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**PROCEEDINGS OF THE OPERATIONS
RESEARCH SEMINER**

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PREFACE

The proceedings presented here are the outcome of a three day seminar held at the adjoining Upa-zilla headquarters of Dhamrai and Dhaka. The seminar was divided into two phases. The first phase held for two days at Dhamrai where in seven papers were presented and at the end of this session recommendations were presented to the Additional Secretary, Ministry of Health and Family Planning. Among others donors, such as the representative of US-AID, UNICEF, FRG were also present. During the third day a key note paper was presented by Prof. A. H. Talukder, Chairman, Department of Statistics, University of Dhaka to a select group of researchers at NIPORT on his review of methodological issues that were found in seven papers presented during the first phase.

This seminar has two distinctive features. This is the first time a seminar was held by NIPORT away from Dhaka and the secondly the review itself of the methodological issues related to papers presented at Dhamrai but also an open discussion took place on what NIPORT could do to help researchers ^{on} improve ~~improve~~ methodological problems confronted by researchers at the appropriate time.

It needs to be emphasised here that for the first time that a research seminar held by NIPORT in collaboration with US-AID was restricted to research papers prepared out of the USAID research grants. This imposed restriction on NIPORT has debarred other good research papers to be presented at the seminar. Due to paucity of fund such research papers do not get a forum to be presented to planners, programme managers and researchers. One is lead to conclude that NIPORT has to find a flexible fund for organizing research seminar.

Dated.
April, 1986.
Dhaka.



(S. Waliullah)
Director General
NIPORT

INTRODUCTION

During the second five year plan, an agreement between government of Bangladesh and USAID Dhaka, was signed to carry out operations research in the area of programmatic relevance such as the service delivery, status of work accomplishment by field-workers, IEM, use and effectiveness of contraceptives. The basic aims of these research works were to examine the existing status of program operation and to evolve new and appropriate program strategies for improvement of program performance.

During the year 1980-85, a considerable number of operations research were undertaken and completed by researchers of different institutions and organizations under NIPORT-USAID collaboration. The findings of these research reports are likely to remain shelved or used minimally if these are not seriously reviewed by all concerned. It was considered necessary to bring the research findings to the notice of the policy makers, program managers and to get them together with researchers in order to deliver an utilization research finalized and derive at appropriate mechanisms for utilization of these findings, keeping these in mind a national seminar of 3 days was organized on 13th April 1986 for disseminating operations research results among the policy makers, programme managers and research.

The first two days of the three day seminar was held at the Regional Training Centres (RTC), Dhamrai. The two days were scheduled for presentation and dissemination of research reports as presented by the participants and finally recommended appropriate measures for utilization of the findings of research. The following eight research reports were presented in the seminar

- * Causes of differential performance of family planning workers in upazillas. (two different reports by two team of researchers).
- * Evaluation on population control committee at Upazilla, Union and Ward level.
- * The Family Welfare Visitor (FWV) ; Paramedics of the MCH-FP programme.
- * Bangladesh contraceptive prevalence survey 1983—Some important findings from secondary analysis.
- * Factors causing differentials between contraceptive knowledge and practice in Rural Bangladesh.

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*** Training Need Assessment of Upazila Health and Family Planning Officials
Evaluation of the performance of FWVs and Dais in the National Family
Planning Programme.**

The seminar was attended by 50 participants including policy-makers, programme managers, researchers and field personnel.

The seminar participants were divided into groups after the presentation of report for discussion about the findings, possible method of utilization of research finding and identifying new researchable areas. The groups made recommendations and indicated 20 areas of research.

The third day session was held at NIPORT, Azimpur, Dhaka and participated by the researchers who presented their research reports in the seminar and those who were involved in these operations research projects. In addition, two experts representing Social Science and Statistics were present. The session was chaired by Dr. Badruddoza. This day was used exclusively to discuss issues and problems relating to research methodologies used in the respective operation, research presented earlier. A key note paper summarizing the research methodology adopted in the different research studies which were presented in the seminar was presented by Dr. A.H. Talukdar.

