

REPORT ON CONSULTATION ACTIVITIES AT THE
INTERNATIONAL CENTRE FOR DIARRHEAL
DISEASE RESEARCH
BANGLADESH: MAY-SEPTEMBER 1979

A Report Prepared By:
WAYNE STINSON

During The Period:
MAY 1, THROUGH SEPTEMBER 17, 1979

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I. SITUATION AND BACKGROUND

This is a report on the demographic evaluation work performed by the author under contract to APHA at the International Centre for Diarrheal Disease Research* in Dacca, Bangladesh. It is a descriptive report only, but it will hopefully be supplemented by an analytical monograph within the next several months. The time period covered is May 1 to September 17, 1979.

The objective of this consultation work was to assist ICDDR,B researchers in evaluating the demographic impact of a household contraceptive distribution project (CDP) in rural Matlab Thana. The CDP had been initiated in October 1975 and was greatly modified late in 1977. It utilized village women with limited or no education to distribute pills and condoms, and eventually to administer Depo-Provera within village homes. Although a number of evaluative studies had been initiated, most were considered deficient or incomplete. No evaluation had yet been undertaken of the modified project, moreover, and reports of prevalence rates in excess of 30% had stirred considerable interest both in Bangladesh and elsewhere.

Since 1966, Matlab Thana has also been the site of a unique demographic registration system which has registered all births, deaths and migrations within a population of 260,000 persons.** The project could, therefore, be evaluated both in terms of process indicators, such as acceptance and continuation rates, and in terms of demographic impact.

AID supported the Matlab contraceptive distribution project financially through September 1978. In January 1979, Howard Hogan, Ph.D., and Henry Gelfand, M.D., were sent to Dacca on behalf of AID to conduct a terminal project review*** and to make recommendations regarding possible future assistance. They were asked, among other things, to assess the quality of data analyses conducted to that point and to suggest ways in which additional analyses might be completed. A comprehensive and well-balanced report was prepared.****

The Hogan-Gelfand report concluded that numerous and frequently good quality data sets were available for evaluation of the CDP, but the ICDDR,B needed additional help in coding, processing and analysis to make full use of these resources. The report recommended that AID provide such assistance if requested and indicated that four to six months would be needed to clear the backlog. Dr. Lincoln Chen, Scientific Director, requested such help late in March, and in April APHA began recruitment.

*The ICDDR,B was formerly known as the Cholera Research Lab.

**Marriages and divorces have also been registered since January 1978. Approximately one-third of the area was dropped from surveillance in July 1978.

***The project itself continued, of course, but it was no longer under AID funding.

****Hogan, Howard R. and Henry M. Gelfand. 1979. "An Evaluation of the Family Planning Operations Research Project: Matlab, Bangladesh."

II. PROBLEMS AND FINDINGS

ICDDR,B, of course, had a number of researchers who were actively interested in the Matlab data, and it was made clear from the start that AID's help was to be supportive rather than directive. The potential for problems existed, however, because AID was particularly interested in the modified distribution project which began in October 1977, while key Lab personnel felt that such evaluation was premature. The Lab wanted initial emphasis to be on the first phase of the project with only methodological attention to the second phase. The research design eventually approved by the Population Working Group used a uniform approach for both projects, but indicated that a definitive evaluation of phase two would only be possible at the end of 1979.*

During my first weeks in Dacca, I attempted to make myself available both to the evaluation researchers in the Statistics Branch and to the pertinent medical professionals with field responsibilities. The then director, Dr. Henry Mosley, was in his final month at the Centre, and, at his request, Mr. Maklishur Rahman and Dr. Shushumi Bhatia were preparing lengthy descriptive reports of the original and modified distribution projects. Dr. Bhatia was also at the point of making major decisions regarding coding and analysis of the detailed service records from the modified project. I talked at length with Dr. Stanley Becker to solicit his ideas about demographic evaluation of the CDP, but he lacked the time to collaborate in detail. In the end, I worked closely with Dr. Bhatia and Mr. Rahman in their analytical activities but did most of the demographic work myself.

During the course of the summer, I spent perhaps one-third to one-half of my time working with Bhatia and Rahman and the remainder doing my own computer work. I assisted Dr. Bhatia in detail with several quantitative reports including her descriptive monograph on the modified distribution project. (The final report--which I consider to be one of the best ever written at the Lab--is entirely Dr. Bhatia's, however.) Dr. Bhatia and I collaborated closely in refining the code sheet for her service records (RKS-II), and I subsequently wrote, debugged and repeatedly ran an edit program for these data. The coding of these records was very complex, and there were numerous errors; but Dr. Bhatia left Dacca in early September with nearly a clean data set.** My work with Mr. Rahman was

*The appended memo--"Demographic Impact of the Contraceptive Distribution Project: Research Methodology"--describes the research technique.

