A MODEL OF COSTS OF A CBD PROGRAMME

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July 1995

This study is a collaborative effort of the Population Council, New Delhi and the Centre for Development and Population Activities (CEDPA), New Delhi. Dr. John Townsend is Project Director, Dr. M.E. Khan is Associate & Country Advisor and Dr. Saumya RamaRao is Program Officer at the Population Council, New Delhi.

Acknowledgements: The support and critical review provided by Ms. Peggy Curlin, Mr. John McWilliam and Dr. Lily Kak of CEDPA, and Dr. P.N. Roy Choudhury of COMPFED and the project staff is gratefully acknowledged.

BACKGROUND

Cost analysis is an analytical tool which provides programme managers and planners with information about existing and potential programmes. For example, existing programmes can be evaluated for efficiency and effectiveness; while the resource requirements of future programmes can be estimated. In the context of family planning programmes, cost analysis provides policy-makers and programme managers with sufficient data on efficient ways to meet the demand for family planning services with the available resources.

As family planning programmes mature and the requirements for the resources expands research is required to shed light on such issues as cost effectiveness and sustainability of programmes. A recent World Bank study has focused on the financing and cost effectiveness of the Indian family planning progrzmme (World Bank, 1993). Cost effectiveness refers to the delivery of a given output at the lowest cost; while sustainability refers to the ability of a programme to recover the recurrent costs (Jensen, 1991). Cost analysis is usually the first step in research endeavours to address these issues

Since the sixties, a number of family planning studies have incorporated elements of economic analyses; the cumulated research indicates the actual and potential use of costing techniques in programme administration and planning (Osborn, 1983). An important area of research has been the costing of family planning services and supplies. Several cost-benefit and cost-effective analyses of family planning programmes in the developing world have been undertaken (Gillespie et al., 1983; Jensen, 1991).

Some of the earliest and more well known projects which have had a cost component are the Lampang Health Development Project in Thailand, the Danfa project in Ghana, and the Narangwal Health and Family Planning Project in India. Since then numerous other projects such as the Tulane University's project in Zaire, several Population Council projects in Latin America (Peru, Mexico and Honduras) and Asia (Nepal and Thailand), and a URC project in Indonesia have also conducted costing exercises (Jensen, 1991). Along with the increase in the number of studies, methodological modifications and refinements have also occurred (see Janowitz, 1993; Janowitz and Bratt, 1994).

Cost analyses can provide a wealth of information to answer several different questions as is evident from the following. For example. the Zaire project found that costs per Couple Year of Protection (CYP) ranged from $7 to $89 according to the duration of time a project site had **a** Community Based Distribution (CBD) in place. **A** cost effectiveness analysis of different service delivery modes, (CBD, fixed clinics, and family planning posts) in Peru found that CBD was a cost-effective means of delivering CYP. Sustainability of programmes and the shifting of the cost burden from

service providers to clients is a crucial issue; studies in Indonesia and Thailand have found that it is possible to encourage some clients to use the private sector or pay for the services. Some studies have found costs are usually the highest in the first year and cost-effectiveness improves over time; rural programmes usually cost more per client than urban ones; an integrated CBD systems offering health and family planning services is less cost-effective in terms of new family planning acceptors than a system delivering only family planning services (Population Reports, 1986).

The analysis of employment-based family planning programmes suggests that the most successful performance in terms of sustainability and cost-effectiveness occur in commercial firms that: provided relatively generous non-wage benefits to employees and dependents; have large employee populations (5000 or more); enjoy good financial health; have a top and middle management that provides serious support to the project; have captive populations, i.e. such as one finds in agri-business communities, and work through or utilized an umbrella organization, or used a CBD distribution strategy (JSI, 1991). Interestingly, a high cost per acceptor (to the private sector partner) does not have a negative influence on project success, as long as the company's return on investment - profitability - is positive.

Costing exercises using varying methodologies have been carried out at both the national and project area levels in India as well (see Satia, 1983). For example, a cost-effectiveness analysis revealed that the national Hospital Post-Partum programme was found to be relatively efficient compared to the national programme. The Narangwal project, which covered 27 villages, used cost-effectiveness analysis to illustrate the relative efficiency of an integrated service delivery mode (Reinke, 1983). However, to date there is no available evidence of a formal costing exercise of a community based contraceptive distribution project in India. In this context, the Bihar diary project which is a community based distribution of contraceptives provides an excellent opportunity for such an exercise. CBD programmes have been known to increase contraceptive prevalence significantly with median increases of 20 percentage points being recorded (Townsend, 1989). Also, as preliminary data from the Bihar project indicates that contraceptive prevalence rose from 20 to 50 percent within two years in some of the villages served (Kak *et. al.*, 1994) a detailed analysis of costs for expansion and sustainability would be of value.