The theme of the discussion centred mostly on the studies which were presented in the seminar. It emerged from the discussion that the research formulation stage should be rigorously carried out seminars or discussion meeting on research should be organised at the formulation stage which will help in the developing research methodologies to be adopted for the particular type of research. It was also agreed that there should be a close communication between the researchers and policy makers. The minimization of the communication gap between the policy makers and the researchers will help better utilization of the research findings.

At the closing session Mr. Aminul Islam, Additional Secretary of the Ministry of Health and Population graced the occasion as chief guest, which Ms Suzzane Olds, Chief, Health and Population, USAID accepted the chair of special guest. All including the chief and special guest and chairman of the session gave emphasis on the importance of the recommendations presented by seminar participants and expressed desirability of using these in policy formulation and programme implementation process.

SECTION—I

Eight research papers on different topics were presented by the researchers. Summaries of research papers are presented in the following section.

- 1. Title of the study :** Causes of Differential Performance of Family Planning Workers in Upazillas.
- 2. Author's Name :** M. Kabir, M. Moslehuddin, K.S. Ahmed & A.J.M Sufian.

3. Objectives of the study :

- (a) To identify the factors responsible for high and low performance of the family planning workers at the field level and to determine the extent of variation due to personal characteristics of the workers (such as age, education, training, religion, social status) etc;
- (b) to determine the extent to which attitudes, knowledge and behaviour of the community leaders, influential persons and of persons engaged in development works influence the variation in the performance;
- (c) to determine the extent to which the community characteristics such as literacy rates, level of development, communication and transportation facility influence the variation in the performance;
- (d) to determine the extent to which the characteristics of the eligible couples (demographic, social, economic etc.) are responsible for the variation in their participation;
- (e) to determine the extent of variation due to the varying levels of the supply of contraceptives, clinical facility, counselling and guidance service, frequency of field visits and supervisions, group discussion, etc.

Methodology

The following Sample surveys were carried out.

- (a) The survey of family planning workers at union level.
- (b) The survey of family planning officers/workers at Upazila level.
- (c) The survey of community leaders.
- (d) The survey of the community characteristics.
- (e) The survey of currently married women.

All the 450 Upazilas were arranged in descending order of the performance rate. The top 150 Upazilas were included in the high performance group, the middle 150 Upazilas in the medium group, while the bottom 150 Upazilas in the low performance group. Keeping the objectives in mind, only the high

performance and low performance groups were considered for further sampling while the median group was excluded.

Instrument of Data Collection

- i. The interview schedule for family planning workers
- ii. The interview schedule for family planning officers
- iii. The interview schedule for local community leaders
- iv. The structured schedule for community characteristics
- v. The questionnaire for eligible couples.

The total time period for the study was 18 months.

Major Findings

A number of variables were considered in the analysis of the differential between the high and low performing areas. The high areas have been found to have greater average number of FWA's per union than the low areas. The officers from the high areas have on the average, longer service experience than those from the low areas. Relatively, more officers in the high areas have the basic training.

Duration of the training was comparatively longer for offices of the high areas. The rate of contraceptive use is significantly different between the two areas. The use rate is 33.7 percent in the high areas while it is 30.1 percent in the low areas. Also, detailed analysis of the community characteristics suggests that the high performance areas are generally nearer to the clinics/FWCs, have better communication facility, better general services, more educational institutions, better health facilities and higher literacy rate than the low performance areas.

Apart from the variables that have been found to contribute in the differential between the two areas, there are findings common to both the areas that might demand consideration. In both the areas, the services of the nutrition program as well as MCH services are relatively poor compared to other services. About 60 percent of the FPAs, 70 percent of the FWAs and only 40 percent of the FWVs reported that they had visited their supervisors once in a week prior to the date of interview.