**Dr. Bhatia's data set includes close to 7,000 records, of which about 6,000 are for family planning acceptors and 1,000 for nonacceptors. Each record shows the menstrual, reproductive, breast-feeding and contraceptive histories of one woman for the fifteen months between January 1978 and March 1979. Pertinent data from a baseline KAP survey in late 1977 are also included. Since the computer was slow, we edited data in batches and did not discover until the final run that about 600 women had been coded twice (and inconsistently).

The original data set was left in Dacca, but it will not be easy to analyze there because it includes variable length records. Dr. Bhatia took a copy to her home in India, and the present plan is for her to analyze it at Johns Hopkins University during 1980. Continued contact between Dr. Bhatia and ICDDR,B is desirable so that the final edited tape is identical in the two locations.

less intense, but I did assist with the review and refinement of his monograph on the first phase of the CDP.

My work at the Centre was completely dominated by the computer, and it proceeded very slowly. Since my first objective was to calculate birth rates, I needed to know the 1974 population, and births, female deaths and female migrations since that time, by various village groupings. These were not available from Lab publications, and they could not be tabulated on the counter-sorter because the recorded village codes used alphanumeric characters. Tabulation programs had to be written for each vital event file, and I was the only one available with the time and knowledge to do it.

The only computer available to the Centre was an old IBM 360 located at the Bureau of Statistics about seven miles from the Lab. This computer was routinely available to us for two hours during the month of Ramadan), and all of the Centre's investigators had to cooperate for sharing of this time. Mr. Sayedur Rahman, the Centre's computer technician, had been unable to take a vacation for five years because the Centre had no backup support, but he nevertheless agreed to work with me on Saturdays, Sundays and evenings whenever the Bureau of Statistics had extra time available. Each of my vital event runs took about one hour of computer time, and I had to accompany Mr. Rahman on each of his trips to the computer to help him with the problems that routinely occurred. As often happens at the Centre, the work of other researchers was greatly delayed through much of August in favor in the work of someone who was about to leave.

My tabulation work was completed on September 2nd, about ten days before I had to leave Bangladesh. I then proceeded to calculate birth rates for the period 1974 to 1978, as detailed in the attached memorandum. This work could not be completed, however, because of the rushed atmosphere of my last days in Dacca and the great need to avoid errors.

In retrospect, the assertion by Hogan and Gelfand that the backlog of analytical work could be cleared up within four to six months appears to have been highly overoptimistic. During my four months in Dacca, I averaged seventy to eighty-five hours work per week, and almost none of this appears to me now to have been a waste of time. Conditions will improve greatly when the Centre's new IBM 34 computer becomes operational early in 1980, and when additional software becomes available. The Centre has recently hired two highly competent demographers*, moreover, and they will probably spend at least some of their time on analyzing existing data sets. My personal recommendation to the Lab was that new data collection be cut back until the value of existing data set had been thoroughly investigated, but the latter step will probably not occur until the new computer is installed.

*Drs. Stan D'Souza and Jim Phillips.

III. RECOMMENDATIONS FOR ADDITIONAL WORK

During the course of the summer, I did about 75% of the work needed for evaluation of both the original and modified contraceptive distribution projects. With the Director's permission, I brought home all of the required data for an impact evaluation of the original project through the end of 1978. These data and an analytical program are on a computer tape, and they could be analyzed and a monograph written in ten to fifteen working days. This work appears to have been approved by the Director in one of the attached memos, and it should proceed.

Evaluation of the first year of the modified project requires tabulation of vital event data through June or September 1979. These data should now be available in Dacca, and they could be quickly tabulated using programs that I set up and formatted so that Mr. Rahman could easily run them in my absence. This work should also proceed, assuming, of course, that ICDDR,B investigators feel that the timing is appropriate.

There would appear to be three possible ways:

1. I could return to Dacca for four to six weeks and do both the tabulation and analyses.
2. Mr. Rahman could do the tabulations and forward results to me here.
3. Another ICDDR,B investigator could complete the work.

The first option would appear to be the most desirable and the third option the least, but my availability for this work is not certain. In any case, any resulting monograph would need to be submitted to ICDDR,B for comment and identification of authors since we mutually agreed on this early during my visit in May.