The Bihar State Cooperative Milk Producers Federation (COMPFED) in collaboration with the Centre for Development and Population Activities (CEDPA), Washington D.C., has introduced a maternal and child health (MCH) and FP project using the dairy cooperative program structure. By working through an established and credible organization as COMPFED, the project benefitted immensely as it was guaranteed an easy entry into the community. The objectives of this project include: provision of accessible family planning services; expansion of contraceptive choice by offering both temporary and permanent methods; and provision of follow up care for acceptors for every method (Kak *et. al.*, 1994) Under this programme, village health

workers are trained to carry out IEC activities, supply contraceptives, follow up recipients of specific services and refer clients to the government programmes for IUD insertion, sterilization and immunization. Several reports are now available on the background, process and qualitative aspects of the services (Parveen ***et.*** *al.*, 1994, and PRC, 1993), and preliminary data is available on impacts

Using the data generated by the Bihar project, this paper develops a model of costs of a community based distribution project which can be used prospectively. The purpose of this model building exercise is to specify (1) the various activities that are undertaken under a CBD project of this type and **(2)** the resources that are expended in conducting these activities. It is envisaged that making explicit the input-output relations of the programme will aid planning for similar projects in other sites such as Uttar Pradesh.

THE RURAL HEALTH and FAMILY PLANNING PROJECT

In this section, we present briefly the Rural Health and Family Planning Project. The project was introduced in Samastipur district of Northern Bihar in 1991. Over the next three years, the project expanded in phases. The project is administered through Dairy Cooperative Societies (DCS) under COMPFED. **A** DCS is the smallest administrative unit of the COMPFED structure, with each DCS covering about 1.5 villages and a population of 1,500. By December 1993, 160 DCS had been covered under the project, and additional DCS were to be added in 1994. The model seems to be able to cover approximately 240 DCS and a total population of about 360,000 or about 54,000 eligible couples.

The project activities in each DCS is monitored by a nine member committee. The committee members are from the community and are voluntarily involved in the Dairy activities. The functions of the DCS committee include the organization and overall supervision of the project at the community level and the selection of the village health worker (VHW). It was envisaged that a community based distribution would increase women's access to family planning services.

METHODOLOGY

One important element of the model is the specification of the production process of the CBD programme. The programme has several activities and each of these can be conceptualized as a production process involving inputs and outputs. We use the methodology developed by Reynolds and Gaspari (1985) to build the model presented in this paper. The model utilises cost data to provide estimates of the various activities undertaken in a CBD programme In addition, we relate the costs

incurred to specific project outcomes to assess resource needs to achieve desired levels of effectiveness for extension and replication.

The model is presented in two parts. The first refers to the start up and maintenance of about 40 DCSs. The start-up period is assumed to be the first year of the project and the maintenance period the subsequent two years. In the start-up period the following activities take place: meetings with administrators and the DCS community, setting up of a fully equipped project office, selection and training of the first batch of VHW's, and the launching of CRD activities. In the subsequent maintenance period, several of the activities initiated in the start-up period will continue, while others will be introduced'. **As** data are available at different phases of the project, it is possible to calculate the costs of start-up and maintenance separately.

The second part of the model refers to the expansion phase, when the project expands to cover an additional 80 DCS, and finally expansion **up** to 240 DCS to take advantage of the existing economies of scale. The costs of expansion, and in particular, the costs of covering and sustaining additional DCSs can be thus calculated.

Data

Primary data were gathered from the accountant's office at the project headquarters at Samastipur. They relate to the amounts expended yearly over the period 1991-1993 as well as estimates of various resources used[2]. The project began by covering 40 DCS (first phase), and later expanded to 120 DCS by covering an additional **80** DCSs in a phased manner between 1991 and 1993. Sustainability issues are based on the costs of expansion to 240 DCS, using the estimates from the first 120 DCSs. Cost data were available under these broad heads: personnel honorarium, travel and per diem allowances, administrative and office expenses, rent, VHW training, research activities, purchase of various capital equipment, vehicle purchase and rental.

costs

Often financial data are used for planning purposes; however, these may not always reflect the true economic costs borne by society. For example, when resources are donated, financial data may underestimate economic costs (Kenney and Lewis, 1991). For this reason, the cost estimates provided include both accounting costs and shadow prices of those inputs which are donated or do not appear in accounting books.

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[1] ***See*** annexure for details of the activities in the **two** periods.

[2] **1994** was a year of no cost extension. Though data are available **for** the first **9** months (i.e. till September), for purposes of model building, **we** have used the data **from** the first three years of the project.

A shadow price is an estimate of the true costs of goods and services donated. Each activity is estimated to have a range to indicate variations in such elements as the number of persons taking part in the activity or the number of times the activity is held or the amount of resources used.

The project builds upon certain existing facilities. For instance, it uses the existing structure of COMPFED and the grassroots network of the dairy cooperatives; in addition it uses the contraceptive supplies (oral pills condoms, IUDs) and services (sterilization) provided through the government health system. These facilities are not being costed in this exercise. However, we can conceptualize the entire Rural Health and Family Planning project as being an additional activity undertaken by COMPFED. Essentially, the principal task of COMPFED and the associated DCSs is milk production, while the family planning service may be thought of as a complement or benefit. Thus, we can calculate the marginal (or additional) cost to COMPFED to undertake this activity.

outputs

Outcomes can range from short term immediate effects to long term impacts (Reynolds and Gaspari, 1985). Three outcome measures are commonly used--program execution objectives such as services and goods delivered; intermediate outputs such as knowledge of methods and use, availability, acceptance and continuation; and impact output such as change in fertility (Salkever and Sirageldin, **1983).** Other outcomes such as increased vaccination coverage or first aid provided are often acknowledged but not included in the analysis. Such ordering of outcomes is useful to help the analyst place a particular outcome on a continuum.