A vast majority of the workers as well as of the officers in both the areas have expressed their dissatisfaction with the training they received and their salary structure. A large majority of the FWAs reported that integration of health and family planning had created problems among the personnel of the two departments. The most stated problems were difficulties in administration, lack of coordination between the workers of the two departments, lack of motivational work by the health workers at field level and differences in opinion between the high officials of the two department.

This is substantiated by the fact that about half of the officers from both the areas reported that integration of health and family planning departments had been causing problems in running the administration. The most stated problems were lack of cooperation between the workers of the two departments.

They suggested disintegration of health and family planning departments is a must in order to be able to improve the family planning program activities. More than 70 percent of the workers from both the areas reported that they did not receive cooperation from the local religious leaders in promoting the family planning program.

The workers suggested that more training, increase in the number of field level workers, training the local leaders on family planning, increase in facilities for education, increase in the number of family welfare centres and coordination of health and family planning departments are the important considerations to be taken into account for the improvement of the family planning services, while the community leaders emphasized on the need of educational facility and agricultural development. Lack of communication and problem of transportation were also mentioned as obstacles. The need for elevating the socio-economic status of the workers and for strengthening information, education and communication activities for improving the family planning activities has been mentioned by the officers.

Religious superstition has been found as a dominant obstacle to the success of the program. An overwhelming majority of Bangladesh population are Muslims. The local leaders of this religion should be made aware that Islam does not oppose family planning. This awareness on the part of the religious leaders should make a much greater contribution to the success of the family planning program.

In addition, the opinions and suggestions of leader, workers and others involved in the study suggests that an overall socio-economic development may be a substantial contributor to the success of the family planning program.

4. Policy Recommendation.

- i. The upazila level officers and the field level workers are dissatisfied with their present salary, designation and training. This may have affected their job performance. Proper steps should, therefore, be taken to improve the job satisfaction of the officers and workers.
- ii. There are evidences that the integration of health and family planning department has been adversely affecting the program management. As such re-thinking on the integration of the two departments is needed.

- 1. Title of the study :** Causes of Differential Performance of Family Planning Workers in Upazilas
- 2. Author's Name :** Mr. M.A. Aziz, Dr. Abu Jafar Mohammad Sufian, Mr. Prodip Kumar Muhuri & Mr. M. Bazlur Rahman.

3. Objective :

To ascertain the factors broadly of three different categories back ground and other characteristics, organizational determinants and environmental conditions responsible for different performance of family planning workers in upazilas.

Methodology :

A three-stage sampling technique was used to select the sample. The upazilas were the primary sampling units (PSU), while the unions served as the secondary sampling units (SSU). The ultimate sampling unit (USU) was a currently married woman of reproductive age. The selection of PSU was purposive; the SSUs were selected randomly. The systematic sampling technique was used for the selection on USUs.

The universe for PSU comprise of all the 465 upazilas of Bangladesh for which figures on contraceptive distribution and clinical performance for the months of January, February, and March 1984 were available in the MIS unit of the Population Control and Family Planning Directorate.

All these 465 upazilas, have, then been arranged in descending order of magnitude of the percent of target achieved. Then the first fifty upazilas and the bottom fifty upazilas from the list have been taken as the primary sampling units in order to allow maximum discrimination in respect of percent of target achieved between the two groups of upazilas.

A union was the SSU in this study. From each of the selected 100 upazilas, four unions were selected randomly. Since three upazilas had less than four unions, the union coverage was 396 instead of 400. The list of unions within an upazila was supplied by the Family Planning Officer (FPO) of that upazila. Having selected the unions, family planning workers of six different ranks within each union were chosen as data source, on complete enumeration basis. They were FWA, FPA, AHI HA, FWV and dai, The numbers of successfully interviewed family planning workers of different types are as follows; FPA-370; AHI-236; FWV-27; FWA-999; HA-811; and dai-521.

A systematic sample of 5838 currently married women aged less than 50 years was drawn from the selected unions. The frame for the selection of USUs was supplied by FPO/FPA.