I recommend that AID approve ten to fifteen days' work here on the first phase and that it offer ICDDR,B additional short-term assistance for the second phase.

List of Appended Memos

	<u>Sender/Recipient</u>	<u>Subject</u>	<u>Date</u>
Appendix A	Stinson to Greenough	Report on Consulting Work, May-September 1979	11 September 1979
Appendix B	Greenough to Stinson	Report on Consulting Work made September 1979	13 September 1979
Appendix C	Stinson to M.K. Chowdhury	Demographic Impact of the Contraceptive Distribution Project	13 September 1979
Appendix D	Stinson to M.K. Chowdhury	A FORTRAN Program for Calculating Birth Rates	13 September 1979

List of Appended Memos (Cont.)

	<u>Sender</u>	<u>Subject</u>	<u>Date</u>
Appendix E	Stinson and Chowdhury to Greenough	Skill Areas Needed in the Statistics Branch	11 September 1979
Appendix F	Greenough to Stinson and Chowdhury	Skill Areas Needed in the Statistics Branch	12 September 1979
Appendix G	Stinson to Greenough	Thoughts about the Statistics Branch	13 September 1979



Cholera Research Laboratory

Memorandum

TO Bucky Greenough, M.D., Director
Lincoln Chen, M.D., Scientific Director
Mridul Chowdhury, Head of Statistics Branch
James Shelton, M.D., AID

FROM ✓ Wayne Stinson, Consultant
American Public Health Association

Wayne Stinson

DATE 11.9.79

SUBJECT Report on Consulting Work,
May-September 1979

This memo constitutes my final report to ICDDR,B and, with your permission, to AID, for four months of demographic consultation work in mid 1979. This work has not yet been completed, but it is not certain in what form or at what time it might continue.

Objectives

The Agency for International Development, working through the American Public Health Association, hired me in mid April to spend approximately four months in Bangladesh. The objective was to assist ICDDR,B scientists to evaluate the Matlab contraceptive distribution project, with particular emphasis on measuring its demographic impact. Both the original and the modified projects were of interest, though it quickly became apparent that a full scale demographic analysis of the modified activity would have to await keypunching of the 1979 birth records.

Results

The nature of my work required extensive computer analyses, and these took virtually the entire summer. They could not possibly have been completed without the constant presence and assistance of Mr. Sayedur Rahman with whom I spent approximately twelve hours every week in the computer facility between mid July and mid September. The facility was located about seven miles from ICDDR,B, and many of our efforts were aborted by tape or unit failures. The work, in brief, was painfully slow and frustrating. I commend Mr. Rahman for his skill and persistence with an outmoded facility.

The first and most time consuming aspect of my work was to tabulate the numbers of births, deaths and migrations reported from Matlab during 1974-78 by various characteristics. Since analyses were by village groups, I had to write my own FORTRAN programs; the standard MINITABS programs could not be used because villages were identified by letters as well as

by numbers. Each of these computer runs took over one hour, and several had to be repeated because of unexplained tape or hardware failures.

On September 2nd, I completed tabulations of vital events and began to debug my program for calculating birth rates. I am now in a position to calculate several age-specific and age-standardized fertility measures and to draft a monograph based on them, but I will be unable to do this within my remaining few days in Dacca. Previous work in this area has been both politically and methodologically controversial, and I wish to check both my input and output with great care before I step into the controversy.

I spent perhaps a third of my time here working with Dr. Shushum Bhatia to code, edit and clean her RKS-II data from the modified distribution program. I wrote a lengthy and thorough edit program for both range checks and internal consistency and worked with Sayedur Rahman to run the edits. Before I leave, I will explain this program to Mridul Chowdhury and Stan Becker so that they can use it to edit RKS-II data from non-acceptors.

I worked with a number of individuals, but particularly with Dr. Bhatia and Makhlisur Rahman, to prepare articles for publication. Mr. Rahman and Dr. Bhatia have written good descriptive analyses of the original and modified distribution projects respectively, and I worked with both on their evaluation sections.

Completion of Work

The modified distribution project cannot be thoroughly evaluated until 1979 vital events have been tabulated. Birth data through September 1979 are required for the numerator, and death data through June 1979 are needed to adjust the denominator. (Migration data through June are also desirable, but net migration--immigration minus out-migration--had very little effect on population size during 1974-78.) Mr. Chowdhury indicates that these data should be available by December or January.