In this paper too, we have used the continuum approach by including immediate outcomes and long term outcomes. While the numbers of new clients for each method is the immediate outcome, the CPR is taken as the long term measure.

Data on the numbers of new clients for contraceptives were available from the client records maintained at Samastipur; these correspond to the first phase 40 DCSs. Baseline and endline surveys of 40 DCS were conducted by the Population Council and the Population Research Centre-Patna in 1992 and 1994 respectively. These surveys collected information on the levels of knowledge of various contraceptive methods, their use, and utilization of health services (PRC Patna and Population Council, 1993). The respondents of the surveys were currently married women 15-44 years of age.

The choice of these output measures were guided by the following rationale. On one hand, the aim was to provide an effectiveness measure of the supply side and on the other, the user's or client's side. Hence, the number of clients served reflects the former, and the **CPR** which is a population based measures reflects the latter.

Costs and outputs

The total marginal cost of the first phase 40 (range **36-42)** DCS includes the start-up and maintenance costs as incurred over the three year period. This is related to the outcome, (i.e.) numbers of clients recruited and CPR which are also measured over the same time period. Note that costs and outputs refer to the same set of 40 DCS and to the same project period.

FINDINGS

Total Marginal Costs

Table 1 presents the results of the analysis by activity and period. Details of all the activities costed in both the start-up and maintenance periods are listed in the annexure. The total marginal cost of providing MCH and FP services through a CBD programme using 40 DCSs is in the range of 31-34,000 U.S. dollars. Of this, start-up costs are approximately two-fifths ($12,000) and the remaining three-fifths are the costs of maintenance over a two year period ($19-21,000). This implies a yearly maintenance cost of at least $10,000. In terms **of** the resources spent per DCS in the first phase, this implies a total cost (start-up and maintenance) of $ 800-850. In other words these are the costs of serving a population of 1500 or approximately 225 eligible couples per DCS.

From Table 1, we notice that **34** percent of the costs are accounted by personnel costs (including health supervisors, VHWs and project staff). Activities integral to the project as training of VHWs and monthly meetings of the VHWs are **9** percent and 7 percent of total costs respectively. While field visits are a fifth of the costs, less than 1 percent is spent on Information, Education and Communication (IEC) activities. Other significant costs include MIS and administrative costs (16%)and capital costs for equipping the office (10%).

Donated resources, primarily time are also included in the costs. Management and administrative staff at COMPFED and a local NGO providing clinical support services contributed the resources. After shadow pricing these donated inputs, we find that they are about 10 percent of the total costs. The DCS committee members who constitute the grassroots membership of the Dairy Cooperative structure contribute their time to dairy activities including the Rural Health and Family Planning Project. However, in the model presented here, we have not costed their input as their time

would be donated to the Dairy Cooperative irrespective of the Rural Health and Family Planning Project.[3]

Recall that the capital costs of equipping the project office were 10 percent of the total costs. We have also provided estimates of costs if it were assumed that a well-equipped project office were not considered an important element of the model. **A** savings of $2800 is possible if a separate project office were not set **up.** If some equipment is required for training or administration, it might be considered part of the contribution of the counterpart.

Cost-effectiveness

Table 2 presents the costs of running the programme for three years (from start-up to maintenance) and relates it to the project achievements. For ease of purpose, we will take the minimum estimates of the start-up and maintenance costs given in Table 1 as the basis for costs in this ratio. Recall that the outcome measures are new clients and the contraceptive prevalence rate (CPR).

Column 2 in Table 2 shows the change in the outcome measure over the project period. 5548 new users of contraceptives were served (2044 oral pill users; 3199 condom acceptors and 305 referrals for IUD insertions and sterilization). The CPR changed from 23.4 percent in 1992 (spacing methods: 4.2%; sterilization 19.2%) to 27 percent (spacing methods: 2.1%; sterilization 24.9%) in 1994. Female sterilization accounts for most of the change in prevalence. It is important to note that this is based on client preference rather than program factors.

Column 3 indicates the cost of a unit change; that is, the cost of serving an additional client or the cost of producing a change in CPR by one unit. In addition, as donated inputs and capital equipment are important elements of total costs, we have presented the analysis with and without these elements. The following discussion however, uses the estimate where the donated inputs and capital equipment are included, that is, at the highest estimated cost.

In terms of providing services, a new family planning client can be served for about ***$6.*** The costs of reaching **a** new condom acceptor are $10 and a new oral pill acceptor $15. In contrast, referrals are more expensive at over $100[4]. The CPR

[3] Assuming that the time spent by DCS committee members exclusively on the project can be ascertained and that the members receive prevalent minimum wages. an estimate of their contribution would be a minimum of $2000.

