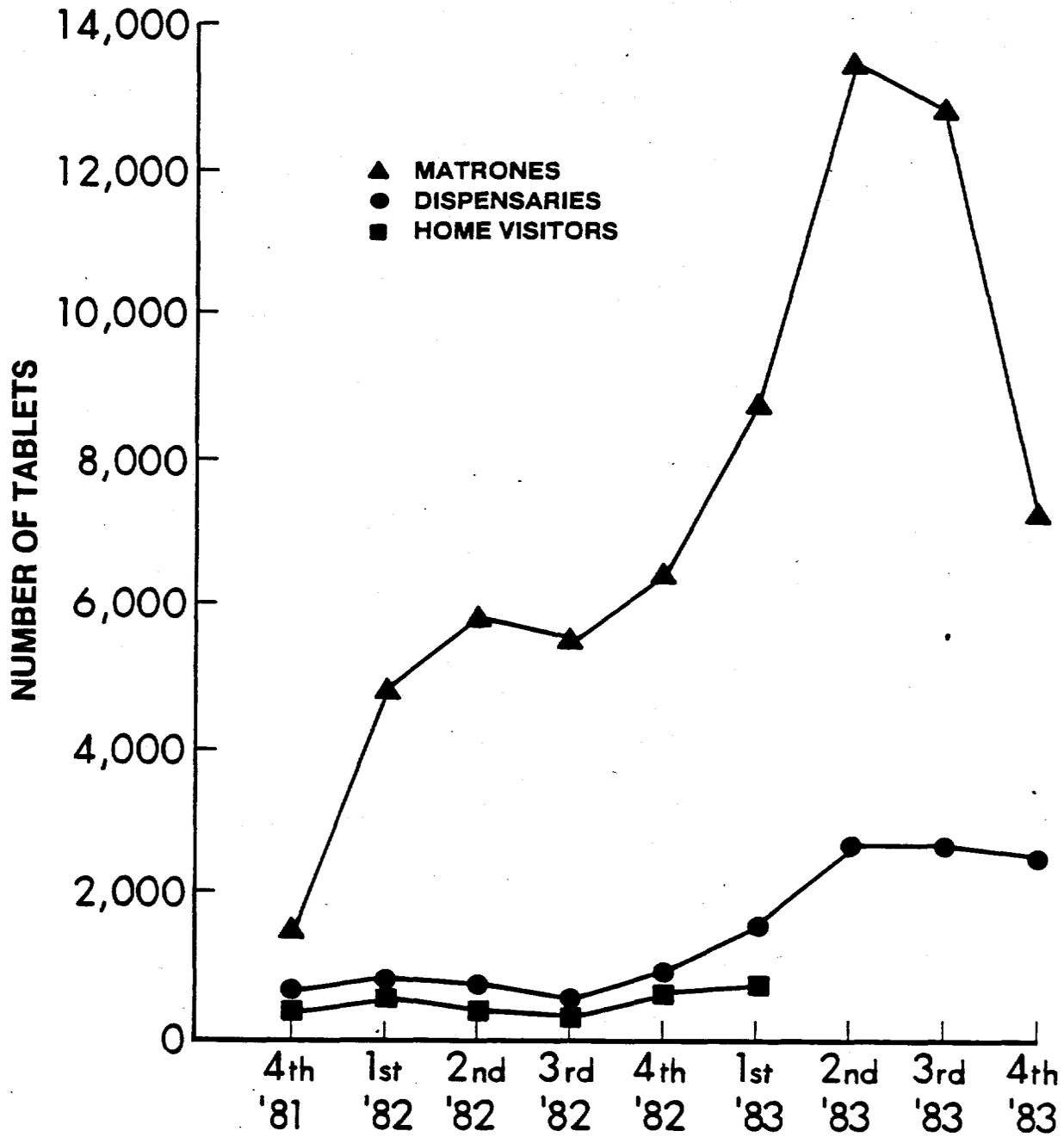
The greatest volume of aspirin was sold by the matrones (both in total and on a per provider basis), followed by the nurses in the dispensaries and the home visitors. In both Zone A and Zone B, the average number of aspirin tablets sold per provider per month was higher for the matrones (Zone A: 145 tablets/month; Zone B: 246 tablets/month) than for the dispensaries (Zone A: 109 tablets/month; Zone B: 125 tablets/month).

FIGURE IV - 8

RURAL AREA: DISTRIBUTION OF ASPRIN TABLETS  
BY TYPE OF PROVIDER



**FIGURE IV - 9**  
**RURAL AREA: DISTRIBUTION OF CHLOROQUINE**  
**TABLETS BY TYPE OF PROVIDER**



## 2. Chloroquine

The pattern for the sale of chloroquine is very similar. Since aspirin and chloroquine were to be used together in the treatment of malaria, this similarity in the curves for Figures IV-8 and IV-9 is to be expected. As was the case for aspirin, the sales of chloroquine increased throughout the life of the project, except in the final trimester (December 1983), in which there was a marked drop in sales. The total number of tablets sold was 81,635.

Again, matrones were the primary source of chloroquine for the population, as shown both in Figure IV-9 and Table IV-3. Matrones sold an average of 92 and 85 tablets/month in Zone A and Zone B, respectively, compared to the dispensaries which sold 44 and 53 tablets/month (Zone A and B, respectively) and the home visitors (67 tablets/month).

## 3. Mebendazole.

A total of 29,017 tablets of mebendazole were distributed in the first 27 months of the project. Again, there was an increase over time in the quantities sold each trimester; however, the data in Figure IV-10 and Table IV-2 show some interesting trends.

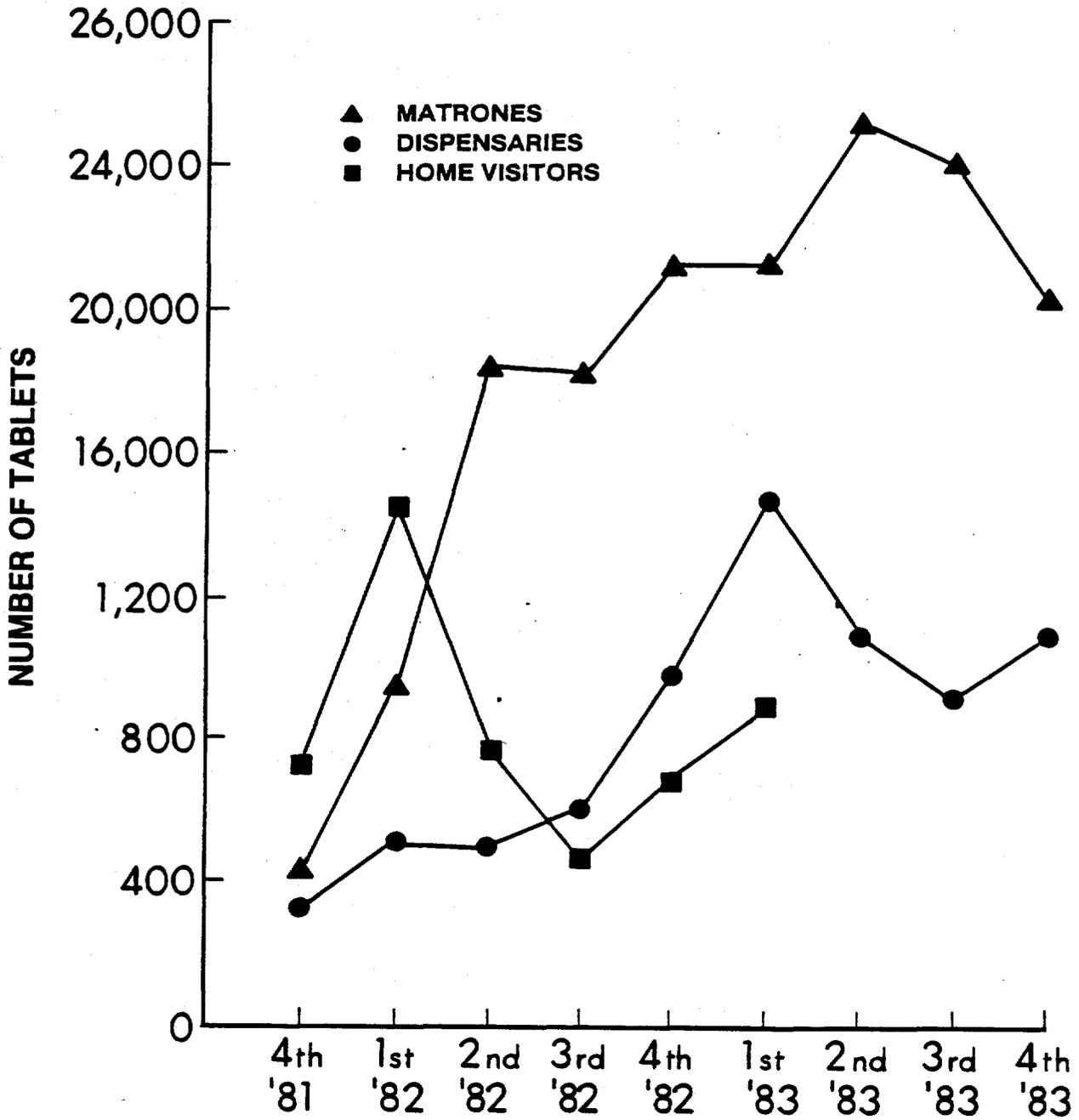
Matrones were again the primary source of this drug for the population, and their sales increased gradually throughout the project, except for a drop in the final trimester. Sales in dispensaries also increased during the first six trimesters, but dropped off slightly in the final three trimesters. In the case of home visitors, sales were greatest during the early months of home visiting, suggesting that the target population may have been responding to the special attention given to this topic during the home visits. However, in later months these sales dropped off; clients may have simply switched service providers in this regard.

Table IV-3: Average Quantity of Each Drug Distributed per Provider per Month

	<u>Mean Number Distributed per Provider per Month</u>			
	<u>Aspirin Tablets</u>	<u>Chloroquine Tablets</u>	<u>Mebendazole Tablets</u>	<u>Oralyte Packets</u>
<u>Zone A</u>				
Dispensaries	109	44	38	9
Home visitors	96	67	82	13
Matrones	145	92	21	5
<u>Zone B</u>				
Dispensaries	125	53	20	5
Matrones	246	85	53	11

FIGURE IV - 10

RURAL AREA: DISTRIBUTION OF MEBENDAZOLE TABLETS BY TYPE OF PROVIDER



The data in Table IV-2 provide further evidence of the home visitors' success in terms of the distribution of mebendazole. Whereas matrones were the primary suppliers of chloroquine and aspirin, home visitors distributed a greater number of tablets per provider per month (82) than the other distributors (matrones: 21 and 53 tablets/month in Zones A and B, respectively; and dispensaries, 38 and 20 tablets/month in the two zones).

#### 4. Oralyte.

The target population showed far less interest in this product than in the other three, based on levels of sales. A total of 6,510 packets of Oralyte were sold during the first 27 months of the project.

The curves for Oralyte were similar to those for mebendazole. Again, matrones sold the greatest quantity of the product (though with a marked decrease in sales during the final two trimesters). Sales in the dispensaries were low during the first year, but more than doubled in subsequent trimesters. Home visitors maintained a moderately low but constant level throughout.

Data in Table IV-2 indicate that on a per provider basis, the home visitors performed better (13 packets per provider per month) than did the other providers (whose sales ranged from 5 to 11 packets per provider per month). It is possible that the home visitors' role as educator as well as vendor accounts for this difference.

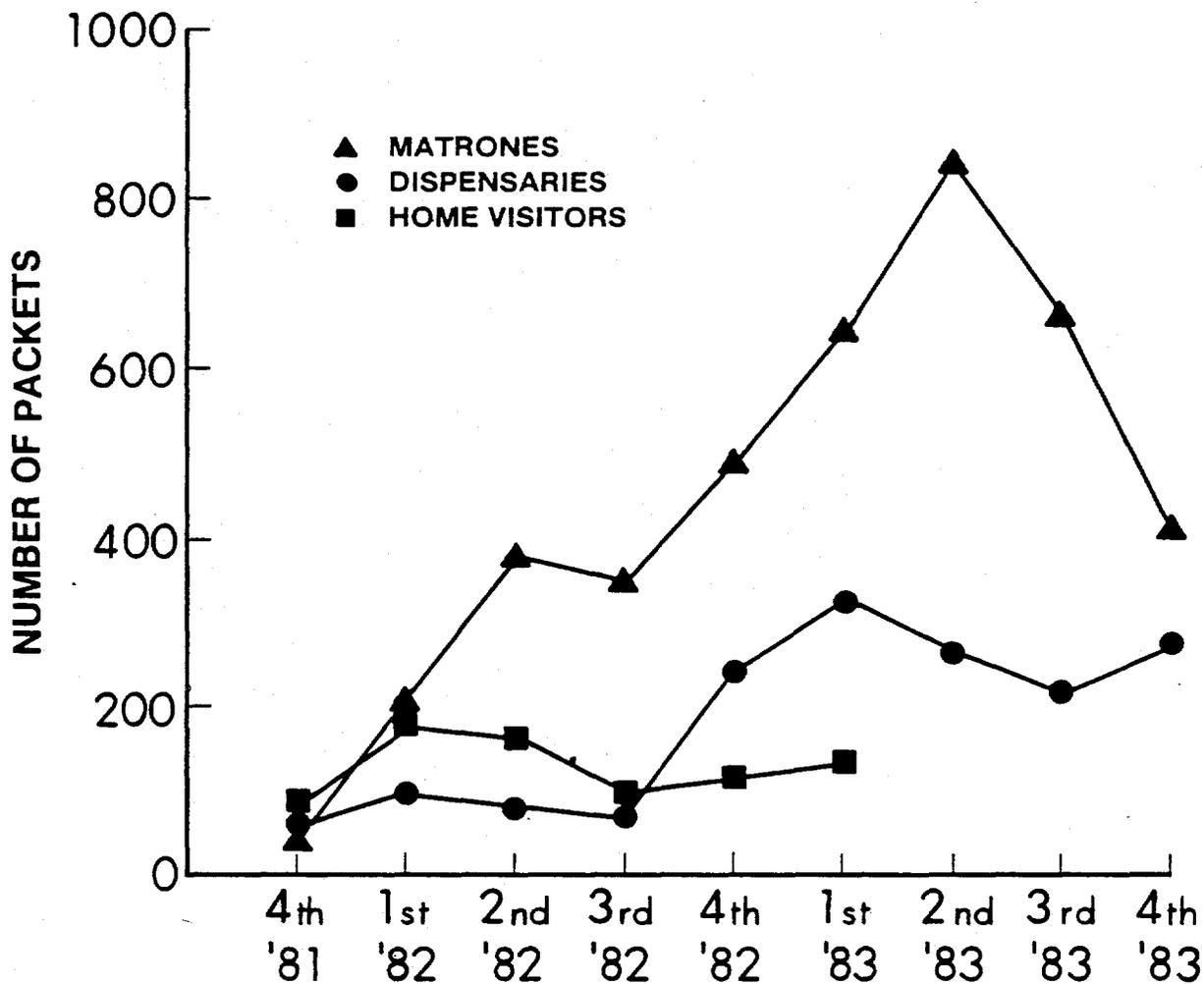
#### D. Explanations of the Trends in the Sale of Contraceptives and Drugs

##### 1. Urban Area: Contraceptives

The gradual increase in CMP distributed over the life of the project (albeit with marked fluctuations reflecting the three cycles

FIGURE IV - 11

RURAL AREA: DISTRIBUTION OF ORALYTE PACKETS BY TYPE OF PROVIDER



of home visiting) suggests a growing awareness and acceptance of family planning among the population in Matadi.