With your permission, I plan to take my program and data for calculating birth rates to the United States, where I plan to make every effort to draft a monograph on the original CDP during October or November. (I will need to arrange financial support for this.) I have left my programs for tabulating births, deaths and migration in a form that will allow them to be run by Mr. Rahman in my absence. I do not know at this time whether I will be able to return in December or January; but if I can, I would expect that about six weeks would be required. I will send any and all drafts resulting from this work to ICDDR,B for comments and determination of authorship before submitting them either to AID or to any professional journal.

I am drafting a separate methodological memo to describe what I have done so far and how I plan to complete it. My programs and methods should be clear for any qualified demographer to implement, should I be unable to return.

Products Left Behind

I have written FORTRAN programs for tabulating births, deaths and migration, but these are likely to be useful only for someone analyzing events within village groupings. Major modifications would be needed to create groupings different from those I have used. Routine MINITABS programs can be used if village groupings are not required.

The RKS-II edit program can be applied without modification for use with non-acceptors. The program will automatically bypass the family planning edits for those without a method.

My rates program can be used to calculate populations at risk in five year age groups up to age 45, which makes it quite appropriate for births. I will work on adapting it for more general application before I leave, since both Dr. Chen and Mr. Mizanur Rahman have requested this.

As indicated earlier, I will send you a draft demographic impact analysis for the original CDP as soon as I can do so with sufficient care.

Data Going With Me

I am taking 1974-78 migration data and 1975-78 marriage data to Johns Hopkins for processing through their edit programs. This transfer was approved before my first departure in May, but it was not completed because we could not copy the cards quickly enough. I have no personal feelings about this transfer, and the data can be withheld if you decide that it should be before I leave. (Mridul and Stan Becker have both expressed reservations about sending marriage data, so you might wish to discuss this with them in the next day or two.)

I will also take vital event data used in my analyses plus mortality data requested by Dr. Sharon Barnartt for her study of sex differences in mortality. The latter study was approved by the Community Services Research Working Group on July 27th and by yourself in a subsequent memo. I will also be taking tape copies of the tabulation and analysis programs discussed above.

Finally, I am also taking a draft copy of Dr. Bhatia's paper on the modified distribution project. I request your permission to leave copies of this draft with Drs. Kantner of Johns Hopkins and Shelton of AID. If you agree to this, please indicate so in a brief memo to prevent any misunderstanding. I would also appreciate your concurrence for using this memo as part of my report to AID.

Some Final Comments

I have very high regard for the quality and dedication of my colleagues in the Statistics Branch, and I have greatly enjoyed my work with them and with Dr. Bhatia. It would be difficult to find another group in any country who work as hard and as thoughtfully as these people do. I do have reservations about the quality of statistical analyses that I have seen in certain ICDDR,B publications, but a lot of this is due to the great difficulty of using the Bureau of Statistics Computer. I hope that I will have the opportunity to work here in the future.

WS:kj



कलदा विमार्ड लारावर्णरी
Cholera Research Laboratory

Memorandum

TO : Dr. Wayne Stinson

FROM : Dr. Greenough

DATE: September 13, 1979

SUBJECT : Report on Consulting Work made September, 1979.

Your memo of 11.9.79 is a very succinct account of your progress in analysis of data from the Matlab Contraceptive Distribution Project. I would commend you and all of the members of the Statistical Branch for their thought, persistence and hard work during this period to make the substantial progress which you outline. I would hope that many of the difficulties which you refer to in your memo would be obviated by the installation of our new computer at the end of this year.

With respect to the data you will be taking with you, I would approve all of which you outline so long as there are duplicates remaining at ICDDR,B or that they will be returned to our data banks after appropriate editing through the Hopkins system in the future. Since I'm not familiar with the exact details of this I will have to leave it to your judgment and the judgment of Mridul Chowdhury and Stan Becker as to what is necessary in this regard. I would like to have it left very clear, however, that I approve any steps that will further the analysis of this data in an expeditious manner and that this is done in such a way that it will benefit our data banks for future analysis by members of our staff here. Finally, let me say that I would hope that you would be able to return and that we can work out something with Hopkins so that you would be able to continue work on this project. Please let me know if funding seems a problem obstructing the further analysis of the data. This problem could then be discussed by the Community Services Research Working Group in light of their current budget to decide whether there might be sufficient resources to provide for an expeditious completion of the work.

cc: Dr. Lincoln Chen
Mridul Chowdhury
Dr. Stan Becker
Dr. Bhatia
Circulate: Management Committee Members

James Shelton, AID



Cholera Research Laboratory

Memorandum

TO Mr. Mridul K. Chowdhury

FROM ✓ Wayne Stinson

Wayne Stinson

DATE 13.9.79

SUBJECT Demographic Impact of the Contraceptive
Distribution Project--Research Methodology

Here, for posterity, is a summary of the methodology I have been following for my demographic impact analysis. I am not convinced that it will prove sufficiently sensitive for evaluating the original CDP, but any future work in this area should start by completing mine. I, of course, hope to do this myself within the coming two or three months.