[4] The cost of one **CYP** female sterilization works out to $8 10 assuming that all the 305 referrals were for female sterilization and that the CYP factor is 10 (Janowitz and Bratt, 1994).

reflects the programme impact, once clients have been contacted and contraceptives distributed. The analysis according to the model suggests that an increase in **CPR** by a point in the **DCS** areas can be achieved by spending **$8,695.**

A range in the marginal cost per unit of outcome can be observed depending upon the inputs which are included in the cost. The range varies from shadow priced inputs being included in the total cost to the exclusion of shadow priced inputs and the costs of setting **up** the project office. Thus the cost of an additional point in **CPR** is reduced by **$1600** as one moves across the range of costs mentioned. Given that the project was meant to provide greater contraceptive choice, in particular, spacing methods in a more accessible manner, the results suggest that in this type of a **CBD** delivery model, efforts to look at process of service delivery can help to improve cost effectiveness.

Finally a word about the outcome measures. The outcomes are not independent of each other; investments are made only once while the benefits may be multiple and occur over time. Although we have looked at new users of family planning and **CPR,** each outcome has been related independently to cost. In addition the project was successful in increasing knowledge of all methods of contraception, especially spacing methods. The greatest increases in knowledge of spacing methods occurred for pills (from *56%* to **88%)** and condoms **(46%** to 85%); in comparison knowledge of **IUDs** changed from **49** percent to **62** percent. MCH coverage also improved; the percentage of pregnant women receiving two doses of tetanus toxoid increased from **31.3** percent in **1992** to **43.8** percent in **1994;** similarly the immunization coverage of children for certain vaccines improved. Third, intangible benefits as women's empowerment or qualitative changes in the acceptability of contraceptive services by males in the community would be desirable outcome measures, but they were not measured. Nevertheless, the outcomes chosen do document the flow of inputs to commonly used, albeit limited outputs. Finally, the **CPR** is a better outcome measure than the number of new clients for two reasons. As it has been measured by an independent body, reliability is possibly better. Moreover, contraceptive use as reported by a client is more reliable than service statistics solely indicating the number of clients served.

Costs of expansion

Expansion here refers to the coverage of additional **DCSs** under the programme. Expansion is possible as the programme can use the existing resources more efficiently and economies of scale are realized. Economies of scale refers to the cost advantages of serving a larger area than a smaller area with the same resources.

Economies of scale are not realized in the first phase, as the optimum scale of operation would be around **240 DCSs** for the model presented here; therefore, the programme can expand from **40 DCSs** to cover an additional 200 DCSs. With

expansion, the project would serve an additional population of 300,000 and the needs of approximately 45,000 additional couples would be addressed.

In expansion, the programme utilises existing infrastructure, capital equipment and project staff and hence no additional costs are incurred on these items. All additional costs that are incurred are entirely due to personnel time, material use and the costs of field visits over the new DCSs. Thus these additional costs can be considered as marginal costs. We have provided in Table 3, the costs of expansion of 80 DCSs to provide estimates of the costs of changing scale. The marginal costs of expansion has been calculated to be about $19000. In other words, an additional DCS can be covered at a minimum cost of approximately $240 (see Table 3). These same cost estimates per DCS could be used for expanding from 120 to 240 DCSs, with fixed costs shared among a larger number of DCS. Any further expansion beyond 240 DCSs will result in dis-economies of scale, as additional investments in central staff and facilities would probably be required to maintain the same level of output. That is there will be disadvantages of serving a larger area with the existing resources. If the project is to be expanded further, the entire model from start-up would have to be replicated.

In the expansion phase of the project as additional VHWs are recruited to cover the new DCSs, the amounts spent on VHW honorariums, VHW training and field visits increase. At the same time, administrative costs decline. These figures reveal that expansion occurs with maximum utilisation of existing resources. The expenses that are incurred are principally due to the additional VHW's recruited and the travel costs of covering a greater geographical area.

Expansion and Sustainability

Sustainability is an issue which arises as the programme matures. The essential question is who bears the cost of continuation. Table 4 details the break up of the costs of the CBD programme covering 240 DCSs over two years. From this table, it is clear that the donated inputs amount to 7 percent. If we assume that cost recovery is to be limited to the resources spent by the CBD programme, then the amount to be recovered is about $56,000 spent over a period of two years.

These costs can be recovered from a variety of sources. The clients or users could be charged a fee for the family planning and MCH services provided, although free services are potentially available in the local PHC. A second source of possible support is the DCS as an employer, for the provision of services as a benefit to the community. The DCS may be able to pass on any savings they are able to make due to either improved milk production or better management Bonuses are distributed to DCSs members in years of good milk production; a portion of this may be used to finance health services in the community. Similar arrangements are now used with other innovations in the local dairy, e.g. for improved breeding and better feed. A third possibility is through financial support provided by the Government of India or

any other external agency. External support for contraceptives and clinical sservice is already an essential part of the model.

DISCUSSION

While this study specifies the costs for starting and sustaining CBD services through the dairy cooperative network, it also highlights the need for cooperation for successful functioning of the programme between the CBD project and the Government of India, the DCS network, and the NGOs operating in the field. The initial costs are relatively high, but the important strategic issues are the demonstrated effectiveness of the model in the short run, and the potential for sustainability as DCS profits are positive.