The fact that a far greater quantity of contraceptives was distributed in Zone A than Zone B can be attributed to three factors:

- (1) the population of Zone A is larger than Zone B;
- (2) some women living in Zone B may have purchased contraceptives in Zone A, since several of these dispensaries are located in the center of town;
- (3) the outreach efforts in Zone A stimulated a greater demand for these products than in Zone B, where no outreach was carried out.

The extent to which outreach is responsible for increased demand is shown by the results of the follow-up survey, presented in Chapter V.

It is also of interest to observe that in the absence of outreach work (Zone B), there is nonetheless a slow, steady increase in CMP, provided through the dispensaries, suggesting gradual acceptance of this service as people become more aware of it.

## 2. Rural Area: Contraceptives

The distribution of contraceptives in the rural area is somewhat less promising. It was expected that the absolute volume would be much lower than in the urban area (because of a smaller population base and possibly greater resistance to modern contraceptive methods). However, this does not explain why contraceptive distribution increased gradually during the first year, then plateaued. Furthermore, contraceptive distribution among the major supplier in the rural area -- the matrones -- actually decreased in the final months of the project included in this evaluation.

### 3. Factors Affecting Demand for Contraceptives

The PRODEF staff believes that demand for these services in both the urban and rural area is a result of the following:

- . increased knowledge of family planning methods, especially in the zones with outreach
- . widespread approval of child spacing
- . greatly increased access to modern methods at low cost
- . curiosity regarding a new product, especially when it was made available free of charge on the initial visit (in Zone A)

Factors which may account for the plateau in acceptance of modern contraceptives in the rural zone are as follows:

- . Discontinuance of home visiting in February 1983. (However, if this were the sole factor, one would expect this to affect Zone A only, but not Zone B. Moreover, one would expect to see this in both types of outlets -- matrones and dispensaries -- not just matrones; and in both the urban and rural areas, not just the rural.)
- . Failure for curiosity regarding the new product to develop into true interest in using it.
- . Disillusionment over the side effects of certain methods for some users.
- . More limited cash resources, as a result of the September 1983 devaluation in the Zairian currency of over 400%. (However, if this were the sole factor, one would expect all outlets to be affected in both the urban and rural area.)

- . Waning of enthusiasm on the part of collaborating service providers (dispensary nurses and matrones) as the novelty of the new activity wore off.
- . Relaxation in the supervision of the matrones, which may have resulted from staff energies being directed largely to the followup surveys as of June 1983.

#### 4. Rural Area: Drugs

The data regarding the four drugs sold in the rural area underscore two points. First, the matrones and dispensaries are highly acceptable outlets for the purchase of products which the target population truly wants. Whereas the matrones provided an average of 8 CMP per month, they were providing an average of 158 aspirin tablets and 91 chloroquine tablets per month to the same population.

Second, the home visitors appear to have had a greater effect -- relative to the dispensaries and matrones -- for those products which require some education of the population before they are accepted. In the case of aspirin and chloroquine, which the population is accustomed to procuring for the frequent occurrence of malaria, the matrones distributed a far greater quantity per provider than did the home visitors. By contrast, for the contraceptives, Oralyte, and to a lesser extent mebendazole, the matrones had the highest level of sales per provider.

Chapter V  
IMPACT OF THE FAMILY PLANNING INTERVENTIONS:  
RESULTS OF THE SURVEY



Diakadulua Nlandu Resupplying  
the Urban Dispensary Nurses



65a

## CHAPTER V

### IMPACT OF THE FAMILY PLANNING INTERVENTIONS: RESULTS OF THE SURVEYS(1)

#### A. Rationale for the Surveys

The study design for the PRODEF project consisted of a baseline survey carried out prior to the initiation of service activities and a followup survey conducted once services had been in operation for a 21 month period.

The main purpose of the surveys was to document the extent of change in knowledge, attitudes and behavior regarding family planning, as well as the use of appropriate treatments for malaria, intestinal helminths and dehydration due to diarrhea in preschool children. In addition, the questionnaire covered a number of related topics (five-year pregnancy history, breastfeeding practices, post-partum amenorrhea and abstinence, husband-wife relationships, exposure to PRODEF activities, ownership of household items, socio-demographic characteristics, etc.). While subsequent publications will explore these other issues in detail, the current report focuses on the central question: to what extent did the PRODEF project achieve its objectives? The objectives of the program were:

1. To increase knowledge of modern contraceptives
2. To improve attitudes toward family planning
3. To increase the use of modern contraceptives
4. To decrease "ideal family size"

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1 The data in Chapters V and VI were processed with programming assistance from Jeffrey Tharp, Felix Lee and Kamel Esseghairi.

5. To increase the use of appropriate treatment for children under five who are reported to have malaria, intestinal helminths and dehydration due to diarrhea

## B. Methodology

### 1. Selection of the Respondents

In both the baseline and followup surveys, a representative sample of women aged 15 to 49 was selected in the urban area of Matadi and in the neighboring rural zone of Songololo.

Urban Area: The task of sampling in both areas was greatly hindered by the lack of reliable estimates of population size and maps sufficiently detailed to show the number and location of houses. Two other factors further complicated the task in the urban area: (1) the hilly terrain, with winding streets and roads conforming to the topography of each location rather than to any type of grid-like pattern, which would have permitted the use of natural "blocks;" and (2) the high density of housing, which made it difficult to distinguish one house from another by observation alone.

The one tool available for the sampling task in Matadi was a map of the city, approximately 12 years old, which showed the main streets and landmarks, as well as the relative density of population in each area of Matadi (through different degrees of shading).

To approximate a probability sample, the study area was divided into 109 quadrants (carres) of equal size; these were stratified by density, based on the shadings of the map and spot-checks in the field. The first stage of sampling consisted of randomly selecting 60 quadrants, which were then "located" on the ground, using landmarks and streets shown on the map. Once a quadrant was delineated, every household in the quadrant was mapped and enumerated.

The second-stage sampling consisted of randomly selecting 30 households per quadrant. If the selected quadrant did not have 30 houses, an adjacent quadrant of similar (low) density was selected to obtain the necessary number.

An attempt was made to interview all women of reproductive age in a given household. This procedure continued until the interviewer reached her quota of 30 completed interviews per quadrant. At least three call-backs were made to locate women in selected households who were eligible but absent at the time the interviewer arrived.

In the followup survey, the same sampling procedures were used. However, a new set of 60 carres were randomly selected for inclusion in the urban study. (Of the 60, 36 had been used in the baseline. However, within these carres, the same women were not necessarily selected.)

Because of the sampling procedure used, women from low density areas had a greater likelihood of being selected, while those from the high density areas were less likely to be included. To adjust for this unequal probability of selection, weighting factors were applied to the data (for the urban area only). Results for the urban area in the tables in Chapters V and VI are based on the weighted data, although the unweighted n is shown.

Rural Area: There were a total of 53 villages in the study area. Since maps of all villages were necessary for service delivery activities, it was decided to map and interview in all villages rather than in a sample of them.

An attempt was made to interview all women of reproductive age at every second household.

Sample Size: These procedures resulted in the following number of completed interviews:

	<u>Urban Area</u>		<u>Rural Area</u>		<u>Total</u>
	<u>Zone A</u>	<u>Zone B</u>	<u>Zone A</u>	<u>Zone B</u>	
Baseline	928	869	924	780	3,501
Followup	862	932	791	700	3,285

## 2. Survey Instrument

The questionnaire used for the baseline survey was developed in French and translated to the local dialect, Kikongo. This version was pretested and slight modifications were made in wording. The revised version was then translated from Kikongo back to French by a local school teacher unfamiliar with the study to assure that the meaning of all items had been preserved in the translation to Kikongo.

The questionnaire for the followup survey contained almost all of the original items as well as additional questions which were pretested before use.

## 3. Data Collection and Processing. The schedule for data collection for the two surveys was as follows:

<u>Survey</u>	<u>Urban</u>	<u>Rural</u>
Baseline	Sep-Dec 1981	Feb-Jun 1981
Followup	Feb-Jun 1984	July-Nov 1983

All interviewing was done by women 20 to 25 years old, who had undergone two weeks of training. In five percent of the cases the supervisor revisited the household for verification.

In the baseline survey, keypunching was performed by another organization in Kinshasa (CEPLANUT, the Nutrition Planning Center). The data were transferred from card to tape, then sent to Tulane University for editing and analysis. In the followup survey data were entered directly onto microcomputer in the field (in Nsona Mpangu and Matadi), after

which the cassettes were forwarded to Tulane for editing, processing, and analysis.

C. Results of the Surveys

1. Comparability of Zone A and Zone B on Socio-Demographic Characteristics

Complete findings from the baseline survey appear in two documents: "Results of the PRODEF/Tulane Survey. Parts I and II" and "Family Planning in Bas Zaire: Current Status and Potential Acceptability." (See Chapter IX for the full references.) The first of these two documents focuses on the issue of comparability between Zone A and Zone B for both the urban and rural component of the project. (Note: This is not to be confused with urban/rural differences; in fact, the urban and rural populations do differ on socio-demographic characteristics, as would be expected. Rather, the issue of comparability is between Zone A and Zone B within the urban and within the rural population.)

Ideally, one would hope that within the urban area and within the rural area (1) that Zones A and B would be comparable on the baseline, (2) that they would be comparable on the followup, and (3) that there would be little difference in the socio-demographic characteristics of the baseline and followup study populations.

In real life situations the data often do not conform to this ideal. The purpose of this section is to describe the extent to which there is comparability between the zones on the two surveys.

The respondents in all four groups for both surveys were similar in age (the mean being 27 or 28 years old), as shown in Table V-1.

Regarding education, it is not surprising that a greater percentage of urban than rural respondents had gone beyond primary school. In

TABLE V-1

Summary of Socio-Demographic Characteristics of the Study Population by Region and by Treatment Zone (1)

	<u>Urban Area (Matadi)</u>				<u>Rural Area (Songololo)</u>			
	<u>Zone A</u>		<u>Zone B</u>		<u>Zone A</u>		<u>Zone B</u>	
	Before n=928	After n=862	Before n=869	After n=932	Before n=924	After n=791	Before n=780	After n=700
Mean age (in years)	27.0	26.9	26.6	26.7	28.2	27.6	28.4	27.9
<u>Education</u>								
None	20.7	13.5	23.7	9.2	40.4	31.2	41.1	29.1
1-6 primary (or home-maker school)	39.9	42.3	34.2	29.7	44.2	46.5	41.5	47.0
Beyond primary	39.4	44.2	42.0	61.2	15.5	22.2	17.3	23.9
<u>Literacy</u>								
Yes	68.3	76.8	65.4	83.3	42.7	53.7	44.5	51.7
No	31.7	23.2	34.6	16.7	57.3	46.3	55.5	48.3
<u>Occupation</u>								
Housewife	64.4	45.4	66.2	40.2	2.4	2.0	3.5	3.1
Vendor	19.3	26.9	18.6	20.2	2.4	2.4	2.3	1.9
Work in fields	6.0	7.3	5.5	8.3	92.6	93.2	90.8	93.4
Other	10.1	20.5	9.7	31.1	2.6	2.4	3.4	1.5
<u>Nationality</u>								
Zairian	94.2	90.5	89.4	82.5	59.5	66.0	83.8	90.3
Angolan	5.8	9.1	10.6	17.2	40.5	33.8	16.0	9.7
Other	0.0	0.3	0.0	0.4	0.0	0.3	0.1	0.0

	<u>Urban Area (Matadi)</u>				<u>Rural Area (Songololo)</u>			
	<u>Zone A</u>		<u>Zone B</u>		<u>Zone A</u>		<u>Zone B</u>	
	Before n=928	After n=862	Before n=869	After n=932	Before n=924	After n=791	Before n=780	After n=700
<u>Religion</u>								
Catholic	44.8	45.1	39.7	35.9	37.3	36.5	32.6	34.6
Protestant	44.9	37.9	44.0	43.2	52.5	53.7	48.4	45.4
Other or None	10.2	17.0	16.4	20.9	10.2	9.7	18.9	20.0
<u>Marital Status(1)</u>								
Currently married	70.5	61.5	69.4	77.3	62.0	77.3	62.6	78.4
Previously married	4.2	8.2	2.5	8.9	7.6	7.1	7.3	8.4
Never married	25.3	30.2	28.1	35.2	30.3	15.5	30.0	13.1
<u>Mean age at First Marriage (2)</u>	17.7	17.3	17.3	18.0	17.0	16.9	17.0	16.8
<u>Number of wives that husband has:(2)</u>								
One (respondent)	90.4	87.4	92.2	85.7	73.8	79.7	75.6	82.6
More than one	9.7	12.7	7.8	14.3	26.2	20.4	24.4	17.4

1  
In all tables in Chapters V and VI, the unweighted n is given. The percentages for the urban area are weighed (as explained in the text), while the rural sample was self-weighted.

2  
"Currently married" includes both legal and concensual unions; "previously married" includes divorced, widowed and separated women.

3  
Based on women who were married or in union.

the baseline survey, the education levels were highly comparable for Zones A and B in both regions. On the followup survey, the percentage having gone beyond primary school increased slightly in all groups. Zones A and B of the rural area still showed strong comparability, while in the urban area educational level was slightly higher among women in Zone B than in Zone A.

The data on literacy reflect this same pattern. The percentage of respondents able to read increased in all groups between the two surveys. The rural area still maintained strong comparability between Zones A and B. However, in the urban area, literacy was slightly higher in Zone B, on the followup survey.

With respect to occupation, the majority of urban women reported to be housewives or vendors in both surveys, with fairly strong comparability between Zones A and B. By contrast, in both zones of the rural area and on both surveys, 91-93 percent of the respondents reported working in the fields, in addition to their household duties.

There was some difference between zones with regard to nationality, at least in the rural area. In the urban area in both zones and on both surveys, 89-94 percent of the respondents reported to be Zairian, the remaining being Angolans. However, in the rural area, the percentage Angolan was higher in Zone A than in Zone B on both surveys.

There was good consistency between the before and after surveys in terms of religion. In the urban area, 80-90 percent of the respondents were Protestant or Catholic, with about half belonging to each sect. In the rural area, again 80-90 percent were Protestants or Catholics, although the Protestants outnumbered Catholics in both zones on both surveys.

Data on marital status in the urban area suggest comparability between Zones A and B on the two surveys, although the percentage currently married was slightly lower in the

followup survey. The data on marital status in the rural area show more marked differences, which are in fact a methodological artifact. During the baseline survey in the rural area, women not legally married but living in concensual union were mistakenly classified as "not married." These findings suggest that some 15 percent may have been misclassified. However, as of the followup survey, 77 and 78 percent of the women in Zones A and B, respectively, were currently married.

Among all groups in both surveys, the mean age at first marriage was 17 years (except one in which it was 18). Approximately 18 percent of the married women in the urban and 20 percent of the married women in the rural area have a polygamous marriage (i.e. their husband has more than one wife).