The following three types of instruments were administered for data collection :

- i) An interview schedule for currently married women of reproductive age ;
- ii) An interview schedule for health and family planning workers; and
- iii) A check list to collect data from records of family welfare centres and upazila family planning offices through physical verification.

The issues that have been implicitly considered for examination in this study are whether favourable predisposing characteristics do help elevate the workers performance level, whether the quality and/or quantity of the organizational variables considered to contribute in the areal variation of the performance, and whether the performance does vary with the variation in the environmental conditions.

Major Findings :

Background characteristics include a large number of variables pertaining to both women and workers. Among the whole range of variables considered only four variables-mean duration of current use, percentage of non-users of contraception, the mean age at first marriage, and percentage of Muslims-are found to be significantly associated (based on Chi-square values with the workers' performance. All these four variables relate to currently married women.

The majority of the variables considered in this study belong to the category of organizational determinants. Only two variables : percentage of workers reporting four or more FPO visits during the last three months, and mean MCH knowledge score of the workers were found to be significantly associated with the worker's performance.

None of the variables relating of the environmental conditions was found to have a significant association with the dependent variable, even at 20 percent level of significance.

The dependent variable-CYP per eligible couple was then regressed on the six variables found, on the basis of Chi-square values, significantly associated with the dependent variable. Percentage of non-users, mean age at marriage and mean duration of current use were found to be negatively influencing workers' performance while percentage of workers reporting four or more FPO visits and mean MCH knowledge score were found to be positively influencing workers' performance. The variable-percentage of Muslim women-was dropped

from the multivariate analysis because of its insignificant contribution to the proportion of variance explained by independent variables. The estimated regression equation has a correlation with the dependent variable which is the maximum of correlations between any other linear combination of the independent variable. This maximum correlation is 42. About 18 percent of the variance in the dependent variable has been explained by the estimated regression line.

Programme Implication

The findings of this study have important bearings on the family planning program policies. It has identified the factors responsible for differential performance of the workers in upazilas. Probably the most important finding is that the supervision of the workers by the family planning officers significantly influences the workers performance. Increasing supervision of the workers by the family planning officers, might well be expected to enhance the performance level of the former. Also workers with better MCH knowledge have been found to perform better. Another important finding is that the workers performance in an area is negatively affected by the percentage of non-users of contraception in that area. The lesser the percentage of non-users the easier it is for the family planning workers to work, since in that case, a larger segment of the society is already motivated towards family planning activities and as such, makes the environment of the workers more conducive to work, with the greater worker performance.

1. Title of the study : Factors causing differentials between contraceptive knowledge and practice in Rural Bangladesh.

2. Name of author : M. Nawab Ali & S. Waliullah

3. Objective

- (1) To identify the pattern of contraceptive knowledge
- (2) To determine the extent of contraceptive needs and
- (3) To identify the specific reasons for non-practice of contraceptives.
- (3) To identify the specific reasons for non-practice of contraceptives.

Methodology :

Six districts were selected purposively in order to ensure regional coverage. Six upazillas, one from each district, were selected randomly and six villages, one from each upazilla, were taken on random basis.

On having a complete listing of households of these six selected villages, the couples in those households were grouped into three categories : (a) couples who practised contraceptives but have now dropped, (b) couples who have been practising now and (c) couples who had never used any method of contraception in the past. Since this study tried to identify reasons for non-use, the current users were excluded from the sampling frame and only the couples as shown as (a) and (c) above were included in the sample for interview.

Findings :

Findings show that though the respondents were non-users, many of them had knowledge of different contraceptives in terms of spontaneous mentioning of their names. But while asked about how to use a method, 'no-knowledge' of use about different methods was reported by a majority. It varied from 23.7 (Tubectomy) to 98.5 percent (withdrawal).