In terms of effectiveness it is noteworthy that greater increases have occurred in the acceptance of sterilization than in spacing methods. The midterm evaluation in July **1993** found that though there had been an increase in the levels of knowledge of spacing methods, there was no significant increase in CPR (Parveen ***et al.***, **1994).** So the major increase in CPR occurred during the second year. Second, the baseline survey had reported an unmet need for limiting of **31** percent. It appears therefore, the women with an unmet need were among the first to adopt contraception, and sterilization in particular. This is not surprising given the contraceptive culture in the community.

The issue of the time frame used in this model is also important. We have used a time frame of three years, which may be too short to expect major changes in CPR for spacing methods. The project was effective in increasing knowledge of various contraceptive methods, and spacing methods in particular. With additional support and time, it is possible that an increase in acceptance of spacing methods would be observed among younger couples. The NFHS reports that **21.6** percent of currently married women in Bihar were using modern contraceptives; **3** percent were using spacing methods (IIPS, **1994).** However, we cannot say how the programme will perform in the future as it is difficult to determine if and how the investments will have long term payoffs. The Matlab experiment in Bangladesh did find increasing acceptance over time with a different mix of methods, that is including DMPA and the IUD.

The CBD project provided some maternal and child health services in addition to the family planning services. This combination of services helped build credibility in the community and acted as a catalyst for family planning acceptance. The diary cooperative CBD model is clearly still under development and there is scope for modifications to make the model less costly and more effective. For example, investments in IE&C at the community level and better training materials might be very cost-effective for improving the acceptance of spacing methods. Changes in the model are healthy during replication.

A second caveat is that while costing exercises as presented here are useful techniques for structuring information, they should not however be the sole determinants of a decision. They should be one of several analytical tools. The main purpose of structuring information is to assist decision makers in the allocation of resources. Other potential considerations include the expressed needs and preferences of DCS members, the contribution of the project to other important development factors such as the status of women, the community's willingness to collaborate and contribute towards cost recovery, and COMPFED's participation in the provision of family planning services. Decisions made on the basis of cost alone would certainly be short-sighted, just as deciding about expansion without an adequate cost-analysis would be ill advised.

CONCLUSIONS

- The CBD project in Samastipur district in Northern Bihar was effective in increasing CPR by **3.6** percentage points. Thus, the cost of achieving this impact is an important issue for study. The results of the cost analysis has been useful for expansion and replication of the model in UP.

- Successful implementation and continuation of the project requires cooperation from many groups as the project needs to leverage contributions from at least two groups (COMPFED and service NGO) in addition to the support from the local PHC.

- The cost per new acceptor between $ 5 - ***6.*** is not out of line with other CBD projects. The project costs may appear high given the size of the target population. However, the best rationale for such projects within a cooperative network is the potential for replicability on a large scale. If the cooperative is willing to share the costs, it is because they perceive the services to be beneficial. This issue of long term financing certainly requires additional analysis and dialogue.

TABLE 1

COSTS OF CBD PROGRAMME START-UP AND MAINTENANCE IN 40 DCS

Activities	Start-up (1 year period)		Maintenance (2 yea eriod)	
	Minimum	Maximum	Minimum	Maximum
Variable costs				
Management committee meeting	6480	7560	0	0
Health Supervisors	24000	24000	72000	72000
VHWs	21600	25200	86400	100800
Field visits	64544	74144	129088	148288
VHW Training	58910	63110	0	0
VHW Refresher training	0	0	26890	27610
IEC	1780	2280	0	0
VHW meeting	12960	15120	51840	60480
NGO*	14400	14400	28800	28800
MIS & Administration	24914	24914	62627	62627
Fixed costs				
Project Staff	45170	45170	90340	90340
Administration*	22086	28346	44458	56978
Capital Costs for setting up Office	87701	87701	0	0
Total Rs.[1]	383545	411945	592443	647923
Total US $[1]	12321	13199	18982	20760
Total Rs.[2]	265790	286930	530335	573295
Total US$.[2]	8516	9194	16992	18369

Note

Costs of start-up occur in the first year. Maintenance costs are expended in the following two years.

* Implies resources which have been donated and have been shadow priced. Under the head Administration only donated time and communication have been shadow priced **(Rs.** 16654-22914) per year.

1. Inclusive of shadow priced inputs
2. Exclusive of shadow priced inputs and capital costs of setting up office.

TABLE 2

MARGINAL COST PER OUTCOME IN 40 DCS

Outcome measure (1)	Change in outcome measure (2)	Marginal Cost per unit of outcome (3)	
		With shadow priced inputs US $	Without shadow priced inputs and office setting-up costs US $
Data from MIS			
New Oral Pill Acceptors	2044	**15**	12
New Condom Acceptors	3199	10	8
Referrals	*305*	**103**	84
Total new clients	**5548**	**6**	5
Survey Data			
CPR	***3.6***	**8695**	**7086**

Note: Data on total costs (Start-up + maintenance) are from the minimum estimates given in Table 1: **US$ 31,303** when shadow priced inputs are included and **US$** 25508 when shadow priced inputs and office setting-up costs are excluded. 1 US $ = Rs. 31.21