In the current study, small differences exist between Zone A and Zone B on the followup survey, or between the baseline and followup survey for a given zone. However, for the most part they are not of sufficient magnitude to unduly bias the results of the study. Thus, differences reported below in relation to family planning and health can not be explained by socio-demographic or economic differences between the groups under study. Rather, these differences can be seen to reflect the impact of the PRODEF project.

## 2. Knowledge of Modern and Traditional Methods

In the baseline survey, the most widely known methods in both the urban and rural areas were abstinence and withdrawal (although a surprising percentage of rural respondents in Zone A had also heard of female sterilization, because of Dr. Nlandu's work in the area). Modern contraceptive methods were known by a lesser percentage of the women than were traditional ones prior to the PRODEF project.

This situation changed markedly in the 21 months between the baseline and followup survey as shown in Table V-2. While withdrawal continued to be the most widely known method, knowledge of modern contraceptives increased

TABLE V-2

Knowledge of the Different Family Planning Methods Before and After the PRODEF Project,  
by Region and by Zone

	<u>Urban Area (Matadi)</u>				<u>Rural Area (Songololo)</u>			
	<u>Zone A</u>		<u>Zone B</u>		<u>Zone A</u>		<u>Zone B</u>	
	Before n=928	After n=862	Before n=869	After n=932	Before n=924	After n=791	Before n=780	After n=700
Percentage of respondents that have heard of each method:(1)								
Withdrawal	72.1	88.5	70.1	85.3	57.1	79.6	70.1	85.1
Abstinence	70.8	62.5	73.5	59.4	82.0	63.6	84.2	56.7
Belt	64.8	74.0	67.0	66.8	56.2	67.6	59.6	71.3
Injection	64.4	70.3	58.6	68.0	53.6	54.4	51.5	53.1
Oral pill	63.6	82.6	61.1	87.1	55.2	78.1	51.7	68.6
Female steril.	58.1	75.0	59.7	71.3	65.8	58.3	66.7	54.6
Rhythm	51.2	59.2	49.9	60.4	36.1	27.9	37.6	18.4
Condom	31.6	72.5	26.1	61.2	41.8	73.3	31.3	62.4
IUD	24.0	50.0	19.7	47.1	42.7	45.6	39.6	33.3
Vaginal methods	8.0	54.5	5.9	48.4	18.9	57.1	10.9	32.0
Neosampoon	----	61.3	----	55.5	----	44.6	----	32.1

1 This includes women that mention it spontaneously, claim to have heard of it when prompted, and/or report to have used it at some point.

dramatically. For urban respondents in Zone A (where outreach was conducted) the percentage who had heard of the four methods offered by PRODEF outlets--the pill, foam, Neosampon, and condoms-- increased by at least 19 and in one case 49 percentage points. The increases among urban respondents in Zone B (which did not receive the outreach) were also dramatic: from 26 to 42 percent points on these four different methods.

Knowledge of modern contraceptives also increased substantially in the rural area, with the largest increases occurring in Zone A. The percentage that had heard of each of the four modern methods (listed above) increased by at least 23 percent points in Zone A and by at least 17 percent points in Zone B.

A general pattern observable by the time of the followup survey was that knowledge of modern contraceptives was higher in the urban than in the rural area; and within each, it was higher in Zone A than in Zone B, suggesting the impact of the outreach work. It is noteworthy that Neosampon (not even mentioned by name on the baseline survey, because it had yet to be introduced) was known by over half the urban respondents and at least one third of the rural respondents less than two years after it became available to the population.

Of the modern contraceptive methods, the best-to-least known among urban respondents on the followup survey were: the pill, female sterilization, the injection, condoms, Neosampon, foam (or cream), and the IUD. The same rank ordering was observed for the rural respondents, with the exception that the condom was in second place.

Table V-3 provides summary data regarding knowledge of modern and traditional methods. At the time of the baseline survey at least 94 percent of the women in Zone A and Zone B, both urban and rural, knew at least one traditional method; and this percentage was even higher by the followup survey in all groups.

TABLE V-3

Knowledge of Family Planning Methods Before and After the Project: A Summary Table

	Urban Area (Matadi)				Rural Area (Songololo)			
	Zone A		Zone B		Zone A		Zone B	
	Before n=928	After n=862	Before n=869	After n=932	Before n=924	After n=791	Before n=780	After n=700
Percentage that have heard of:								
- at least one modern method	87.0	97.3	85.1	96.7	75.4	97.1	77.7	86.1
- at least one traditional method	94.3	99.0	95.9	98.1	94.4	97.1	95.9	97.1
- at least one method (either type)	96.6	99.6	97.6	98.7	95.9	99.9	96.7	99.6
Average number of methods known:								
- modern	2.7	4.7	2.3	4.4	2.9	4.1	2.6	3.4
- traditional	2.8	3.1	2.7	3.0	2.6	2.7	2.7	2.6
- both types	5.6	7.8	5.0	7.4	5.5	6.8	5.3	6.0

On the baseline survey, the population was slightly less knowledgeable about modern than traditional methods; the percentage who knew at least one modern method was about 10 percentage points lower among the urban sample (87/85) and 20 percentage points lower among the rural sample (75/78) than for traditional methods.

As of the followup survey almost all urban respondents (from Zone A or Zone B) knew at least one modern and one traditional method. In the rural area, nine out of 10 respondents knew at least one modern method.

The average number of modern methods known (shown in Table V-3) demonstrates the same pattern as mentioned above. Knowledge is higher in the two urban areas than in the two rural areas; and within urban or rural, the average number of methods known is higher for Zone A than for Zone B.

### 3. Attitudes toward Family Planning

In both surveys, respondents were asked, "Do you believe it is good or it is bad for couples to use methods for spacing births or preventing pregnancy?"

Even in the baseline, over 90 percent of the respondents in the four groups (urban/rural and A/B) expressed approval. By the followup survey, approval of family planning was virtually universal among the study population, as shown in Table V-4.

This should not necessarily be interpreted as approval for modern contraceptive methods, since the question was phrased so as to refer to both. However, these results do underscore the value placed on child spacing in this population, which is of key importance for the long-term success of PRODEF activities.

TABLE V-4

Approval of Family Planning Before and After the Project, By Region and by Zone(1)

	<u>Urban Area (Matadi)</u>				<u>Rural Area (Songololo)</u>			
	<u>Zone A</u>		<u>Zone B</u>		<u>Zone A</u>		<u>Zone B</u>	
	Before n=928	After n=862	Before n=869	After n=932	Before n=924	After n=791	Before n=780	After n=700
Good	96.3	100.0	96.3	99.9	91.6	99.0	96.3	100.0
Bad	2.6	0.0	1.7	0.0	5.2	0.6	1.8	0.0
Don't Know	1.1	0.0	2.0	0.1	3.2	0.3	1.9	0.0

---

1  
Based on the question, "Do you believe it is good or it is bad for couples to use methods for spacing births or preventing pregnancy?"

#### 4. Trial Use of Modern Methods

In the introduction of any innovation to a population, there is a stage referred to as "trial," in which the interested individual experiments with the new product or practice. While this may not result in continued use, it nonetheless represents an important step in the adoption process.

The results of the two surveys show a greatly increased experimentation with modern contraceptive methods following the implementation of the PRODEF project. In the urban area, the percentage of ever-married women who had ever used a modern contraceptive rose from 10 percent (at the time of the baseline) to 48 percent among women in Zone A and to 44 percent among women in Zone B. A smaller but substantial increase also occurred in the rural area, where the percentage rose from 8 to 34 percent in Zone A, and from 7 to 27 percent in Zone B.

The same pattern seen with regard to knowledge of modern methods also emerged for "ever use" of a modern contraceptive: the percentages were higher in the urban than rural area, and within each, they were higher among women in Zone A than in Zone B.

The specific methods (both modern and traditional) which women in this study had ever used are shown in Table V-5. The percentages do not add to 100, since multiple responses were allowed.

Withdrawal continued to be the method which the greatest percentage of women in both the urban and rural area have ever used. It is followed by abstinence in three of the four groups shown in Table V-5. However, it is noteworthy that in the urban area which received home visiting, the pill was mentioned as frequently as abstinence. The percentages of women that had experimented with the other modern methods increased in almost all cases and for all groups between the baseline and followup surveys, although the percentage for any given method was quite low (less than 15 percent, except for the pill in the urban

TABLE V-5

Ever Use of Family Planning Methods Before and After the Project, by Region and by Zone(1)

	<u>Urban Area (Matadi)</u>				<u>Rural Area (Songololo)</u>			
	<u>Zone A</u>		<u>Zone B</u>		<u>Zone A</u>		<u>Zone B</u>	
	Before n=693	After n=583	Before n=625	After n=602	Before n=643	After n=668	Before n=546	After n=608
<u>Percentage of respondents that have ever used:</u>								
- A modern method	10.2	48.0	9.8	43.6	7.9	33.7	6.6	26.7
- A trad. method	77.8	82.4	81.2	89.5	80.5	83.7	82.4	88.7
- Any type of method	81.2	97.3	84.7	96.3	83.1	92.9	83.6	95.4
<u>Percentage that have ever used:</u>								
Withdrawal	56.5	67.3	54.0	74.2	40.4	62.4	53.1	76.6
Pill	8.1	26.7	4.9	23.9	2.7	11.1	1.3	11.8
Abstinence	24.0	23.4	37.1	31.8	51.8	40.0	42.9	30.3
Rhythm	11.2	10.2	12.6	19.3	7.6	8.5	7.5	7.6
Neosampon	0.0	0.0	0.0	4.1	0.0	4.3	0.0	2.8
Condom	3.1	9.3	1.1	9.1	2.6	13.5	2.6	10.5
Female steril.	0.7	5.3	2.7	4.1	3.7	3.0	0.9	3.0
Traditional belt	0.7	2.2	1.3	2.8	1.2	4.0	1.8	6.7
Vaginal methods	0.7	2.9	0.0	2.0	0.0	10.2	0.2	2.5
Injection	1.9	2.2	2.0	3.7	0.4	1.8	0.2	0.7
IUD	0.7	1.1	0.5	1.4	1.2	1.3	0.4	3.0
Other	0.9	0.3	0.2	0.0	1.1	0.4	1.1	0.5

1  
Based on ever-married women; multiple answers are possible, so that percentages do not add to 100

area).

##### 5. Current Use of Modern Contraceptives

One of the main objectives of the PRODEF project was to increase the use of modern contraceptive methods among married women of reproductive age in the target population. The data in Table V-6 demonstrate the extent to which this objective was achieved.

In the urban area the percentage of married women 15-49 years old who were using a modern contraceptive method increased from 4 to 19 percent in Zone A, and from 5 to 16 percent in Zone B. At the same time the percentage currently using a traditional method decreased by 16 percent points in both zones (from 55 to 39 in Zone A, and from 51 to 35 in Zone B).

The use of modern contraceptives also increased in the rural areas: from 5 to 14 percent in Zone A, and from 2 to 10 percent in Zone B. The percentage using a traditional method decreased by 12 percent points in each zone: 60 to 48 in Zone A, and from 65 to 53 in Zone B.

These increases in modern method use and decreases in traditional method use are shown for the specific methods at the bottom of Table V-6. The percentage of women using withdrawal, abstinence, or rhythm decreased in every one of the four groups. At the same time, the percentage of women using the pill, female sterilization, condoms, and vaginal methods increased in all four groups (with the exception of two of the 16 cells in question).

Among users of modern contraceptives, the most popular method among urban respondents was the pill, followed by female sterilization, Neosampoon and condoms. Of the methods offered by the PRODEF outlets, foam was least widely used in the urban area.

TABLE V-6

Current Use of Family Planning Methods Among Currently Married Women Before and After the Project, by Region and by Zone

	Urban Area (Matadi)				Rural Area (Songololo)			
	Zone A		Zone B		Zone A		Zone B	
	Before n=654	After n=527	Before n=602	After n=537	Before n=572	After n=612	Before n=488	After n=549
<u>Percentage of respondents that are currently using:</u>								
- A modern method	4.4	18.8	4.5	16.2	5.2	13.7	1.6	10.4
- A trad. method	54.5	39.0	50.7	34.5	59.5	48.0	64.5	52.5
- Any type of method	58.9	57.8	55.2	50.7	64.7	61.7	66.1	62.9
<u>Percentage that are currently using:</u>								
Withdrawal	33.2	23.9	30.4	20.4	20.9	18.8	35.5	30.8
Abstinence	14.0	13.6	15.7	12.5	28.3	26.8	20.7	19.5
Pill	2.5	7.8	1.0	7.7	0.5	2.1	0.2	2.7
Female steril.	0.8	4.9	2.2	4.7	3.7	2.6	1.0	3.1
Neosampoon	0.0	3.3	0.0	0.9	0.0	1.6	0.0	0.9
Condom	0.6	1.8	0.5	0.3	0.3	3.4	0.2	2.4
IUD	0.0	0.5	0.0	0.6	0.5	0.5	0.0	0.4
Injection	0.5	0.5	0.8	1.1	0.2	0.2	0.2	0.2
Rhythm	2.9	0.4	2.8	1.6	1.6	0.7	1.6	0.7
Foam (or cream)	0.0	0.1	0.0	0.8	0.0	3.3	0.0	0.7
Traditional belt	0.0	0.1	0.0	0.0	0.0	0.7	0.0	0.9
Other	2.6	0.8	1.8	0.2	8.0	----	6.5	0.4

Method mix for the rural area differed by zone. In Zone A (with outreach), the methods reported (in descending order of frequency) were condoms, foam, female sterilization, the pill and Neosampoon. In Zone B, female sterilization headed the list, followed by the pill, condoms, foam and Neosampoon. Two factors may explain the ranking of the barrier methods and female sterilization.

First, previous studies in Zaire show that motivation to avoid another pregnancy is strongest among lactating women. In the past, the home visitors initially recommended barrier methods for lactating women (although this has now changed). This could explain the preference for the condoms and foam over the pill, especially in Zone A. Second, while female sterilization is among the most widely used methods, the program director attributes this to medical reasons; i.e. these are older women (mean age = 39 years) who have had a large number of pregnancies (mean number = 8.4) and are advised by their doctor to be sterilized. The procedure is voluntary, but it is medically recommended, and may or may not represent a desire to limit family size.

There are certain discrepancies between the findings reported in the followup survey and the findings based on CMP regarding method mix. For example, Neosampoon was shown to be more popular than foam, based on CMP; yet this is not shown by the followup survey data. Second, the volume of condoms sold in both the urban and rural area is very low in comparison to the other methods. Yet the survey data suggest that it is an important method, especially in Zone A of the rural area. Further examination of these differences is needed.

Several trends emerge from these findings. First, consistent with the findings for knowledge and attitude, current use is higher in the urban than rural area, and within each region, it is higher in Zone A than in Zone B.

Second, the data strongly suggest that women in this population are replacing traditional methods with modern contraceptives. While use of traditional methods decreases and

use of modern methods increases, the percentage using any type (modern or traditional) of method is similar in both surveys (or slightly declines).

Third, despite this replacement phenomenon, traditional methods are still much more widely used than modern methods, by a factor of 2-to-1 in the urban area and by a factor of over 3-to-1 in the rural area.

#### 6. Ideal Number of Children

The PRODEF project emphasizes child spacing rather than family limitation in its promotional activities. However, it has been found in other countries that the mere availability of FP services has the effect of changing attitudes regarding desired or ideal family size. One of the objectives of the PRODEF project was to test whether this would occur in the Bas Zaire context.