Village Groupings

Villages in the Matlab area have experienced diverse programmatic histories in the past five years, and thus demographic patterns need to be studied separately. There were, for example, three distinct treatment areas in the original project: the largest one, told to start pills six months postpartum, a smaller group told to wait eighteen months, and a subset of six villages given contraceptive injections in mid 1976. The comparison area, moreover, has also been divided three ways: an area, defined by Doug Huber, which the Johns Hopkins Fertility Research Project had been serving, the village of Matlab itself, and the residual.

In late 1977 the whole area was redivided into a new treatment and a new control area. A substantial portion of the latter was dropped from demographic surveillance in mid 1978, and so their birth rates can only be measured till then.

Finally, there are five villages--V20, V36, VB11, VB12 and VB13--for which vital event data were not punched between 1974 and 1977. These also have had to be omitted from analyses.

A total of sixteen village groupings emerge from these histories, and I have used a three letter code to describe each. (See attachment.) The first letter in these group names refers to the village's status during the original CDP:

A = Routine Experimental Area

B = Experimental Area, also given injectibles

C = Experimental Area, told to wait 18 months before starting pills

D = Control Area, Huber Buffer Zone

E = Regular Control Area

The second letter refers to the modified project:

K = Control

T = Treatment

and the third letter indicates whether the village continued under demographic surveillance after June 1978:

N = Not under surveillance

S = Under surveillance

The birth record showed both the mother's and the baby's identification number, and I used the latter because it indicated the mother's current village of residence.

Evaluation Groupings

Many of these groups were quite small, and in any case it made little sense to evaluate each one separately. My plan for evaluating the original CDP used four groupings, as defined above:

- the A villages
- the C villages
- the D villages
- the E villages

The six villages given injectibles were omitted entirely because they were too small to yield reliable rates. Matlab bazar (Village W) was omitted because it had the hospital and health centre and otherwise differed significantly from other areas.

Since the original project ran from October 1975 to September 1977, the demographic impact should be measurable between July 1976 and June 1978. Those villages excluded from the new treatment area, moreover, can be evaluated until the present. The extended CDP evaluation will therefore, compare village groups AKS and CKS with DKS and EKS. (Those dropped from surveillance or included in the new treatment area must, of course, be omitted from this comparison.)

Evaluation of the modified project will compare groups ATS, BTS, DTS and ETS with the four other village sets still under surveillance. It will also be possible to compare the old treatment with the old control areas within the new program area.

Calculation of Base Population.

The rates program which I am leaving behind includes all the impact data and algorithms for calculating the number of women at risk in each age and village group for any point in time between the 1974 Census and the end of 1978. At each point in time, deaths since the last time point are debited and net migration is added or subtracted. (Migrants within the Mztlab area cannot be accounted for, but such migration as is measurable has rather little effect on my denominators.)

Each year, of course, the women in my calculations grow one year older, and so it is necessary to age them. In moving age group X from year Y to (Y+1), for example, I take one-fifth of age group (X-1) and move it into X. At the same time, I take one-fifth of X and move it to (X+1). This procedure compensates for some but not all of the effects of age heaping. I may have to reconsider it if the results show substantial changes in base populations from one year to the next.

Fertility Measures

The computer program I have written calculates quarterly and annual fertility rates for the period from July 1974 until the end of 1979. (Vital event data, of course, are only available through the end of 1978, but the full program can be utilized when the 1979 results come in.) In addition to age specific fertility rates, three summary measures--the total fertility rate, the general fertility rate, and the age standardized general fertility rate--are also calculated. Quarterly rates are based on the June 30th population for each year, although I may experiment with using the mid quarter population as a base. Annual rates are calculated from July of one year to June of the next since the CDP impact should extend from July 1976 to June 1978; these rates are based on the end of year population for each year. I plan to start all calculations in July 1974 to give a two year baseline for subsequent calculations.