TABLE 3

COSTS OF EXPANSION OF AN ADDITIONAL 80 DCSs (STARTUP + MAINTENANCE COSTS)

Activities	Expansion	
	Minimum	Maximum
Variable costs		
Management committee meeting	12960	15120
Health Supervisors	42000	42000
VHWs	100800	117600
Field visits	181252	181252
VHW Training	117820	126220
VHW Refresher training	0	0
IEC	3560	4560
VHW meetings	60480	70560
NGO*	28800	28800
MIS & Administration	43934	43934
Fixed costs		
Project staff	0	0
Administration*	0	0
Office set up	0	0
Total **Rs.**	591,606	630,046
Total US $	18,956	20.187

Note * implies these heads have donated inputs which have been shadow priced.
1 U.S. $ = Rs. 31.21

TABLE 4

COSTS OF SUSTAINING 240 DCS FOR 2 YEARS

Activities	Project	Compfed	NGO	Total
Project coordinating Staff	90340			90340
Health Supervisors	177000			177000
VHWs	338400			338400
Field visits	582218			582218
VHW Refresher training	161340			161340
VHW meetings	203040			203040
NGO backup*	-		100800	100800
MIS & Administration*	183612	33308		216920
Total Rs.	1735950	33308	100800	1870058
Total US $	55622	1067	3230	59919

Note: The **costs** in this table are derived from Table 1 (minimum maintenance estimates) and Table **3** (minimum estimates)
* implies resources which are shadow priced.

Annexure

DATA AND ASSUMPTIONS

Here we present the data as well as the assumptions that have been used to calculate the cost estimates of the various activities. We provide information on how the figures in Table 1 and Table **3** were derived. Table 1 refers to the start-up and maintenance costs of **40** DCS. Recall that the start-up period is for a year, and the maintenance period the subsequent two years. The details of Table 1 are provided in the first two sections labelled "Start-up Period: Table 1" and "Maintenance Period: Table 1".

Table 3 refers to the costs incurred over a two year period while expanding the DCS coverage to an additional 80 DCS. The cost estimates presented refer to the total of start-up and expansion costs. The details of Table **3** are provided in the section labelled "Expansion Phase: Table **3**".

START-UP PERIOD: TABLE 1

The start-up period is the first year of the project, with a coverage of 40 DCSs.

- **Management Committee Meetings**

  These meetings are held once a year and the participants are three members and the Chairman from each DCS. It is assumed that the number of operational DCS is between **36-42,** as the program covers 40 DCS in a phase. Each participant is paid Rs. **45** per day for attendance to cover travel costs.

- **Selection and positioning of Health Supervisors and VHWs**

  Health supervisors **(2)** need to be dppointed for a period of **8** months on a monthly salary of Rs. 1500. Their primary duty is to supervise the VHW's in the field, and are therefore appointed two months earlier than the VHWs. **A** VHW is selected for each DCS; thus in the first phase, between **36-42** VHWs are selected and trained. Since VHWs volunteer their time, they are not paid a salary but their efforts are recompensed by a honorarium of Rs. 100 per month. VHWs work for six months in the first phase, as the project gets into the field. The main responsibilities **of** a VHW are to provide information on various contraceptive methods to the community, to motivate couples to adopt contraception, to supply pills and condoms to clients, help clients use contraceptives correctly, to refer clients to the government system for IUD insertions and sterilization and to follow-up clients.

- **VHW training**

Once VHWs are selected they are given training in their work by a NGO at the project headquarters. Modelling cardboard, sketch pens and balls are some of the supplies used. At the end of the training, each VHW is supplied with an umbrella, a bag, and a signboard (to display outside her home). She is also supplied with printed material as part of her training. The training material can be prepared by the consulting NGO or composed of material prepared by the state health and family welfare department. The training sessions are usually of 5-7 days duration and the costs of VHW travel (Rs. 30) and per diem (Rs. 30) are met by the project. VHW's are trained in batches of 36-42, with about 20 being trained in one session. In addition to the VHWs, a few ANMs (10) are also imparted the training; this helps cement the relationship between the project and the government health system. The trainers costs of air travel (Rs. 4000) and per diem (Rs. 2200) for two sessions of training (the trainer is paid for actual training days plus two days of preparation) are met by the project.

- **Field visits**

Field visits are an essential part of project activities. The project staff (Project coordinator, Assistant Project Coordinator and Lady Extension worker) may visit villages for IEC activities, monitor health supervisors and visit the VHWs in their villages.

The three project staff mentioned above are paid Rs. 20 per day for 20 days of travel a month as their travel and per diem charges. In the calculations it has been assumed that between 1 and 3 persons will travel for 20 days. In addition, vehicle rental is assumed to be Rs. 59744 for the entire year.

- **IEC activities**

Pamphlets and video tapes need to be purchased or requested from the state family welfare department. On average, the market price of a video tape is Rs. 160; **8** video tapes are assumed to have been purchased. Pamphlets worth between Rs. 500-1000 are also purchased.

- **VHW monthly meetings**

The VHWs are in the field by the second half (6 months) of the first project year. Monthly meetings (6) are held for the VHWs at the project headquarters. At these meetings VHWs report their activities and their performance is reviewed. They also collect their contraceptive supplies and their honorarium at this time. They are paid Rs. 60 to cover transport and per diem charges.