The data on ideal family size are somewhat difficult to interpret. Over 60 percent the respondents in the baseline survey responded to this question with "all God sends" or "I don't know." These responses should be interpreted as generally pronatalist, since they reflect an acceptance of whatever number of children arrive.

The data in Table V-7 indicate a slight change between the baseline and followup survey, though primarily in the urban area. First, the percentage that answered "all God sends" or "I don't know" decreased by from 61 to 40 percent in Zone A and from 73 to 48 percent in Zone B of the urban area, suggesting that the population was now more conscious of being able to decide family size. Second, among urban respondents who did give a specific number as "ideal", the mean number decreased from 6.1 and 6.2 (in the two zones, respectively) to 5.6.

In the rural area, the percentage who responded "all God sends/I don't know" decreased slightly in both zones. The mean number considered ideal also decreased, but

TABLE V-7

Number of Children Considered Ideal, Before and After the Project,  
by Region and by Zone

	<u>Urban Area (Matadi)</u>				<u>Rural Area (Songololo)</u>			
	<u>Zone A</u>		<u>Zone B</u>		<u>Zone A</u>		<u>Zone B</u>	
	Before n=928	After n=862	Before n=869	After n=952	Before n=924	After n=791	Before n=780	After n=700
Number considered ideal (1)								
1-2	0.3	1.4	0.5	1.4	0.3	0.4	1.2	0.9
3-4	7.0	13.8	4.7	12.6	4.0	5.6	5.8	7.3
5-6	18.7	29.6	10.3	26.0	13.7	20.9	18.7	19.7
7-8	7.2	9.6	7.5	9.5	6.7	10.0	10.0	9.3
9-10	4.9	3.5	3.3	2.7	3.8	2.7	3.1	3.1
11-12	0.5	0.3	0.3	0.2	0.3	0.1	0.3	0.4
13 or more	0.1	0.3	0.3	0.0	0.3	0.3	0.0	0.0
All God sends	46.0	38.4	57.3	40.6	62.1	57.1	52.1	56.0
Don't know	15.2	2.9	15.8	7.2	8.7	3.0	8.9	3.3
Mean number(1)	6.2	5.6	6.1	5.6	6.4	6.1	6.0	5.9

<sup>1</sup> Based on those respondents that gave a specific number.

very slightly.

Stretching the interpretation of the data, one might conclude that the decrease in stated ideal family size and the fact that a greater percentage answered with a specific number (of children) reflect a positive impact of the program. The authors prefer the more conservative interpretation that to date there has been little change in attitudes toward ideal family size. However, this will be an important variable to examine in the five year followup study (scheduled for 1988).

#### D. Discussion

##### 1. Shortcomings of the Research Design

Before preceding to the discussion of results, a few words are in order regarding the limitations of this research. A major shortcoming of the study design is that there is no control group (technically, "comparison group") against which to measure the extent of change in the treatment zones. This decision to have all members of the target population in some type of treatment group was taken jointly by USAID/Washington and Tulane University, with the rationale that this would provide access to FP services to a maximum number of people. While this decision was preferable from the point of view of service provision, it was not optimal for evaluating the impact of the PRODEF project (i.e. measuring its impact in comparison to what would have happened in the absence of the program).

One of the problems of not having a control group is that one can not control for "history," i.e. other events which may have taken place during this period which were not part of the program but which affected the outcome variables under study; one such event would be the delivery of FP services by another provider.

This shortcoming in the study design is probably less serious in the context of Bas Zaire in the period 1981 to 1983 than might be the case in other countries. There has been

little other family planning activity occurring in these areas which could have brought about these changes. Given that PRODEF was by far the largest supplier of contraceptives (and that private physicians are beyond the economic means of most of the population), the changes in contraceptive prevalence can be traced fairly directly to this program. While the effect of other non-FP factors such as change in socio-economic conditions is unknown, informal observation would suggest that conditions have remained fairly constant over this period (despite the large devaluation of the Zairian currency in September 1983).

Although one can not retroactively create a control group for the baseline survey, we are in fact establishing "comparison groups" as of the followup survey. In the urban area, a "supplemental survey" has been conducted in an area on the outskirts of the city which has similar socio-demographic characteristics but which has not received PRODEF input at any time. These data, collected in the fall of 1984, will serve as a "post-test only" comparison group. They were not available in time for inclusion in this final report, but they will provide for a stronger design when the project is evaluated after five years of operation (in 1988).

A similar approach will be used in the zone of Songololo. For Phase II of the project, one area of the zone of Songololo will be set aside as a comparison area for the remainder of the project. Data to be collected by mid-1985 for this group of villages will serve as a somewhat belated "post-test only" control for the rural survey.

Comparison groups created post-hoc are far from ideal. However, in view of the current situation, it is believed that the recently created comparison areas will in fact strengthen the long-term research design for the evaluation of PRODEF activities.

2. Impact of the PRODEF Project regarding Family Planning

While the changes observed during the period under study can not be unequivocally attributed to PRODEF efforts (for lack of a control group in the design), the trends are very promising. Knowledge of modern methods increased substantially, both in the areas served by outreach workers and those where contraceptives were available through the dispensaries only. Attitudes toward family planning (which many respondents undoubtedly interpreted as child spacing) were universally positive, suggesting a strong basis for further PRODEF activity in this area.

Use of modern contraceptives increased markedly. Not surprisingly, the percentage of married women using contraceptives was higher in the urban than rural area; and within each, higher in those zones that received outreach than in those that did not.

Although contraceptive prevalence increased more in Zone A (with outreach) than in Zone B (with no outreach) in both regions, it is noteworthy that the difference was not in fact greater. There was speculation that home visiting might be essential to get any increase in contraceptive prevalence, in a population that had had such limited access to modern contraceptives in the past. This hypothesis was not borne out by the findings. Rather, substantial increases were also observed in the areas which received no outreach, suggesting that accessibility to the contraceptives may be the key factor in increasing prevalence.

Finally, the results suggest that the PRODEF project has obtained its objective of increasing knowledge of modern family planning methods and that there is a demand for these services when they are made available to the population at a reasonable cost and in a culturally appropriate manner.

Chapter VI  
IMPACT OF THE CHILD HEALTH INTERVENTIONS



Nsunda Nlandu Preparing Oralyte

Lumfuankenda Lelo and William Bertrand  
Supervising Anthropometric Measurements



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## CHAPTER VI

### IMPACT OF THE CHILD HEALTH INTERVENTIONS

The child health component of the PRODEF project was designed both to enhance the acceptability of the family planning activities and as an important intervention in its own right. Specifically, one of the objectives of the project was to increase the use of "preferred treatments" for preschool aged children with specific ailments. These included chloroquine and aspirin for malaria; mebendazole for intestinal worms; and Oralyte to combat dehydration due to diarrhea.

This chapter assesses the extent to which this objective was achieved, based on data from the same surveys reported in Chapter V. As part of the baseline and followup surveys in both the urban and rural area, all respondents with children under five were questioned regarding age and sex of each child; incidence of fever (within the past two weeks), intestinal worms (within the past six months), and diarrhea (within the past two weeks); and treatment of these conditions if they had occurred. In addition, anthropometric data were collected on all children (the results of which will be reported elsewhere). The unit of analysis for the data presented in this chapter is the child, not the respondent (who could have had two or more preschool children). The n in each group is reported in the column headings of the tables.

While PRODEF offered only one product for each type of ailment, the population had some access to other types of medication as well (especially in the urban area). Thus, "preferred treatment" has been defined not only as the products offered by PRODEF, but also other medications or actions considered appropriate by the project director, as described below.

#### A. Use of Chloroquine in Treating Malaria

In the urban area approximately one-third of the preschool children (0-60 months) were reported to have had a fever in the preceding two weeks in both the baseline and followup surveys. The

mothers were asked if they believed their child had had malaria; according to their responses, approximately one-quarter of all the children had had malaria in the past two weeks.

Of particular importance to this evaluation is the percentage of children with malaria who received the "preferred treatment" for their condition. Preferred treatment was defined by the project director as chloroquine, quinine, other antimalarial drugs or taking the child to a health facility for treatment.

In the urban area anti-malarial drugs are available, but not through PRODEF. The results of the two surveys show that among children who had had a fever believed to be malaria, the percent that received "preferred treatment" increased from 81 to 93 percent in Zone A and from 73 to 86 percent in Zone B (see Table VI-1). These data suggest that the population has fairly good access to these products and uses them when the need arises; also, that improvements in this area have occurred in the period covered by the surveys.

In the rural area, the percentage of children reported to have fever was consistent between Zones A and B on both surveys (as would be expected), but differed substantially between the two surveys. Whereas almost half of the children in the rural baseline survey were reported to have had a fever in the past two weeks, this was true of only one-third of the children in the followup survey. Likewise, the percentage of children believed specifically to have malaria was consistent between Zones A and B on both surveys, but lower in the followup than on the baseline survey.

One suspects that this difference is attributable to seasonal variation in the incidence of malaria (the highest incidence occurring between the months of October and May). Had treatment of malaria been a major focus of this project, the two surveys should have been carried out at the same time of the year. Since it was not, we have taken data collected at different times of the year and focused on the percent of those children who did have fever that received the preferred treatment.

TABLE VI-1

Changes in the Prevalence of Use of Preferred Treatment for Malaria among Children Under Five, by Region and by Zone

	<u>Urban Area (Matadi)</u>				<u>Rural Area (Songololo)</u>			
	<u>Zone A</u> Before n=795	<u>Zone A</u> After n=637	<u>Zone B</u> Before n=640	<u>Zone B</u> After n=550	<u>Zone A</u> Before n=800	<u>Zone A</u> After n=901	<u>Zone B</u> Before n=604	<u>Zone B</u> After n=752
Percentage of children with fever	32.4	32.9	34.7	37.2	48.0	32.5	48.4	34.6
Percentage of children suspected to have malaria	28.1	22.6	30.5	24.6	39.7	19.6	39.1	21.1
Percentage of children suspected to have malaria that were given preferred treatment	81.0	93.2	72.5	86.4	74.1	87.6	66.3	89.3

In the rural area, the percentage receiving preferred treatment for malaria increased from 74 to 88 percent for Zone A and from 66 to 89 percent in Zone B. One might argue that this change in the rural area would have occurred anyway, since a change of similar magnitude was found in the urban area where PRODEF did not provide these products. However, it should be mentioned that urban respondents have access to health services and drugs from multiple sources, a situation which is not the case for the rural population. As such, this change suggests a positive contribution of the PRODEF project.

B. Use of Mebendazole for Treating Intestinal Parasites

The mothers were also asked if their child(ren) had had intestinal worms in the past six months. Just under half of the preschool children in Matadi (Zones A and B, both surveys) were reported to have had worms. Likewise, just under half of the children in the baseline survey in the rural area had had worms. By contrast, in the rural followup survey, only about one-third of the children were believed to have had worms in the past six months.

- The "preferred treatment" for intestinal worms was defined as mebendazole (the product sold by PRODEF), vermoz, or other antihelminthic drug. As shown in Table VI-2, the use of these products is fairly widespread, even in the rural area (based on the reports of the mothers).

In the urban area (where PRODEF did not distribute this drug, but it is available from other sources), the percentage of children with intestinal worms who were reported to have received the preferred treatment increased from 90 to 95 percent in Zone A and from 85 to 89 percent in Zone B.

In the rural area, the percentage receiving the preferred treatment increased slightly in Zone A (82 to 89 percent), while there was little change in Zone B (87 to 85 percent).

TABLE VI-2

Changes in the Prevalence of Use of Preferred Treatment for Intestinal  
Worms Among Children Under Five, by Region and by Zone

	Urban Area (Matadi)				Rural Area (Songololo)			
	Zone A		Zone B		Zone A		Zone B	
	Before n=795	After n=637	Before n=640	After n=550	Before n=800	After n=901	Before n=605	After n=752
Number of children under 5 reported to have had worms in the past six months	358	309	312	250	349	284	298	228
Percentage of children under 5 reported to have had worms in the past six months	45.0	48.5	48.8	45.5	43.6	31.5	49.3	30.3
Percentage of children with worms who received preferred treatment	90.0	94.6	85.3	89.3	82.0	88.7	87.2	85.1

C. Use of Oralyte for Treating Dehydration due to Diarrhea

Given that dehydration due to diarrhea is a leading cause of infant mortality in sub-Saharan Africa, the final child health intervention in the PRODEF project was administration of rehydration salts. After considerable discussion over using pre-packaged Oralyte versus a home-made solution, it was decided to promote Oralyte, at least during the first phase of the PRODEF project.

In the baseline survey approximately 30 percent of the children were reported to have had diarrhea in the past two weeks (urban and rural, Zones A and B). In the followup survey, this dropped to 18-22 percent of the children in the different groups. This evaluation examines the percentage of children who had had diarrhea and were given "preferred treatment" (which included either Oralyte or a home-made solution).

Promotion of rehydration salts was not part of PRODEF's urban activities. And indeed, the data in Table VI-3 suggest that there is no alternative educational program or source of the product filling this need. In the urban area, use of either Oralyte salts or a homemade sugar-salt solution was negligible in Zone A and Zone B in both the baseline and followup surveys.

The results for the rural area show very slight progress. In the rural area, the percentage using the preferred treatment increased from 2 to 8 percent in Zone A (where home visitors would have introduced mothers to this product and taught them how to use it). In Zone B (where Oralyte was made available through the matrones and dispensaries), the percentage of children receiving preferred treatment increased from 0 to 4 percent.

What do mothers do when their children have diarrhea? Data from the followup survey on the children who had had diarrhea within the past two weeks indicate that the most frequent action was to take the child to a dispensary (in 54 percent of urban cases and 45 percent of rural cases). In approximately one quarter of the cases in both the urban and rural area, the child was given some type of medication. In roughly 15 percent of the cases the mother reported to have done nothing. Mango

TABLE VI-3

Changes in the Use of Preferred Treatment for Diarrhea among Children Under Five,  
by Region and by Zone

	Urban Area (Matadi)				Rural Area (Songololo)			
	Zone A		Zone B		Zone A		Zone B	
	Before n=795	After n=637	Before n=640	After n=550	Before n=800	After n=901	Before n=604	After n=752
Number of children under five reported to have had diarrhea in the past two weeks	257	140	192	105	243	162	176	140
Percentage of children under five reported to have had diarrhea in the past two weeks	32.3	22.0	30.0	19.1	30.4	18.0	29.1	18.6
Percentage of children with diarrhea who were treated with:								
- Oralyte or sugar/salt solution	1.6	0.3	0.0	0.0	2.2	8.0	0.0	4.3

skins or rice water solution was administered in about 5 percent of the cases. And finally, there were the 8 percent in Zone A and 4 percent in Zone B who administered either Oralyte or a sugar-salt solution.

#### D. The Impact of Home Visiting

The results of the surveys suggest that home visiting in the rural area had a positive effect on the use of "preferred treatments" for two of the three products: mebendazole and Oralyte. In the case of intestinal worms, the percentage who received preferred treatment increased by 5 percentage points in Zone A (with home visiting) while it decreased slightly in Zone B (with no outreach). Similarly, the percentage that had been given Oralyte or sugar-salt solution in the event of diarrhea was slightly higher in Zone A than Zone B.