Becker and others have demonstrated wide seasonal variations in fertility, and my preliminary calculations suggest that these may differ from one village or age grouping to another. For each village and age group, I have, therefore, calculated a separate seasonality adjustment based on births recorded between July 1974 and June 1978. Were there no seasonal fluctuation at all, births recorded during the first quarter of each of these years should equal exactly one-fourth of the overall total. In fact, the quarterly totals range between one-third and one-sixth of the total births between 1974 and 1978. My seasonality adjustment--which also converts quarterly to annual rates--consists of the inverse of this proportion, and the quarterly rates which I have as a result should be free of seasonal influences.

Preliminary Results

The results discussed below are highly preliminary and should not be cited in any way, shape or form.

My calculations for the original CDP yield rates before and after the program impact period that are nearly identical to Huber's. Adjustment for seasonality appears to narrow the gap between the control and treatment areas during the third quarter of 1976 but to widen it for the final quarter. I have no reason to doubt the technical quality of Huber's work, but I cannot yet confirm that differences are due to programmatic factors.

For the modified project, I show good evidence of a fertility impact during the fourth quarter of 1978 and the second quarter of 1979, but there appears to be a countervailing impact--perhaps a rebound effect--during the first quarter of 1979. The seasonally adjusted general fertility rates for 1978 and 1979 have been as follows:

	<u>Treatment</u>	<u>Control</u>	<u>Ratio</u>
	<u>Area</u>	<u>Area</u>	
78, Quarter 1	161.6	178.0	1.10
" 2	152.7	175.2	1.15
" 3	139.3	163.7	1.18
" 4	146.7	202.7	1.38
1979, Quarter 1	209.2	215.2	1.03
" 2	197.8	282.6	1.43

As can be seen here--and is evident from all of my results--there appears to be a marked cyclical pattern in Matlab fertility that cannot be explained by seasonal factors alone. Great care in calculating and interpreting results is essential, and the time is quite premature to reach any definitive conclusions.

Encl: as above

cc: Dr. Bucky Greenough
Dr. Lincoln Chen
Dr. Jim Shelton
Dr. Henry Mosley
Dr. Shushum Ehatia
Dr. Stan Becker

WS:kj

Village Groupings Used for
Evaluating CDP

<u>AKN</u>	<u>ATS</u>	<u>CKS</u>	<u>ETS</u>
D54	D100-D101	D34-D35	D0
D57-D64	L	VB3	E
D66-D87	M	<u>DKS</u>	T
V77	N	A	V16-V18
V91-V94	O	F	V25
<u>AKS</u>	P	G	V29
D28-D33	Q	J	V31-V32
D88-D92	V21-V23	U	V52
D95-D97	V30	V01-V05	V54-V56
V35	V33-V34	V14	V60-V61
V37-V38	V39-V44	<u>DTS</u>	V63
V45-V51	V57	V10-V13	V67
V58	V64	V15	V81
V65-V66	V82-V83	V19	V84
V68-V71	V85-V88	V59	V89
V73-V76	<u>BTS</u>	V62	<u>W</u>
V78-V80	H	V72	W
V90	K	<u>EKN</u>	<u>V20</u>
V96-V99	V24	D01-D27	V20
VB1-VB2	V26-V28	<u>EKS</u>	<u>V36</u>
VB4-VB9	<u>CKN</u>	B	V36
	D36-D53	C	<u>999</u>
	D55-D56	D93-D94	VB11-VB13
	D65	D98-D99	
		V06-V09	
		--V53--	
		V95	
		VB10	

Mr. Mridul Chowdhury

Wayne Stinson

13.9.79

A 'FORTRAN' Program for Calculating
Birth Rates

One of the programs I am leaving behind calculates birth rates by quarter for the period between July 1974 and December 1979. It is a fairly simple program, and anyone who understands FORTRAN should be able to manipulate it and interpret results.

Input Data

The program calculates the number of women between 15 and 44 as of June 30th of each year. (A separate routine at the end of the program does this for December 31st, but I have based my quarterly rates on the mid year population.) To make these calculations, it requires the following for each age and village group:

- 1) 1974 Census population of females
- 2) number of female deaths, by semester
- 3) number of female migrants by semester
- 4) number of female out migrants by semester

It also requires the number of births by quarter, since this is the numerator for the rates.

By far, my most time consuming chore was to obtain the input data described above. The data cards appended to the program include it all, except for village W, in eleven village groupings. Do not be dismayed by the village groupings; there is a subroutine available which adds all the villages together and calculates a single rate for the entire Matlab area. There is also a subroutine available that calculates rates for the retained villages only (that is, for those villages still under DSS after 1978).