- **Support Services provided by NGO's in the field**

  Community based projects benefit from the presence of NGOs working in the same area. Instances of NGO support to the project can be in the form of services rendered (such as IUD insertion, sterilization and immunization). Services such as these were provided by FPAI-Samastipur; the opportunity cost of 1 ANM level health personnel for 10 days per month is assumed to be the NGO manpower provided to the project, The NGO personnel time is shadow priced to be Rs. 3000 per month.

- **Selection and employment of project coordinating staff**

  Six different types of personnel have to be employed at the beginning of the project and will be stationed at the project headquarters. They are employed for the whole year.

  These are the following:

  a. Project Coordinator (1) at Rs. 6400 per month

  b. Asst. Project Coordinator (1) at Rs. **3000** per month

  c. Lady Extension worker (1) at Rs 2975 per month

  d. Accountant (1) at Rs. 4960 per month

  e. Record clerk (1) at Rs. 2000 per month

  f. Peon (1) at Rs. 3250 per month

- **Setting up of Project office**

  This involves renting space to house the project headquarters and equipping it with furniture (tables, chairs, filing cabinets, cupboards) and office equipment (typewriter, computer and printer, air conditioner, calculator, FAX machine and **UPS).** To facilitate field visits vehicles are purchased. In addition, slide and overhead projectors, TV's **(3)** VCP's (3) and generators (3) are purchased to conduct VHW training sessions and IEC activities.

  The market price of these items are listed below:

Typewriter	Rs. 8830
Calculator	Rs. 1585
Furniture	Rs. 64661
Birla Yamaha Generators (3)	Rs. 43470

TVs (3)	Rs. 39893
VCPs (3)	Rs. 42723
Slide projector	Rs. 16657
Overhead projector	Rs. 16474
Air conditioner	Rs. 44767
Computer and printer	Rs. 80000
Vehicles (2 mopeds, 1 motor cycle, 1 cycle)	Rs. 76146
FAX	Rs. 46000
UPS	Rs. 45000

- **MIS and administrative backup**

Typically this involves work done at the COMPFED headquarters and at the project headquarters. Costs of running the project office (such as supplies, Xeroxing, administrative expenses, office maintenance, equipment maintenance, vehicle maintenance, rent and communication) are charged under this head. In addition to these accounting costs, shadow costs of the COMPFED management and administrative staff time at Patna, and the communication facilities used by COMPFED in project related work are included. The costs are total costs incurred over the year.

Shadow prices assumed for COMPFED management and administrative staff

Project Director	Rs. 12,600 per month
Assistant Project Director	Rs. 10,000 per month
MIS supervisor at Patna	Rs. 3,700 per month
General Manager's **PA** at Patna	Rs. 4,900 per month
Accountant at Patna	Rs. 10,200 per month
Despatch clerk at Patna	Rs. 4,600 per month

Time spent by the above members for project activities

Project Director	30-40 hours per month (15%-20% of time)
Assistant Project Director	32-64 hours per month (15%-20% of time)
MIS supervisor at Patna	16 hours per month
General Manager's PA at Patna	12 hours per month
Accountant at Patna	5 hours per month
Despatch clerk at Patna	4 hours per month

Costs under various heads used in the calculations

Patna office communication	Rs. 48,000-72,000
Office supplies	Rs. 5,309
Printing and photocopying	Rs. 4,971
Communication	Rs. 7,497
Bank charges	Rs. 1,808
Administrative expenses	Rs. 4,534
Office maintenance	Rs. 1,788
Equipment maintenance	Rs. 3,700
Vehicle maintenance	Rs. 6,400
Rent	Rs. 21,500

- **Project Monitoring Committee Meetings**

These meetings are an important activity as they establish close working links between the CBD project and the administrative and medical (health and family welfare) systems of the government. As the government is the principal source of supplies (contraceptives and vaccines), ties such as these are vital to the functioning of the project. In addition, referral of clients from the project to the government health system is facilitated. The persons attending these meetings are the Managing Director COMPFED, District Magistrate, Project Director (General Manager-COMPFED), Assistant Project Manager, Civil Surgeon, Chairman Mithila Milk Union, and a lady member of a Mahila Dairy Society. Two meetings a year are helpful to initiate and review progress in the initial year. As the participants to this meeting are involved with the activities of the dairy cooperative, the time donated to this meeting are not shadow priced.

- **Dairy Cooperative Society (DCS) support**

At the level of the DCS, monthly meetings are held, which **9** members and 1 Secretary attend. These meetings are usually held at the DCS and are useful inputs to the implementation of the project in the DCS area. The most significant contribution of the DCS committee is the selection of the Voluntary Health Worker. The DCS secretary puts in additional time coordinating the activities of the group. If a depot approach is to be implemented, training of DCS secretaries in depot holding **is** necessary during the first phase.

The DCS committee members donate their time to the dairy cooperative activities including the Rural Health and Family Planning Project. It is difficult to ascertain the portion of time spent exclusively on the Project. Assuming minimum wages of Rs. 20-25, a crude estimate of DCS member time would be in the range of $2000-3000.