By contrast, just the opposite was found in the case of chloroquine; the increase in the percentage of children treated with this drug (or other "preferred treatment") was more impressive in Zone B (with no outreach) than Zone A.

In the previous chapter on family planning, the patterns between urban/rural and A/B were sufficiently consistent over a series of variables to support the conclusion that home visiting did have an impact. With respect to the child health interventions, the changes are less dramatic and the patterns less consistent. Had this series of questions on child health been expanded, this evaluation might have yielded more conclusive results. As it is, there is little evidence that home visiting provides a greater service to the population than simply making the products accessible at low cost through the dispensaries or matrones.

#### E. Discussion

From the point of view of the Zairian staff and members of the target population, the child health inventions were a very important part of

this project. However, given that this project was supported with population funds, greater emphasis has been placed on the evaluation of the FP component.

Nonetheless, the data regarding the child health interventions provide useful insight on several issues. First, in retrospect, it was fortuitous that PRODEF did not offer at least three of the four drugs -- chloroquine, aspirin, and mebendazole -- in the urban area. This would have been a considerable financial, administrative and logistic burden for the project to bear, when in fact the large majority of the population appear to have access to these services/products when the need arises.

However, this does not hold true of oral rehydration salts (either pre-packaged or home-made). Given the absence of these products in the urban area, PRODEF might well consider incorporating this intervention into its program for the next five years. In the rural area, some slight progress has been made, but further work is needed to strengthen knowledge and motivation with regard to rehydration salts.

Finally, one might ask whether the child health interventions are even necessary, given that such a large percentage of the children were receiving "preferred treatment" for malaria and intestinal worms during the baseline survey; and that the changes which occurred in the rural area (attributable in part to PRODEF) were matched in the urban area, where PRODEF didn't provide drugs for children. While the available data do not address this specific question, it is nonetheless the consensus of the project directors that the child health interventions were crucial to the general acceptance of the project in the rural area. Data from Chapter IV indicate the large volume of business which the matrones in particular did in selling chloroquine, aspirin and mebendazole. While many people may have used these outlets exclusively for non-family planning purposes, the availability of the other drugs unquestionably enhanced the value of the PRODEF program in the eyes of the community.

Chapter VII  
COST EFFECTIVENESS OF THE TWO APPROACHES



Mombela Kinuani, "Capitaine" for  
Microcomputer Data Entry

Jeffrey Tharp Consulting with Diasivi Nlandu



## CHAPTER VII

### COST EFFECTIVENESS OF THE TWO APPROACHES(1)

#### A. The Rationale for Cost Effectiveness Analysis

This chapter examines the relative cost effectiveness of the alternative delivery modes for family planning services in Bas Zaire.

Cost effectiveness -- one of many alternative methods of evaluating a government or social program -- derives from cost benefit analysis (C-B). In C-B analysis, the analyst computes the benefits and costs of a given program in monetary terms. If the benefits outweigh the costs, the program in question should be undertaken since the gains outweigh the losses and theoretically, the gainers could compensate the losers to undertake the program.

Cost-benefit can be used to evaluate possible alternative government or social programs, such as competing programs with a fixed budget or alternative sizes for a given program. The mechanics of the decision rule change, but the underlying principles remains the same. However, one of the major obstacles in conducting a C-B analysis of a program is placing a monetary value on benefits, particularly for nonmarket goods. For example, what is the benefit to society of a life saved or a birth averted?

Cost effectiveness analysis (CEA) is a useful alternative to C-B, because it does not require the analyst to place a monetary value on benefit; yet it does provide a natural framework for comparing alternative approaches for generating a given type of output. With CEA, the analyst assumes that the output of the program is desirable (e.g. new acceptors in a FP program), without placing monetary value on it. He then proceeds to compute the output of alternative programs in terms of

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Dr. Mark McBride, consultant to the project on cost effectiveness analysis, conducted this analysis and prepared this chapter of the report.

physical units generated and then to compare the relative costs of alternative approaches for generating output. The final result in CEA is typically a comparison of cost per unit of physical output for alternative approaches.

### 1. Issues in Measuring Output

Essential to a CEA is a well defined measure of output. In some cases, the output measure is fairly obvious; in others it is not. For example, in family planning projects, different output measures could be number of active users, number of new acceptors, couple-months-of-protection, or births averted. Arguments can be made for each of these alternative measures of output of a family planning program, and the goals of the analysis should influence the choice of output measurement. In addition, the costs of collecting the data for the different measures of output should also be considered, and tradeoffs made where necessary.

The choice of output measure becomes more difficult when a given program provides several different types of outputs (e.g. contraceptives and drugs for children under five) or when the quality of the output varies (e.g. the environment and conditions under which the family planning services can be obtained). The existence of multiple types of output in a government or social program raises serious questions of how to define a single measure of output or how to split joint costs incurred in providing the various outputs.

### 2. Issues in Measuring Cost

Measuring costs constitutes the other side of a CEA. This should be done using the notion of opportunity costs. Opportunity cost refers to valuing resources in terms of the next best use of these resources. This approach measures what must be given up in alternative uses of the resources in order to provide the services in the program.

Valuing resources at their opportunity costs requires careful analysis. First and foremost, the analyst must keep in mind whose goals are being analysed. In most intra-country programs, the government is interested in measuring social benefits and/or social costs. However, in other cases, a funding agency external to the country may be comparing alternative uses of their limited budget in promoting programs. In these latter cases, the opportunity cost to the external funding agency may be the appropriate guide in valuing resources. This could be particularly true in CEA, where the goal of the analysis is to compare the cost of alternative service delivery methods which use the funding agency's scarce resources.

A second problem involves assigning a monetary value to opportunity costs. In the situation where the resource is traded openly and freely in a properly working market, then the market price can be used. However, complications arise when the market for the good does not work properly (e.g. un- or under-employed resources) or where a market for the good does not exist. These latter two situations require adjustments to market prices to correctly value the resources used.

The conventional approach used in the costing of resources is the historical record of program expenses; i.e. the cost assigned to an item is what the program actually paid to obtain it. While this seems logical, there are a number of problems which arise. Expenditures on certain resources may overstate their opportunity cost, particularly if the resource is currently underemployed in the economy or if capital goods have a useful life longer than the period of payment. The actual costs incurred to implement a program may understate the opportunity cost of the project if some resources are donated from other sources or are paid for under different program auspices. Both these under- and overstatements must be adjusted to correctly value resources used at their opportunity costs to the party whose goals are being analysed.

A final problem in measuring the costs of government or social programs relates to joint inputs which produce several different outputs,

or joint inputs which provide a common type of output under alternative approaches (e.g. the salary of the director in a project such as PRODEF which uses two different approaches to service delivery). This type of situation requires the analyst to make hard, and necessarily arbitrary, decisions on how to split these joint costs among the different outputs provided. There is no one correct way of doing this and any technique will be arbitrary. However, the analyst must be explicit in the assumptions used to split joint costs, and the consumers of the CEA reports should be aware that the results of a CEA can be greatly influenced by the manner in which joint costs are assigned.

Before proceeding to the methodology and results of this CEA, the reader should be cautioned about the use and abuse of the following analysis. The above brief overview of cost effectiveness analysis indicates that any results should be taken as approximate and crude, given the inherent difficulties in conducting any CEA. One can and should not conclude from a CEA that the least costly alternative is necessarily the best or only desirable option. The consumer of this, or any, CEA should view the results as one ingredient of many in analyzing the value of the alternative approaches to a government or social program.

## B. Methodology

### 1. Program Design

As described in detail in Chapter III, the PRODEF project used two alternative approaches to the delivery of family planning and (in the rural area only) child health services:

- Zone A: . Stocking of existing dispensaries
- . Establishment of matrones (rural area only)
- . Outreach activities (home visiting and group meetings)
  
- Zone B: . Stocking of existing dispensaries
- . Establishment of matrones (rural area only)
- . No outreach activity

In addition to the service program, PRODEF conducted various research activities:

- . Baseline survey
- . Followup survey
- . Collection of service statistics (number of home visits, volume of contraceptives distributed, quantity of drugs sold, etc.)
- . Collection of cost data for this CEA.(1)

## 2. Measurement of Output

The purpose of the CEA is to determine the cost of the service program, excluding the research component. The current project, funded by the Research Division of the Office of Population, USAID/Washington, is strongly research-oriented, precisely because it is intended as a demonstration project where accurate data on the evolution and impact of the program are important. However, for the replication of similar service projects elsewhere, it would not be necessary or appropriate to burden each such effort with a strong research component; rather, one would wish to put one's resources into the strongest possible service delivery system, the evaluation of which could be based on service statistics. For this reason, the current CEA focuses on the cost of implementing the service component only, not on the research.

Although the provision of drugs for children under five constitutes an important part of the rural program, this activity is considered ancillary to the provision of family planning services. Thus, the costs associated with this activity are treated as inputs into this project

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The cost data were routinely reported by PRODEF to Tulane University for the purposes of cost-reimbursement under their subcontract. These data were later coded and form part of the data base for this CEA.

(in that the sale of these drugs is believed to enhance the acceptability of the program, as well as to be important in its own right). However, the cost-effectiveness of the program is based solely on its output in terms of family planning, not in terms of child health.

The output measure used in this analysis is couple-months-of-protection (CMP), explained in detail in Chapter IV. This measure was chosen over alternative measures of output (e.g. new acceptors, births averted) for several reasons. CMP is a widely accepted indicator of program achievement over time. The data with which to calculate it are readily obtained from routinely conducted inventories of commodities. Moreover, these data tend to be highly reliable because the volume of contraceptives sold must tally with the revenues generated by the sales.

Table VII-1 provides a summary of CMP by region (urban vs. rural), treatment group (Zone A vs. Zone B) and by time period (trimesters). As reported in Chapter IV, the CMP for the urban area was substantially higher than for the rural area, despite the fact that the program was in operation for a shorter period of time in the former. In the urban area 23,773 CMP were provided compared to 8,651 in the rural area. In addition, in both the urban and rural zones CMP was higher in Treatment Zone A (stocking with outreach) than in Treatment Zone B (stocking only): urban, Zone A: 20,126 CMP, Zone B: 3,647 CMP; rural, Zone A: 6,077 CMP, Zone B: 2,574 CMP. The CMP data presented in Table VII-1 constitute the denominator data for the CEA.

### 3. Measurement of Program Costs

The cost data for expenses incurred under this project were obtained from two sources: financial ledgers for the Tulane-USAID contract, located in New Orleans; and monthly vouchers of expenses incurred in Zaire under the subcontract between Tulane University and the PRODEF project. In addition, donated resources were shadow priced. That is, the cost of items donated to the project which do not appear in Tulane's ledgers (e.g. contraceptives donated by Pathfinder) were estimated and incorporated into the analysis.

TABLE VII-1

Breakdown of Couple-Months-of-Protection by Region, Treatment Group,  
and Type of Provider (1)

	Oct- Dec- 1981	Jan- Mar- 1982	Apr- Jun- 1982	Jul- Sep- 1982	Oct- Dec- 1982	Jan- Mar- 1983	Apr- Jun- 1983	Jul- Sep- 1983	Oct- Dec- 1983	Totals
<u>Urban</u>										
Zone A										
Dispensaries	0	0	0	798	1,089	1,133	1,976	2,968	2,655	10,619
Visitors	0	0	0	2,655	1,144	1,932	725	2,001	1,051	9,523
Subtotal A	0	0	0	3,452	2,233	3,065	2,701	4,969	3,706	20,126
Zone B										
Dispensaries	0	0	0	212	425	578	818	739	875	3,647
Total Urban	0	0	0	3,665	2,658	3,643	3,519	5,708	4,581	23,773
<u>Rural</u>										
Zone A										
Dispensaries	13	20	19	31	33	30	35	91	198	469
Matrones	56	146	288	552	656	569	828	793	422	4,311
Visitors	181	241	192	126	228	330	0	0	0	1,297
Subtotal A	250	407	499	709	917	929	863	884	620	6,077
Zone B										
Dispensaries	29	43	43	109	124	197	165	126	180	1,017
Matrones	0	0	151	151	202	180	288	317	269	1,557
Subtotal B	29	43	195	260	325	376	453	443	449	2,574
Total Rural	279	450	694	969	1,242	1,305	1,316	1,327	1,069	8,651
Totals	279	450	694	4,634	3,900	4,948	4,834	7,035	5,650	32,424

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All couple months of protection were rounded to the nearest whole integer.  
Row and column totals may not sum due to this rounding.

The first step in preparing the data for the CEA was to obtain and code all data on costs actually incurred under the project. Each cost item was classified according to a series of variables which were used in the subsequent analysis. Appendix B contains a copy of the coding guide used and further details on the assumptions made during the coding process. In total, there were over 2500 costs, which were coded on the following variables:

- . Location where the expense was incurred (in Zaire; in the U.S. but essential for project replication; or in the U.S.-technical assistance)(1)
- . Date the expenditure was incurred
- . Date the expenditure was paid
- . Type of project activity generated: research, service, administration, and other.(2)
- . Description of the expense: salary, per

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While the service project could be replicated without external technical assistance, certain items essential for replication (drugs, equipment, vehicle, etc.) were purchased in the U.S. This variable attempts to distinguish between those costs which could and could not be eliminated in a future replication.

2 For some expenditures, this allocation was clearcut. For example, home visitor salaries were allocated entirely to service provision, whereas interviewer salaries were designated entirely as research. In those cases where the allocation of costs was not clearcut (i.e. joint costs; for example, the salary of the director, who was responsible for overseeing both service and research activities), the cost was split across project activities with the division depending on the type of cost and the time period involved. This variable allowed us to subsequently separate out research costs which would not be necessary if the service delivery part of the project were to be replicated.

diem, fuel, etc. There were a total of 58 such categories.

- . Type of service-related activity involved: home visiting, training, etc.
- . Region: urban vs. rural
- . Treatment Zone: Zone A vs. Zone B

Regarding the final three variables, if a clear assignment was not possible, the cost was assigned as nontraceable on that variable.

Zairian expenditures were recorded in U.S. dollars at the prevailing official exchange rate at the end of the month the expenditure was incurred. Each expenditure is assumed to reflect the opportunity cost of the resources to AID, i.e. that the resources were purchased in fairly well working markets and that AID's goals are the proper focus. This assumption may overstate the opportunity cost of labor, given the rate of unemployment in Zaire. The necessary information for adjusting these labor costs downward to reflect unemployment is not readily available nor reliable. However, AID would likely pay these rates regardless of employment conditions in Zaire.

Capital expenditures were depreciated over the period of the project under the assumption that the scrap value was zero at the end of the project period. This overstates the cost of the vehicle. For most capital expenditures, a straight line depreciation method was used. However, for the project vehicle (a Landrover jeep), the depreciation was based on kilometers the vehicle was used. The monthly depreciation cost of the Landrover was then allocated to project activities based on the vehicle usage record obtained from the chauffer's log.

Shadow Pricing. In addition to coding each expenditure incurred by the PRODEF project, an attempt was made to account for the opportunity costs of any resources used in performing the project activities, but not paid for or reflected in the expenditure records. Two types of resources used but not paid for

directly were identified: the contraceptives distributed under the service portion of the project and the time of certain volunteers who were not paid (i.e. the matrones). The cost of the contraceptives used was estimated at prevailing market prices paid by AID and classified according to the series of variables described above. The cost of the contraceptives was included in the analysis because AID was the source of the contraceptives, albeit under different program auspices.