The data for village W can be added in, but someone who knows FORTRAN will have to make a few changes, as shown on the program listing which I will leave. I have written the necessary input data for village W on each of the data cards, and they can be punched in as shown. I have not debugged the program for twelve village groups, and there is some possibility that the required arrays will exceed the available space. If this happens, the simplest thing to do would be to add W to one of the other village groups.

Output Data

The program calculates age specific fertility rates, the total fertility rate, the general fertility rate, and an age standardized general fertility rate (based on the age distribution of village group 1). It calculates these by quarter, first with a seasonality adjustment and then without. A final section calculates annual fertility rates for the periods July to June. (I did it this way to coincide with years of demographic impact, but it could be modified.)

I have not given proper labels to the output, but will write them on the sample program. This, by the way, differs slightly from the one shown by the current program cards because there were some small errors in the earlier version.

If you Wish to Use this Program

Someone who knows FORTRAN will need to spend a day or so learning the program and debugging any necessary modifications. The basic program was quite easy to write, but it is not sufficiently documented to be legible at a glance. If you want major modifications, such as to use it for death rates, I would suggest that you ask John Karat or someone else to write a whole new program. As I said, by far the biggest job was getting the input data, and these are in a form that can be used for many purposes.

Please please please copy the entire program including the data cards before making any major changes. I hope to return and complete my work later in the year, and I do not want to start all over again.

cc: Dr. Stan Becker

WS:kj



Memorandum

TO Director

FROM ✓ Wayne Stinson, Mridul Chowdhury

DATE 11.9.79

SUBJECT Skill Areas Needed in the Statistics Branch

The Johns Hopkins proposal to AID has raised a number of questions about the role of expatriate advisors in or related to the Statistics Branch. We feel that much discussion and thought is needed before decisions are made as to how these grant funds should be spent.

In general, we feel that expatriates should be used for the following purposes only:

- a. to assist Bangladeshi staff to develop their own skills, through a sort of in-service training program
- b. to fill urgent staff needs, until a suitable Bangladeshi can be hired and/or trained
- c. to carry out urgent research that cannot wait for local staff development.

Expatriates are sometimes able to finish their work faster than Bangladeshis, but this is partly because so much production focuses on departing scientists; those who don't leave tend to get low priority. The aim should be institutional development with minimal possible reliance on short termers.

With these caveats in mind, there would appear to be three general skill areas that may require expatriate or Ph.D. level assistance.

Computer Management:

- assure physical arrangements for computer installation
- handle all routine maintenance and operation functions
- - - hire staff

- assist in software development, particularly installation of canned statistical packages and entry edit programs (DSS)
- arrange use of IBM 370 where necessary

Survey research and program evaluation:

- assist in evaluation plans for all health delivery projects, including:
 - experimental design
 - hypothesis formulation
 - development of client records and other data collection instruments
- assist in every study of health related behaviour:
 - hypothesis formulation
 - literature review and review of existing ICDDR,B data sets
 - questionnaire construction, including pretesting and precoding
 - sample design
 - training of interviewers and their supervisors
 - editing and cleaning of data
- assist other researchers in data analysis and preparation of publications:
 - provide general guidance on use of computer analysis packages
 - provide patient but thorough internal review to bring ICDDR,B publications up to international standards

Management of DSS:

- together with JHU faculty, conduct a thorough review of the quality of existing data and of the sources of error (to be done at JHU)
 - oversee field checking for the 75,000 cases that JHU has questioned (Matlab)
 - advise ICDDR,B staff on use of DSS data, including both programming assistance and guidance on errors and biases that may affect results (Dacca)
- review existing DSS forms and data collection procedures so as to improve data quality (Dacca and JHU)

- collaborate with JHU staff in establishing an online edit capacity for data entry and checking (JHU and Dacca)
- establish and maintain an up-to-date sampling frame for Matlab (JHU and Dacca)

A Hopkins person should not be hired until the two or three Ph.D. demographers currently being hired have worked out their respective job descriptions. A natural area for concentration would be the DSS, but our understanding is that Stan D'Souza will be working on this. (A Hopkins person should not provide liaison regarding DSS; it would be better, we think, if the DSS supervisor actually spent time himself at Hopkins learning things directly.) A second possibility would be to use the money to hire a Computer specialist--someone who could transfer the Hopkins edit programs to the new IBM/34. A third possibility would be to use it for short and long term training for ICDDR,B staff at Hopkins. We do feel that liaison with Hopkins must be improved if the relationship there is to continue, but the position should not automatically be filled by an additional demographer without full consideration of alternatives.