MAINTENANCE PERIOD: TABLE 1

The costs detailed here refer to those incurred over a two year period after start-up and are spent over **40** DCSs.

- **Employment of Project staff**

  There is no additional employment of project staff. The original crew continue to work for two years. Same data used as in Start-up section.

- **Employment of Health Supervisors and VHWs**

  The two Phase I Health Supervisors already in position work for the entire period of 24 months. The **40 VHWs** also continue to work for two years. Same data used as in Start-up section to calculate the costs of hiring Health Supervisors and VHWs.

- **Refresher training for VHWs and Health Supervisors**

  The first phase **40 VHWs** (range **36-42)** and Health Supervisors *(2)* undergo refresher training of **3** days duration. This is an important component for CBD programmes as lessons learnt in the field can be incorporated in regular training.

  Two sessions of training are held with about 20 trainees in one session. The trainees are paid for meeting travel costs (Rs.30) and per diem (Rs. 30). The consultant is paid Rs. 4000 for travel and per **diem** of **Rs.** 2200 for **8** days (actual training days plus two days of preparation).

- **Field visits**

  Field visits continue. The same pattern of staff travel and vehicle rental as shown in the Start-up section is envisaged.

- **VHW monthly meetings**

  VHWs continue to attend monthly meetings as part of their activities. Thus the **VHWs** attend **24** meetings (12 + 12) over two years and are compensated Rs. 60 for attending the meetings.

- **Services provided by NGOs**

  The NGO input continues. 1 **ANM** person contributes time for two years.

- **MIS and Administrative backup**

These activities continue in the two years. These activities have been described in the Start-up section. Only the administrative expenses relating to materials and supplies which have used different estimates than those shown in the Start-up period are indicated here. These are multiplied by **2** to reflect the costs over two years.

Costs under various heads used in the calculations

Bank charges	Rs. ***556***
Office maintenance	Rs. **3,896**
Equipment maintenance	Rs. 10,100

EXPANSION PHASE: TABLE 3

The expansion phase refers to the expansion of the project to 80 additional DCSs and the time period of reference is two years. Note, that in terms of the CBD project life, these refer to the second and third years of the project. In other words, expansion takes place at the same time that the initial Phase I DCSs continue with their operations.

Phase II DCSs come into operation in the first year of the expansion phase and are in operation for 8 months of the first year and all 12 months of the second year. Phase III DCSs begin in the second year of the expansion phase and are in operation for 8 months. The costs detailed here refer to those expended over a two year period by these 80 new DCSs.

In expansion, the project uses existing facilities such as the project office and the services of the project staff who are already in place. In other words, the costs of these facilities and services remain fixed though the number of DCSs increases. Other costs vary with the increase in DCS coverage and are listed below.

- **Management Committee meeting**

Management committee meetings are held for the 80 DCSs which have been newly covered. Lessons learned from the Phase I DCSs are shared with the new DCSs. One management committee meeting held for Phase II (40) and Phase III (40) DCS. Same calculations as used in Start-up section.

- **Employment of Health Supervisors and VHWs.**

  In addition to the 2 Health Supervisors already in place, two more are hired over this period due to project expansion. 1 Health Supervisor is in place for a period of 20 (8 + 12) months. The second Health Supervisor is employed for **8** months in the second year. The hiring charges of these health supervisors is the same as shown earlier.

  VHWs are selected for all the 80 **DCSs** as they are phased in. The Phase II VHWs work for a period of 20 months **(8+** 12) The Phase III VHWs will be in place for **8** months of the second year.

- **Field visits**

  Field visits will now cover the new Phase II and Phase III **DCSs** in addition to the Phase I DCSs. We have not covered the costs of project staff travel in the costs of expansion as these will be incurred even without expansion to the new DCSs. We have however, included the costs of vehicle rental which will correspond to its use to cover the newly added DCSs, amounting to Rs. 181252.

- **VHW Training**

  The 80 newly recruited VHWs and 20 ANMs from the Phase II and Phase III DCSs are trained. The costs of training are similar to the ones shown in the Start-up section.

- **IEC activities**

  An additional 8 videos tapes at Rs. 160 each and pamphlets (Rs.500-1000) are bought as **IEC** material as the previously bought IEC material will not suffice.

- **VHW monthly meetings**

  The newly recruited Phase II VHWs attend **20 (8+** 12) meetings and Phase III attend **8** meetings. Each VHW is recompensed Rs 60 as travel cost.

- **MIS and administrative support**

The cost of some line items will increase due to expansion, relating to increased use of materials and supplies. Other line items will not change as these costs would have been borne even if no expansion were taking place, such as COMPFED management and administration time at Patna; communication charges, bank charges, office maintenance, rent of the project headquarters and the Patna office communication.

Given below are the line items which change and the associated costs. The cost estimates correspond only to those spent for activities in the new Phase II and Phase III DCSs over two years.

Office supplies	Rs. 3,950
Printing and photocopying	Rs. 5,298
Administrative expenses	**Rs. 8,378**
Equipment maintenance	Rs. 6,800
Vehicle maintenance	Rs. 19,510

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