The value of the time contributed by the matrones was not estimated for two reasons. First, shadow pricing their market value is next to impossible using standard techniques, due to lack of data. Second, it is likely that in a replication of the service portion of the project, AID would not pay for the services performed by the matrones, and our focus has been on the opportunity cost to AID of the project.

### C. An Overview of Project Costs

Table VII-2 provides a summary of the total costs of the PRODEF project, including shadow costs, broken down by the location where the cost was incurred and by the nature of the activity performed. As can be seen, research costs accounted for about 60% of the project costs. These costs were primarily incurred in the U.S., but some were incurred in Zaire (e.g. survey interviewer salaries). Service and administration related costs, 36% of the total, were primarily incurred in Zaire. As mentioned above, costs incurred in the U.S. for service were split between those which are essential for replication of the project and those which were related to technical assistance in performing the service portion of the project(1).

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The extent to which technical assistance is essential for project replication is left to the judgment of the reader.

TABLE VII-2

## Breakdown of Project Costs by Location Incurred and Activity

	In Zaire	In U.S. Essential for Replication	In U.S. Technical Assistance	Total Cost	Percent
Research	\$ 65,817	\$ 36,669	\$267,458	\$369,944	59.3%
Service	89,837	34,370	12,115	136,322	21.9%
Administration	43,490	23,506	21,250	88,246	14.2%
Contraceptives	14,238	0	0	14,238	2.3%
Film	3,761	5,012	41	8,814(1)	1.4%
nontraceable	429	691	4,820	5,940	0.9%
<b>Total Cost</b>	<b>\$217,572</b>	<b>\$100,248</b>	<b>\$305,684</b>	<b>\$623,504</b>	<b>100.0%</b>
<b>Percent</b>	<b>34.9%</b>	<b>16%</b>	<b>49.0%</b>	<b>100.0%</b>	

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These only include costs of the film incurred as of December 1983. Much of the production work occurred later in 1984.

Two other categories of cost (contraceptives and production costs for the 16 mm film) constitute service costs but are reported separately for the following reasons. Regarding the cost of the contraceptives, these are shadow prices, not actual expenditures made under this contract. From Table VII-2 it can be seen that this constituted 2.3 percent of the total cost. As for the film, its costs are shown separately since this expense is not essential for project replication. (The total costs of the film were actually higher, but a portion of these costs was incurred after December 1983.)

Only one percent of the costs could not be classified (were nontraceable) to the five categories listed in Table VII-2.

The CEA focuses on the service portion of the PRODEF project. Therefore, costs related to research and the production of the film have been excluded for the remainder of the analysis. Service, administration, contraceptive, and nontraceable costs (hereafter referred to collectively as service related costs) form the basis for determining the cost per couple-month-of-protection.

Table VII-3 provides the breakdown of service related costs by region and treatment group. As shown in the table, two-thirds of the service costs could not be classified according to region (were nontraceable on the urban/rural variable). Of the remaining one-third of the costs which were traceable to urban or rural activities, about half were incurred in each area.

Table VII-4 shows an alternative breakdown of the service related costs by location incurred, region, and activity. Several items of interest emerged from Table VII-4. First, nontraceability of costs was greater in costs incurred in the U.S. than in Zaire. This not surprising given the more general nature of the inputs provided in the U.S. (e.g. airfreight costs). Second, home visits and group meetings constituted a relatively larger proportion of the traceable costs than did matrones and dispensaries with regard to delivery system. Again, this is not surprising given the greater labor required to staff home visits and group meetings. Finally, costs incurred in Zaire

TABLE VII-3

## Breakdown of Service Related Costs by Region and Treatment Group

Region/Zone	Oct 80- Sep 81 Total Cost	Oct 81- Sep 82 Total Cost	Oct 82- Sep 83 Total Cost	Oct 83- Dec 83 Total Cost	Oct 80- Dec 83 Total Cost	Percent
Urban						
Zone A	\$ 0	\$10,041	\$14,955	\$ 1,303	\$ 26,299	10.7%
Zone B	0	100	1,069	342	1,510	0.6%
nontraceable	286	3,449	5,850	1,349	10,934	4.4%
Rural						
Zone A	6,590	12,566	10,734	1,059	30,949	12.6%
Zone B	128	940	2,963	678	4,709	1.9%
nontraceable	367	3,012	3,845	323	7,547	3.1%
Non Traceable	\$34,087	\$64,197	\$54,569	\$10,996	\$163,849	66.7%
Total Cost	\$41,458	\$94,305	\$93,985	\$16,050	\$245,798	100.0%

TABLE VII-4

## Breakdown of Service Costs by Location Incurred, Region, and Activity

## Service Costs Incurred in Zaire

Region	Home Visits, Group Mtg	Matrones, Dispensary	Training	Non- traceable	Total Cost in Zaire	Percent
Urban	\$22,586	\$6,174	\$ 591	\$ 9,393	\$ 38,744	26.1
Rural	18,283	2,215	526	13,018	34,042	22.9
nontraceable	6,780	97	37	68,788	75,702	51.0
Total Cost	\$47,649	\$8,486	\$1,154	\$91,199	\$148,488	100.0
Percent of Zaire Costs	32.1	5.7	0.8	61.4	100.0	

## Service Costs - U.S. Essential for Replication

Region	Home Visits, Group Mtg	Matrones, Dispensary	Training	Non- Traceable	Total TU Essential	Percent
Urban	\$ 0	\$ 0	\$0	\$ 0	\$ 0	0.0
Rural	3,384	5,222	0	0	8,607	14.7
NonTraceable	6,090	634	0	43,238	49,961	85.3
Total Cost	\$9,474	\$5,856	\$0	\$43,238	\$58,568	100.0
Percent of U.S. Essential Costs	16.2	10.0	0	73.8	100.0	

TABLE VII-4 (continued)

## Summary of Service Costs(1)

(1) Region	(2) In Zaire	(3) Tulane Essential Replication	(4) Cost of Replication	(4) Tulane Tech. Asst.	(6) Total Service Costs	(7) Percent
Urban	\$ 38,744	\$ 0	\$ 38,744	\$ 0	\$ 38,744	15.8
Rural	34,042	8,607	42,649	0	42,649	17.4
Nontraceable	75,702	49,961	125,663	38,185	163,849	66.8
	-----	-----	-----	-----	-----	-----
Total Cost	\$148,488	\$58,568	\$207,056	\$38,185	\$245,241	100.0
Percent of Total Cost	60.5	23.9	84.4	15.6	100.0	

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Column (4)=(2)+(3)

Column (6)=(4)+(5)

represented 61% of the total service-related costs. The remainder were incurred in the U.S., and were split between those essential for replication and those incurred in providing technical assistance.

The service related costs provide the numerator data for the cost effectiveness analysis, which follows.

D. Cost Effectiveness of the Alternative Delivery Methods

Cost effectiveness ratios are derived by dividing the costs of a specific approach by the amount of output under that approach. Nontraceable costs complicate the process, because any allocation of the nontraceable costs between two alternatives is arbitrary. In this study we have dealt with this problem by assuming that nontraceable costs can be allocated on the basis of relative output between alternative delivery methods. For example, let's assume that the following output and costs were generated in a family planning project.

	Alterna- tive A	Alterna- tive B	Total
<u>Costs</u>			
Specific to each alternative	\$120	\$60	---
Nontraceable	---	--	\$400
<u>CMP Provided</u>	60	40	100
<u>Cost per CMP</u>			
Specific to each alternative	2.00	1.50	---
Nontraceable	4.00	4.00	---
Total cost per CMP	6.00	5.50	---

The allocation of the \$400 in nontraceable costs on the basis of relative output is equivalent to assuming that there is a nontraceable cost per CMP for the project. In the example, this would be \$4 per CMP provided (\$400 divided by 100 CMP). Then the cost per CMP for alternative A in the example is \$6; \$2 per CMP in costs specific to A and \$4 per CMP in nontraceable costs. For alternative B, the cost per CMP would be \$5.50;

\$1.50 per CMP in costs specific to B and \$4 per CMP in nontraceable costs.

The process for allocating the nontraceable costs for the PRODEF project was further complicated by the fact that there were costs which could not be traced between the two regions, urban and rural. These nontraceable costs were allocated based on relative output of the urban and rural regions. However, within the urban or rural area specific costs, there were costs which were not traceable between the two treatment zones, A and B. These within region nontraceable costs were allocated between Zones A and B on the basis of the relative outputs of Zones A and B within the region.

Table VII-5 provides an initial look at the cost per CMP of the PRODEF project. This table shows the average cost per CMP for the entire service project, broken down by specific service-related activity (e.g. home visits). The overall cost of a CMP for the project was \$6.63, excluding the cost of U.S. technical assistance on service related matters. This is a point estimate of the cost per CMP to replicate the project. If U.S. technical assistance on service related matters is included, the cost per CMP rises to \$7.86. Nontraceable costs accounted for two-thirds of this "average" CMP, while home visits and group meetings provided another 28% of the cost. Dispensaries, matrones, and training constituted the remainder of the cost. This large, nontraceable cost is not surprising, given that salaries of administrative staff, vehicle costs, and equipment (which are for the most part nontraceable) account for most of the service costs.

Table VII-6 provides the comparison of the cost effectiveness of the two alternative approaches: stocking of service outlets and outreach (Zone A) vs. stocking of outlets but no outreach (Zone B) for the urban and rural regions. U.S. technical assistance is included in Table VII-6. The cost per CMP is shown by time period for the project as a whole, for the urban and rural region, and for the alternative approaches within each region.

TABLE VII-5

Breakdown of Service Cost per Couple-Month-of-Protection by Type of Activity

	<u>Excluding Technical Assistance</u>		<u>Including Technical Assistance</u>	
Cost per CMP	\$6.39		\$7.56	
Distribution of Cost:	\$/CMP	Percent	\$/CMP	Percent
Home Visits/Group Mtgs.	\$1.76	27.6	\$1.76	23.3%
Dispensaries/Matrones	0.44	6.9	0.44	5.8
Training	0.04	0.6	0.04	0.4
Nontraceable	4.15	64.9	5.32	70.4

TABLE VII-6

Service Cost per Couple-Month-of-Protection by Region and Treatment Group

	Oct 1980 to Sep 1981	Oct 1981 to Sep 1982	Oct 1982 to Sep 1983	Oct 1983 to Dec 1983	Oct 1980 to Dec 1983
Cost/CMP Overall	--	\$15.57	\$4.54	\$2.84	\$ 7.58
Cost per CMP by Zone					
Urban					
Overall	--	\$14.31	\$4.04	\$2.60	\$ 6.68
Zone A	--	14.45	4.16	2.59	6.82
Zone B	--	12.01	3.43	2.63	5.93
Rural					
Overall	--	17.50	6.01	3.87	10.05
Zone A	--	18.60	6.36	3.96	11.02
Zone B	--	13.64	5.23	3.76	7.76

Table VII-6 reveals several interesting findings regarding this project. First, the cost of the "average" CMP declined over the life of the project. This reflects the high initial startup costs of this type of project. As the project continues past 1983, one would expect to see the cost per CMP stay at this relatively low level.

Second, the cost per CMP in the urban area was lower than the cost per CMP in the rural area. This probably reflects the higher density of the population in the urban area resulting in higher utilization of these services. It is expected that the pattern of higher costs in the rural region will persist as the PRODEF project continues into its second phase. The fact that the cost per CMP in the urban area (Zones A and B combined) is about 20 percent lower than in the rural area and that the output level of the urban area is substantially higher (by about 250 percent), suggests that (1) the cost per CMP declines slowly with increase in output or (2) that the urban region has reached a point where the additional cost of another CMP is increasing with further increases in output and the rural region still has the additional cost of another CMP falling with increases in output. Further analysis of this point will be possible in the future, after the project has run for a longer time period.

To those familiar with the daily operations of the project, the difference in cost per CMP between the urban and rural areas is surprisingly small (\$6.68 in the urban area vs. \$10.05 in the rural area) given that the volume of contraceptives distributed was so much greater in the urban area, while the cost inputs were similar. This difference in cost per CMP between the regions declined over the life of the project. The reason there is not a greater difference between the two relates to our inability to distinguish costs between the urban and rural areas, as reflected in the high nontraceable costs of the project. Of the \$6.68 cost per CMP in the urban area, the nontraceable component was \$5.05. In contrast, of the \$10.05 per CMP in the rural area, the nontraceable component was also \$5.05. In the urban area the region-specific cost is 32% over the nontraceable component of cost, whereas in the rural project it is 99 percent over the nontraceable component. This shows the high cost

of operating in the rural area compared to the urban area, over and above the cost of providing the basic structure of the project.

Of particular interest in this analysis was the relative cost effectiveness of treatment A (with the stocking of contraceptives and an outreach program) versus treatment B (with just the stocking of contraceptives). In both the urban and rural area, the cost per CMP is higher in Zone A than Zone B. In the urban region one CMP for Zone A cost \$7.11 while CMP for Zone B cost \$6.18; in the rural region the respective amounts were \$11.22 and \$7.95.

Two interesting patterns emerge from Table VII-6. First, the difference between Zones A and B declines over time, to the point of almost no apparent difference in the last quarter of the analysis. This result is deceptive though. In the last quarter, the visiting activity had dropped to zero in the rural area and had dropped in half in the urban area (see Table VII-1). Given this situation, one would expect the cost of the two approaches to be roughly comparable. The most appropriate time period for making a valid comparison is probably the middle year, October 1982 to September 1983, where all aspects of the service project were in full operation. For this period, one sees about a \$1.00 difference per CMP in both the urban and rural regions between Zone A and Zone B.

This raises the second issue. Outreach does raise the actual costs incurred in implementing the project, in that the home visitors are fulltime salaried employees. By contrast, outreach does not substantially raise the cost of a couple-month-of-protection when these activities are in full operation. However, it does substantially raise the output generated in comparison to just making contraceptives available (Zone B). If increased utilization of contraceptives is an important objective and outreach does provide a higher "quality" CMP in the sense of client education and motivation, then the outreach program is buying these extra quality aspects at a relative low additional cost.

E. Continuation of CEA in Phase II of the Project

As the PRODEF project continues over the next funding cycle, additional monthly data on both output and costs will be generated. As these additional data become available, the research team will be able to conduct more in-depth studies of the relationship between the provision of the service under alternative delivery methods and costs. The longer time series of data is necessary to incorporate statistical analysis of the data into the cost effectiveness technique. The more in-depth analysis will permit the analyst to make improved predictions about what will happen to costs as the design and level of activity in the service delivery program are modified.

Chapter VIII  
QUALITATIVE ASSESSMENT OF THE STRENGTHS AND  
LIMITATIONS OF PRODEF BY THE ZAIRIAN PROJECT  
DIRECTORS



The Matadi Office

The Followup Survey Interviewing Team



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## CHAPTER VIII

### QUALITATIVE ASSESSMENT OF THE STRENGTHS OF PRODEF AND DIFFICULTIES ENCOUNTERED(1)

The idea of child-spacing is not new to the population in Bas Zaire. Women in this area recognize how important child-spacing is to the health of their children and to themselves. However, the traditional methods which couples have used in the past to avoid pregnancy may not be satisfactory in the future, for example sending the woman back to her village for two years until the child is weaned and another pregnancy would be acceptable. The PRODEF project has tried to introduce women to modern methods, which will provide more satisfactory means of spacing their children in the future.