WS:kj



कालरा विभाग लारावृष्टी
Cholera Research Laboratory
Memorandum

TO : Wayne Stinson, Mridul Chowdhury

FROM : The Director

DATE : September 12, 1979

SUBJECT : Skill areas needed in Statistics Branch.

I very much appreciate your analysis with the caveats mentioned in your memorandum. I am circulating these to our Management Committee for their careful thought that can germinate into the appropriate action as soon as possible. Let me say that I would agree 100% both with your goals, ground rules and caveats. If you have specific suggestions in terms of beginning to match some of these functions with people, in the immediate future I would appreciate it very much any feedback you can give.

The Director

Wayne Stinson

13.9.79

THOUGHTS ABOUT THE STATISTICS BRANCH

The thoughts expressed below are those of a short term outside consultant, and they are based on imcomplete knowledge about working arrangements between the Statistics Branch and investigators in other parts of ICDDR,B. I have been most impressed by the high quality and seriousness of my colleagues within the branch but feel that their talents have been inadequately guided and utilized. The branch head is a dedicated, hard working individual who must, unfortunately, spend too much time on administration.

My view is that the Statistics Branch should concentrate on routine program evaluation and on the sociological factors which affect health care delivery in Matlab. These things are not adequately studied at present, and they should be given priority over studies of migration, family structure, so forth, until such time as they are. ICDDR,B should encourage universities here and abroad to carry on the highly valuable but less applied demographic research that DSS makes possible.

Existing Data Sets

The Centre has an immense amount of data on hand, but almost none of it has been analyzed to an international standard. This, of course, is at least partly due to the Centre's inadequate computer facilities, but in general it would seem that too much has been spent on data collection and too little on analysis. The lack of good hypothesis formulation and testing and frequently poor questionnaire construction have led to new data collection efforts without adequate learning from past ones.

I personally would place a high priority on a thorough cataloguing of all existing data sets. This cataloguing is already underway and will indicate the following for each study:

1. name of study
2. dates of data collection
3. principal invest.
4. sample size
5. current status
 - a. have all the data been keypunched?
 - b. have they been edited and cleaned?
 - c. are they on cards or tape?
 - d. if on cards, where are the cards and in how many boxes?
 - e. if on tape, how is the tape identified?
6. list of resulting papers and publications

Mr. Mridul Chowdhury also places high priority on cataloguing, so I have no doubt that it will be completed.

For each study, there should also be a copy of the original data collection instrument and complete coding instructions without abbreviations or statements such as "as coded". I should think that any study worth saving should be transferred to tape or diskette because cards deteriorate in the high humidity. The more recent studies should be catalogued first, since the older ones may no longer be useful.

New Data Collection

The Centre now appears to be moving towards greater health service delivery activity, as exemplified by the contraceptive distribution and oral rehydration projects. The Statistics Branch should, therefore, emphasize program evaluation skills and sociological studies of traditional and modernizing health behaviour. While physicians can contribute to this, sociologists are usually better trained to study behaviour. The Statistics Branch appears to be used primarily as a service unit, but the sociological and anthropological skills available here should make it an equal partner in a lot of the research that the Centre does. (The problem goes both ways, of course: studies on mortality done here seem to suffer occasionally from lack of medical consultation.)

The Statistics Branch should be involved from the start in all data collection activities, especially if they will be asked to help with coding, punching or analysis later on. My personal feeling is that any scientist who is doing original data collection should be given a research assistant who has the time and the ability to supervise all aspects of data management, including selection and training of interviewers, coding, editing and cleaning of data, and assistance with computer work. This would almost certainly

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require new hiring, but it would also allow the senior social and medical scientists to use their scarce skills on more technical functions. Time tables for these activities should be established so that the Branch can plan its work schedule in advance. The Branch should assist with questionnaire construction and pre-coding and encourage access to existing data sets.

Skills lacking here include:

- computer hardware management
- computer programming
- evaluation methodologies

The Branch most especially needs a senior social scientist, preferably a medical sociologist or an evaluation specialist—someone with the patience and ability to help researchers already here to bring their studies up to international standards. This skill is needed for both research design and for thorough coherent and publishable analysis.

As I say, the raw material is here, but leadership and a few higher level skills are required.

cc: Head, Statistics Branch

WS:kj