There are certain aspects of the project which have worked well and which we would recommend to others who wish to undertake similar activities. However, there have also been certain problems and limitations, which are also useful to share with our colleagues.

#### A. Strengths of the Project

There are several reasons that the PRODEF project has been successful in achieving its objectives, some of which are very tangible, some less tangible.

Material Resources. In general, the project has had the material resources necessary for carrying out the scheduled activities. In Zaire, this is often a major obstacle to implementing any type of program. However, PRODEF was fortunate to have a vehicle, certain office equipment and supplies, a few pieces of equipment for the

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This chapter was prepared by Dr. Nlandu Mangani and Citne. Matondo Mansilu (who are referred to throughout this report as the Zairian project directors), with translation and/or paraphrasing by Jane Bertrand.

dispensaries, field gear for the interviewers and home visitors, contraceptives, drugs, and so forth. This helped the morale of the team, and gave them the necessary tools with which to perform their work. Also, the fact that they could count on receiving their monthly salary (even if it was delayed as happened on several occasions) also improved staff morale.

Management Style. Both between Tulane University and the project directors and between the project directors and the rest of the staff in Zaire, the management style has been participative, not authoritarian. The lines of authority are known and respected, but supervision of activities is done with the spirit of collaboration, not interrogation. Staff at all levels have been encouraged to discuss their problems openly, rather than to cover them up. This has assisted in developing a true sense of trust among the staff.

Staff Identification with the Project. In a related vein, the majority of PRODEF staff are strongly identified with the project. Perhaps because PRODEF is somewhat of a novelty in the area and perhaps because the project developed into a widely known entity as a result of their own efforts, the staff has a certain pride in making things work. This is not to say there have not been problems with certain staff members, because there have been. However, staff turnover has been very low, and cooperation generally high.

On this project, it should be stressed that almost all the staff of PRODEF had to learn their job in the process of doing it (the exceptions were a few nurses who worked as home visitors and were knowledgeable on the topics to be covered.) None had previous training in research, and many of the service aspects were also new. However, our experience suggests that these skills can be taught if the project has adequate resources and experienced consultants for those aspects which can not be covered by local resources.

Determination to Succeed. The project directors have been aware all along that this is one of the first family planning operations projects in a francophone sub-Saharan country. This has somewhat intensified the desire to make things work out, and to find solutions to problems

as they occurred. Part of this was also a feeling of commitment to Tulane University, and a desire not to let down the individuals who had worked to obtain funding for this effort.

This pride in being one of the first projects of this type also translated into a willingness to do certain tasks which in other circumstances might have seemed unduly burdensome, e.g. having home visitors collect rather detailed service statistics, or compiling additional data needed for the cost effectiveness analysis.

Support of the Political Administrative authorities. The project directors wish to emphasize the importance of the role of local political and administrative authorities in the implementation of PRODEF activities. These include the zone commissioners in Matadi, the regional administrative authorities for the Zone of Songololo in the rural area and the village chiefs. These individuals not only gave approval to PRODEF activities, but legitimized them by giving them their active support. The zone commissioners encouraged the population to attend group meetings on family planning in Matadi. The village chiefs announced the scheduled arrival of the home visitors so that village women would not be away in their fields.

Collaboration of Dispensary Nurses and Matrones. While PRODEF constitutes the administrative structure for the activities which now bear its name, the work at the community level was done in large part by the dispensary nurses and matrones. Their willingness to participate was also essential for the success of this effort. The training courses, refresher sessions, and supervisory visits strengthened their work. In fact, it is believed that more could be done with improved supervision.

#### B. Difficulties

The problems encountered in this project can be classified into the following categories: cultural, logistic, financial and communication-related difficulties.

Cultural Barriers. The community-based distribution of contraceptives was considered by some individuals to be a flagrant violation of the traditional moral principles and pronatalist philosophy of the Bantu people. Among some, the very discussion of sex was taboo. While there was some initial resistance to the program by certain persons, there was never any organized or collective rejection of the program at the community level. Interestingly, the cases of refusal at the individual level tended to be presented under some pretext (such as personal or family reasons).

Our solution to this problem when it arose was to counter these negative attitudes with a high quality educational program, in which our personnel would develop strong rapport with members of the community and educate/motivate them regarding family planning.

Logistical Problems. From the beginning, those in charge of the project have taken care that the necessary equipment and supplies were available for the implementation of a project of this type: office equipment, supplies for the visitors, the contraceptives and drugs, a sturdy vehicle, and so forth.

Two problems were encountered with regard to these items. The first concerned the vehicle, which was used in all aspects of the project: data collection during the surveys, home visiting, supervisory visits, trips from Nsona Mpangu to Matadi and Kinshasa for administrative reasons, etc. Because so many activities depended on a single vehicle, it was not always possible to complete activities on schedule. This was one of the reasons that it was necessary to extend the time period for completing the first phase of the project. It would have been preferable to have had at least one supplemental means of transportation to cover all of the scheduled activities of the program.

A second problem encountered involved a large shipment of contraceptive foam which arrived shortly before its date of expiration. In this type of program, the quantity of contraceptives

ordered should have been calculated on the basis of the increase in number of users, if such a calculation were possible to make.

Financial constraints. The devaluation of the currency of Zaire by over 400 percent in September 1983 created havoc in the budget programmed for this project in several ways:

- . a decrease in the purchasing power of the local currency and an exaggerated dependence on the external market (USA)
- . inadequacy of the salaries of the Zairian personnel vis-a-vis the economic situation, which created a certain resentment among the personnel
- . inability to withdraw funds from the local banks during certain months of national financial crisis.

In addition, delays in sending the monthly financial reports from PRODEF to Tulane resulted in occasional delays in obtaining reimbursements with which to continue project activity. This final problem can be resolved with more regular mailing of the financial reports. However, the first three are more difficult, because they depend on the economic situation of the country. Thus, special efforts must be made such that these problems do not paralyse the activities of the project.

Communication Problems. The communication between Tulane University in New Orleans and Kinshasa, although slow, has been fairly regular and predictable. (It has taken the form of mail via the U.S. Government pouch, telex, and correspondence hand-carried by travellers to and from Zaire). However, the communication between Kinshasa and Nsona Mpangu has been more problematic. The project vehicle travels to Kinshasa only once a month on the average, and the radio-phonie system is not always reliable. This has created frustration and delays in implementing certain project activities. It would be desirable in the future to organize a more regular mail system between Kinshasa and Nsona Mpangu.

Chapter IX  
MANUSCRIPTS AND PUBLICATIONS



Jane Bertrand and Amy McConnell: Data Processing  
by Kerosene Lamp

Kimbuende Niangasa at Work



## CHAPTER IX

### MANUSCRIPTS AND PUBLICATIONS

To date, the following articles and reports have been produced. It should be mentioned that much of the material to be published from this project will be prepared in 1985, since it will be based on the followup survey data which only became available (fully edited and corrected) in January 1985.

#### A. Articles Published or Accepted for Publication

Bertrand, Jane T., Nlandu Mangani, and Matondo Mansilu. 1984. "The Acceptability of Household Distribution of Contraceptives in Zaire." International Family Planning Perspectives 10(1): 21-26.

Available in French under the title: L'acceptabilite de la Distribution de Contraceptifs a Domicile au Zaire. Perspectives Internationales du Planning Familial. Numero Special de 1984, pp. 10-16.

Mock, Nancy B., Jane T. Bertrand, and Nlandu Mangani. "Correlates and Implications of Breastfeeding in Bas Zaire." Journal of Biosocial Science (in press).

#### B. Manuscript Submitted for Publication

Bertrand, Jane T., Nlandu Mangani, Matondo Mansilu, and Evelyn G. Landry. "Family Planning in Bas Zaire: Current Status and Potential Acceptability." Submitted to Studies in Family Planning in September, 1984.

#### C. Paper Presented at Professional Meeting

Jane T. Bertrand, Nlandu Mangani and Matondo Mansilu. "Acceptability of Household Distribution of Contraceptives in Zaire." Presented at the American Public Health Association meeting in Dallas, Texas, November 14-17, 1983.

D. Reports from the Baseline Survey

Nlandu Mangani, Matondo Mansilu, Butuena Mavambu, Jane T. Bertrand, William E. Bertrand and Evelyn G. Landry. 1982. "Results of the PRODEF/Tulane Survey in Bas Zaire. Part I. Population Characteristics, Reproductive Ideals, and Fertility Control." Mimeo, New Orleans.

Also available in French under the title: Resultats de l'Enquete PRODEF/Tulane du Bas-Zaire. Premiere Partie. Les Caracteristiques de la Population, les Ideaux de Reproduction, et le Controle de la Fecondite.

Nlandu Mangani, Matondo Mansilu, Butuena Mavambu, Kabamba Nkamany, Kinjanja Kayinge, Jane T. Bertrand, William E. Bertrand, Evelyn G. Landry and Stanley Terrell. 1983. Results of the PRODEF/Tulane Survey in Bas Zaire. Part II. Indicators of Morbidity and Nutritional Status in Preschool Aged Children." Mimeo, New Orleans.

Also available in French under the title: Resultats de l'Enquete PRODEF/Tulane au Bas Zaire. Deuxieme Partie: Indicateurs de la Morbidite et du Statut Nutritionnel des Enfants de Moins de Cinq Ans.

E. Manuscripts in Preparation

- The impact of the PRODEF project on contraceptive use and the relative cost-effectiveness of the two approaches tested (Jane Bertrand and Mark McBride).
- A demographic analysis of birth spacing patterns and completed fertility in Bas Zaire (Amy Ong Tsui).
- Birth spacing and family size in relation to the nutritional status of children under five (Stanley Terrell).
- Post-partum abstinence, amenorrhea, and lactation: interrelationships which affect fertility (Jane Bertrand).

Chapter X  
CONCLUSIONS



Kilukidi Mengi Explaining the Use of Foam

Diakadulua Nlandu and Mabena Kuizibuami  
Beside the Zaire River at Matadi



## CHAPTER X

### CONCLUSIONS

The conclusions to be drawn from the experience of the Bas Zaire Family Planning Operations Research Project can best be stated in terms of lessons learned to date.

1. The promotion of family planning, specifically modern contraceptives, has been culturally acceptable in Bas Zaire. Although not all members of the target population approve of this activity, there has been no collective opposition to the program (such as refusal to let it operate in a given community). To the contrary, the zone commissioners in the urban area and village chiefs in the rural area have welcomed and actively supported the PRODEF project.
2. The vertical program (FP services only) proved to be acceptable in the urban area. Three factors may explain why urban residents accepted a vertical program: (a) a greater predisposition to new ideas from the outside, (b) a greater felt need for effective means of birth control, and (c) alternative outlets for the child health interventions (at least for malaria and intestinal worms).
3. In the rural program which included both family planning and child health interventions, the latter greatly enhanced the value of the program in the eyes of the community. We can not say whether a vertical program could or would have been acceptable in the rural area. However, the volume of drugs for children under five sold in the rural area reflects the importance of this component to many rural residents. Anecdotal comments from the home visitors suggest that it is much easier to broach the topic of family planning once the health of the existing children has been discussed.
4. The matrones proved to be an efficient and culturally acceptable channel for the distribution of contraceptives and selected drugs for children under five. Although there was some initial

resistance on the part of community members to discuss family planning with a neighbor, this apparently subsided, at least in part, given that the CMP for the matrones increased during the first five trimesters of the project. Moreover, the quantity of drugs purchased through the matrones suggests that the population will make use of her services when the need arises.

5. The effects of the program were not immediate; rather, CMP increased gradually over time in both areas. In the urban area, the slope of the curve (a generally upward trend) suggests that as of 1983 (the end of the period under evaluation), the program was still gaining in clientele. In the rural area, the program showed an upward trend in CMP during the first five trimesters, then plateaued.
6. The pill and Neosampoon were the most popular methods among program clients. Contraceptive foam, which was initially popular in the rural area, was less in demand when Neosampoon also became available. Overall, barrier methods represent a larger percentage of total use than might be expected based on the experience of other countries. This is believed to result from the fact that lactating women -- a group particularly motivated to avoid pregnancy -- prefer and/or have been recommended to use barrier methods rather than the pill.
7. Simply making modern contraceptives available to the population through existing outlets and the matrones (the treatment in Zone B) was sufficient to increase contraceptive prevalence. In the urban area, prevalence among married women of reproductive age increased from 5 to 16 percent. While in the rural area, it increased from 2 to 10 percent.
8. However, contraceptive prevalence levels were higher in those areas that received both stocking of dispensaries and outreach (Zone A) than those who did not receive outreach (Zone B). Prevalence in Zone A of the urban area increased from 4 to 19 percent and in Zone A of the rural area, it went from 5 to 14 percent.

9. While the treatment which combines stocking of outlets and outreach is more effective in increasing contraceptive prevalence, it is also slightly more expensive. The output in terms of CMP was much higher in Zone A than in Zone B for both the urban and rural area. However, the costs (for salaries of the home visitors, transportation, etc.) were also much higher, and in fact offset the higher level of CMP. As of the middle year of the program (October 1982 - September 1983), the cost per CMP was approximately one dollar more for Zone A than for Zone B.
10. While the cost per CMP is slightly higher for Zone A than for Zone B, it probably represents a "higher quality CMP." That is, the home visitors operating in Zone A had a higher educational level, more intensive training and more direct supervision than did the matrones and in many cases the dispensary nurses. Thus, the quality of the service offered in Zone A may have been somewhat better, although we have no empirical data on this point.
11. The cost per CMP is higher in the rural than in the urban area. The difference between the two, combining Zones A and B over the life of the project is \$6.68, urban, versus \$10.05, rural. This in fact understates the real magnitude of the difference, since the region-specific cost (over and above the nontraceable costs of simply establishing the program) are higher in the rural than urban area.
12. It is not recommended that similar programs use the home visitor approach in rural areas unless they can overcome the problems related to transportation. In the current project the rural team was greatly under-utilized, because they had to compete for the use of the sole project vehicle. By contrast, the urban team of home visitors operated very efficiency, because they did not depend on the project vehicle for transportation.
13. If this project were to be replicated in other areas of Zaire (assuming somewhat comparable socio-demographic and cultural conditions), Treatment A (with stocking of outlets, the establishment of matrones, and home visiting) is recommended under the following conditions:

- . the program will operate in an urban area where it is not necessary to provide transportation to the home visitors)
  - . the substantial cost of paying home visitor salaries and the slight additional cost per CMP is not a concern
  - . the objective of the project is to increase contraceptive prevalence to the greatest extent possible
14. By contrast, Approach B (with stocking of outlets, establishment of matrones, but no outreach) is recommended under the conditions that:
- . the program will operate in a rural area (especially if transportation is likely to present a problem)
  - . it is important to keep costs (both in absolute terms and in terms of cost per CMP) as low as possible
  - . the funding agency or project administrators are willing to sacrifice some gain in contraceptive prevalence to keep costs low.
15. Supervision of community volunteers must be constant if they are to continue to serve a productive role in the project. The drop in CMP among matrones toward the end of 1983 can be attributed in part to a laxity in supervision, as the project staff redirected their energies to the followup survey. Also, certain problems regarding collection of funds (proceeds from the sales) could have been avoided by more frequent supervision.
16. Zairian project directors partially attribute the success of this project to having adequate material resources with which to carry out the activities. In a country where financial problems plague many organizations and programs, PRODEF operated with the luxury of having the needed material resources (a vehicle, contraceptives, equipment and supplies, not to mention payment of salaries for its employees) available for the implementation of activities. In the life of the project, rarely has

lack of resources been cited as a reason for missing a deadline or failing to comply with some aspect of the project.

17. Tulane University attributes a great deal of the success of this project to the leadership of Dr. Nlandu Mangani, Citne. Matondo Mansilu and Citne. Butuena Mavambu. These three individuals provided firm direction, supportive supervision and a true sense of commitment to the rest of the staff, who in turn responded with dedication to the work required of them.

APPENDIX A  
UNITED STATES AND ZAIRIAN PERSONNEL  
INVOLVED IN THE PROJECT



Penny Jessop with Zairian Counterparts

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APPENDIX A

UNITED STATES AND ZAIRIAN PERSONNEL  
INVOLVED IN THE PROJECT

United States Agency for International Development (USAID)

Elizabeth Maguire, M.A.	Technical Monitor, Office of Population, USAID/Washington
Richard Thornton, M.P.H.	Public Health Officer, USAID/Zaire
Kenneth Heise, M.P.H.	Population Advisor, USAID/Zaire

Tulane University Personnel

Jane T. Bertrand, Ph.D.	Principal Investigator
Patricia Jessop, M.P.H.	Administrator
William E. Bertrand, Ph.D.	Consultant for sampling, micro-computers
Evelyn G. Landry, M.P.H.	Assistant on data processing and cost-effectiveness
Felix Lee	Assistant for microcomputing
Nancy B. Mock, M.P.H.	Consultant on analysis of breast-feeding data
Stanley Terrell, M.P.H.	Consultant on data analysis for nutritional status of children
Amy Ong Tsui, Ph.D.	Consultant on demographic data analysis
Amy B. McConnell	Research Assistant
Jeffrey Tharp	Research Assistant
Kamel Esseghairi, M.D.	Research Assistant
Robert Mullen, M.P.H.	Research Assistant
Betty Gonzales	Assisted on word processing
Dorothy Henriques	Assisted on word processing
Beverly Giroir	Assisted with typing
Erica Bennett	Assisted with typing

Consultants

Mark McBride, Ph.D. Miami University of Ohio	Consultant on cost-effectiveness analysis
Maria Wawer, M.D. Johns Hopkins University	Consultant on design and training for dispensary nurses and matrones
Melvin Thorne, M.D. Johns Hopkins University	Consultant on design and training for dispensary nurses and matrones

Zaire: PRODEF Staff

Nlandu Mangani, M.D., M.P.H.	Director
Matondo Mansilu	Deputy Director
Butuena Mavambu	Urban Coordinator
Bakanza Mambona	Administrator
Nlandu Diasivi	Supervisor
Mombela Kinuani	Microcomputer, stock inventory
Diakadulua Nlandu	Responsible for inventory, research assistant
Lumfuankenda Lelo	Supervisor
Manteza Buluena	Interviewer and visitor
Muila Nsoni	Interviewer and visitor
Kiakanua Buanga	Interviewer and visitor
Pelani Zolana	Interviewer and visitor
Banda Liya	Interviewer and visitor
Loda Miezi	Interviewer and visitor
Nsakala Mpindi	Interviewer and visitor
Batete Nzailu	Interviewer
Nsunda Lutete	Interviewer and visitor
Buanga Ketu	Visitor
Kilukidi Mengi	Interviewer and visitor
Beki Makonda	Visitor
Kidiela Dianka	Visitor
Kiese Lukombo	Visitor
Nsukami Luntala	Visitor
Masaka Muaka	Visitor
Dituabanza Nzuzi	Interviewer
Lusaka Situtala	Interviewer
Makadidi Nsongo	Interviewer
Kabutako Dianduakila	Interviewer
Mbenza Baku	Interviewer
Mpemba Moanda	Interviewer
Nsambu Za Nzambi	Interviewer
Mabena Kuizibuani	Driver/mechanic
Kimbuende Niangasa	Secretary

Voix de Zaire (Matadi)

Bibimbu Kuhuna	Head of Programming
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APPENDIX B

CODING GUIDE USED IN THE  
COST-EFFECTIVENESS ANALYSIS



Mombela Kinuani with  
the Commodities

## APPENDIX B

Tulane University  
School of Public Health and Tropical Medicine

Bas Zaire Family Planning Operations Research Project  
Contract AID/DSPE-C-0089

### ZAIRE COST-EFFECTIVENESS ANALYSIS: CLASSIFICATION OF COSTS

The following is a description of the system used for classifying expenses incurred on the Bas Zaire Family Planning Operations Research Project (Contract AID/DSPE-C-0089). These costs represent the "numerator data" for the cost-effectiveness analysis of this project.

There are two sources of cost data: (1) ledgers maintained by the project administrator at Tulane University, Ms. Penny Jessop, and (2) vouchers submitted to Tulane University by the counterpart organization CBZO (Communate Baptiste du Zaire Ouest) in Zaire, which indicate costs incurred under the subcontract in Zaire.

Cost data collected from the onset of the project in October 1980 have been classified according to a number of variables and entered into the computer according to the format outlined below. Explanatory notes accompany certain categories.

<u>COL</u>	<u>VARIABLE/CODES</u>	<u>EXPLANATORY NOTES</u>
1-4	<u>Date</u> (month, year)	When costs are incurred.
6-9	<u>Date</u> (month, year)	When costs are paid.
	Percentage of each cost that may be attributed to:	The breakdown by type of activity has been estimated by Principal Investigator at Tulane. Some activities can be attributed entirely to one of the categories (i.e. salaries of survey interviewers = 100% research; salaries of home visitors = 100% service). Further assumptions in relation to this breakdown are listed below.
11-13	<u>Service</u>	
15-17	<u>Research</u>	
19-21	<u>Administration</u>	
23-25	<u>Other</u>	
27	<u>Location:</u>	Where expense was incurred.
	1. In Zaire	"In Zaire" costs are those reported on the subcontract vouchers submitted by CBZO to Tulane. The two "at Tulane" categories correspond to costs paid directly from the USAID/Tulane contract. The distinction between categories (2) and (3) has been made by the Principal Investigator in an attempt to distinguish items purchased by Tulane, only because they would not have been available locally in Zaire and/or would have required payment in dollars (and thus could NOT fall under the subcontract where they rightfully belong, in contrast to costs incurred in providing technical assistance to this project (consultant salaries, airfare, per diem, as well as all expenses for services and supplies used at Tulane.
	2. At Tulane but essential to replication (e.g. drugs, equipment, supplies, used in Zaire.	
	3. At Tulane (technical assistance)	
29-30	<u>Type of expense</u>	As listed in ledger of monthly voucher. These will be collapsed into a fewer number of categories in subsequent analysis.
	01 J. Bertrand salary	
	02 P. Jessop salary	
	03 Travel	Air, taxi, and bus fares; ferry crossing costs.
	04 Per diem	Rates vary with individuals. All monies paid to project personnel for expenses out-of-town. Travel costs were not considered here because it was assumed a project vehicle was involved, unless stated otherwise.
	05 Shipping	Shipments from Tulane to Zaire.
	06 Computer	
	07 Consumable supplies	
	08 Operational expenses	Office (i.e. photocopying, photographs, etc.)

Zaire Cost-Effectiveness Analysis: Classification of Costs

28-30 continued

09	Miscellaneous expenses	
10	Equipment	Replacement parts for bicycles and Land Rovers, office equipment (e.g. waste baskets, padlocks, wood for carpentry, etc.), repairs to bicycles and Land Rovers.
11	Drug expenses	Drugs bought in U.S. to be shipped to Zaire.
12	Gasoline	In Kinshasa
13	Other consultant salary	
14	Other consultant travel	
15	Other consultant per diem	
16	Per diem for interviewer for CSZO paid by Tulane	
17	Per diem for home visitor for CSZO paid by Tulane	
18	Salary of Director	
19	Salary of Assistant Director	
20	Salary of Supervisor of interviewers	
21	Salary of chauffeur	
22	Salary of interviewer	
23	Salary of home visitor	
24	Salary of Supervisor of home visitors	
25	Salary of Administrator	
26	Salary of secretary	
27	Salary of coder	
28	Salary of maps assistant	
29	Fringe benefits in Zaire	Medical supplies, examinations, medication, treatment, eye glasses
30	Dispensary consumables	
31	Gasoline, oil, etc.	
32	Equipment repair	Maintenance
33	Shipment costs, delivery of supplies to dispensaries	
34	Per diem when training	All monies paid to project personnel when training was specifically mentioned in description of expense.
35	Kerosene	At times listed on same voucher with gasoline.
36	Magazines, texts	
37	Miscellaneous salaries	
38	Rent	
39	Salary of Promotrice	
40	Salary of Urban Coordinator	
41	Salary of Inventoriste-Rural	
42	Salary of Inventoriste-Urban	

Zaire Cost-Effectiveness Analysis: Classification of Costs

29-30 continued

- 43 Salary of Supervisor of Interviewers
  - 44 Salary of Supervisor of Home visitors - Urban
  - 50 Illegible vouchers
  - 51 Work study
  - 52 Fringe benefits at Tulane
  - 53 Indirect costs
- 32-38 Cost in US dollars
- 40-45 Identification (ID) number of the expense as it appears in ledger or on monthly voucher
- 47 Specific activity:
- 1. Home visiting
  - 2. Group meetings
  - 3. Dispensary distribution
  - 4. Training
  - 5. Other
  - 6. Film production in Zaire
  - 7. Indirect costs at Tulane
- 49 Region:
- 1. City of Matadi (urban project)
  - 2. Zone of Songololo (rural project)
  - 4. Non-traceable
- 50 Experimental area:
- 1. Group A
  - 2. Group B
  - 4. Non-traceable

The expenses incurred in Zaire were converted to US dollars according to the official exchange rate quoted for the last day of the month in which the expense was incurred.

The six-digit ID number can be used to locate an expense in the original financial records according to the following code:

For Tulane ledgers:   Category       (2 digits)  
                          Page           (2 digits)  
                          Line number   (2 digits)

For monthly vouchers: Month         (2 digits)  
                          Year          (2 digits)  
                          Page number   (2 digits)

This classification is intended to provide further information on the nature of SERVICE-related activities in Zaire. Expenses incurred for non-service activities and/or outside Zaire are classified as "other."

This project has two components: one urban, one rural. To the extent possible, expenses incurred in Zaire were classified as such. In many cases this breakdown did not apply and items were classified as "non-traceable."

Since one primary objective of the analysis is to determine the relative cost-effectiveness of two approaches (A and B), it is important to classify costs according to this breakdown to the extent possible. In numerous cases this breakdown did not apply and items were classified as "non-traceable."

Further Information on Procedures Used to Classify Costs

1. Percentages: Service, Research, Administration, Other

Although the Zaire Operations Research Project is a "service/research" project, the cost-effectiveness analysis (CEA) will focus only on service; i.e., what was the cost of implementing the type of program and what is the relative effectiveness of the two approaches used.

The CEA, then, excludes all research costs. To do so, it was necessary to classify all costs as service vs. research. Later, two other categories were added: administration and other. Administration is considered essential to replication and may well be combined with "service" at a later date. The "other" category is used for expenses incurred at Tulane which are difficult to classify according to the other three categories.

While certain items were easily classified according to this breakdown, others could not be (such as the salary of the Project Director and Assistant Director, the fuel used to carry out all project activities, office supplies and equipment used for all purposes, etc.). It was decided that in such cases, percentages should be assigned to these costs that reflected the general scope of activities performed under the project for that year (as observed by the PI). These were as follows:

	<u>Percent Service</u>	<u>Percent Research</u>	<u>Percent Adminis</u>	<u>Percent Other</u>
Oct 1980-Sep 1981	10	70	20	0
Oct 1981-Sep 1982	60	20	20	0
Oct 1982-May 1983	60	20	20	0
Jun 1983-end	?	?	?	?

Thus, all items for which a more specific classification was not possible were classified according to the "general percentages" for that year.

All costs incurred at Tulane for consumable and operational supplies were designated at 100 percent research during all years of the project.

The percentages assigned to certain recurring costs include the following:

1. Salaries at Tulane:

J. Bertrand, salary (for all years)	= 10% Service 70% Research 20% Administration
P. Jessop, salary (for all years)	= 25% Service 75% Administration
Research Assistant	= 100% Research

2. Salaries in Zaire:

Supervisor of Interviewers	= 100% Research
Interviewers	= 100% Research
Maps Assistant	= 100% Research
Coder	= 100% Research
Urban Coordinator	= 100% Service
Supervisor of Home Visitors	= 100% Service
Home Visitors	= 100% Service
"Inventoriste" (inventory man)	= 100% Service
"Promotrice"	= 100% Service

(NOTE: The salaries of the Director, Assistant Director, Administrator, Secretary and Chauffeur are all determined by the "general percentages" for the year.)

3. Other Expenses in Zaire:

Maps	= 50% Service; 50% Research
Per diem, travel: for interviewers	= 100% Research
Per diem, training: for Home Visitors	= 100% Service
for Matrones	= 100% Service
for Nurses in dispensaries	= 100% Service
Medical benefits (70-20-10 or 60-20-20)	= "General Percentages"

2. Dating of Vouchers

The "in Zaire" costs incurred by CBZO were reported to Tulane on monthly vouchers for the purpose of cost-reimbursement. In general, all expenses incurred in a given month were attached to the financial report for that month. However, in those few cases in which receipts from the previous month (e.g. February) were attached to the report of a given month (e.g. March), they were entered with the costs for that month (March), because this was the exchange rate at which they were reimbursed.

As a rule, if two months or more were grouped together in one packet, they were clustered according to month. Therefore, any stray (by date) vouchers were considered as the same date as those within which they were grouped.

If a packet included two or more months totally intermingled (this happened only once), every effort was made to enter and calculate each according to its individual/true date.

3. Illegible Vouchers

Within each month, vouchers are grouped according to type of expense. Therefore, illegible vouchers (where only amounts are showing) were classified as such and the percentages for service, research, administrative and other are entered according to the general division for that year. (See section explaining percentages)

If there was no indication of where they belonged, they were entered as "miscellaneous" and the percentages were the general for the year.

If totally illegible, they are omitted (after seeing if originals were any clearer).

4. Bank Charges

Even if included in vouchers in Zaire, they were not included in monthly costs, because they are not reimbursed under the subcontract.

5. Other Service Related Costs Not Included in this Cost-Effectiveness Analysis

The cost-effectiveness analysis herein does not include any of the costs related to travel, per diem, honorarium fees, etc., for two consultants, Dr. Maria Wawer and Dr. Melvin Thorne, from Johns Hopkins University, who played a key role in the design of the service program and especially in the development of curriculum and training of home visitors.

These costs were not originally incorporated into the cost-effectiveness analysis since Tulane University did not pay for these expenses and, thus, they did not appear on our ledgers.

Dr. Maria Wawer made three trips to Zaire, the total cost of which came to \$12,888.15. Dr. Melvin Thorne made two trips, for a total cost of \$6,268.61. These figures do not include the salary received by these individuals from Johns Hopkins.