What is termed as knowledge about family planning methods as indicated in different KAP surveys and CPS, might be just an awareness or hear-say knowledge which does not imply any real understanding of methods in order to lead someone to adopt a method. In other works, basic awareness has not resulted in the corresponding increase in the practice of contraception. This study has shown that there is still an absence of required knowledge about methods amongst most of the prospective clients for family planning. It may not be out of place to mention about the radio listening forum organized on family planning by the Radio Bangladesh as a case in point. In these forums, if someone carefully listens to the questions sent from different parts of the county, one would notice that most of the questions that the listeners, posed are related to how to use a contraceptive method or what to do with a method after its use. This clearly indicates their lack of substantial knowledges about use of methods and their side effects/complications. Unless an indepth knowledge about methods and their side effectst/complications is acquired by the prospective acceptors or the prospective acceptors are well educated about methods and their use, there is little hope that the present situation in respect of contraceptive prevalence will improve.

The attitude of the respondents towards the family planning field workers was found negative in the sense that the workers reportedly made no have visit or rarely visited and their educational efforts were inadequate.

One of the important factors for non-use of contraceptives was reported to be lack of initiative from husbands or support near relatives. One of the ways of getting the prospective clients to accept or use family planning methods is to make approaches through husband or through a joint motivational efforts to both the spouses or the elders in the family.

Attitudes towards child-bearing are an important part of the background against which fertility and contraceptive prevalence in our social context should be gauged. This study has shown that there is a potential for a substantial reduction in the family size ideal amongst the respondents. Such a changing trend in family size ideal is expected to increase the demand for contraceptive services in future. Hence, education-motivational efforts should be directed to help reduce the existing family size ideal as well as to energize and improve the efficiency of the family planning delivery system.

Another prominent reason for non use is the absence of substantial knowledge about the use of different contraceptive methods, their side-effects/complications. Adequate emphasis with strengthening IEC program, should be given to educate the prospective clients about the required and effective knowledge about use and also sources of supply of different methods of contraception. Proper follow up care should be ensured to reduce the extent of non-practice due to reported fear of sideeffects/complications.

1. **Title of the study** Bangladesh contraceptive prevalence survey-1983
some important findings from secondary analyses.
2. **Author's Name :** Barkat-e-khuda, Shushil Ranjan Howlader
A.T.M. Sufian, Mohiuddin Ahamed, S.N. Mitra.

3. **Objectives** :

The major objectives of the 1983 CPS were to :

- (i) ascertain levels and trends in family planning knowledge and use ;
- (ii) examine differentials in use by selected background characteristics of the family planning target population ;
- (iii) assess reasons for non-use and future intention to use among 'nonusers of family planning ;
- (iv) investigate knowledge of contraceptive availability in terms of awareness about services and supplies ; and,
- (v) ascertain sources of supplies for current users of modern methods.

METHODOLOGY :

The 1983 CPS followed a two stage stratified clustered sampling, the two strata being the rural stratum and the urban stratum. At the first stage, 200 sample areas were selected-stage, 120 and 80 respectively from the rural and

the urban stratum. At the second stage, households were selected, taking about 63 households from each rural stratum and about 31 households from each urban stratum. Ever married women under 50 years of age were selected for the study. The total number of ever married women who were successfully interviewed was 10,117. (7,677 in the rural and 2,440 in the urban stratum.)

The secondary analyses follow two stages. The first stage looks at the bivariate relationship between the different dependent variables and the independent variables, and in the second stage the relationship is examined based on multivariate technique of analysis.

Findings :

The results of the bivariate analysis showing the relationship between UCN and the independent variables show that UCN was positively related with age, parity and future intention to contracept, while it was inversely related with education. UCN was lower among women belonging to landless households than among those belonging to landed households, and it was lower among urban women than among rural women. The relationship with employment status, religion and worker's visit was not pronounced.

The results of the logit analysis show that five independent variables namely, age, parity, landownership status, place of residence and future intention to contracept, have significant impacts on UCN rises with a rise in age parity. The probability of having UCN was higher among landless women than among women belonging to landed households; higher among rural women than among women who expressed their intention to contracept in future than among those who did not. It was also found that age was the most important determinant of UCN, followed by future intention to contracept.

Over four-fifths of the current non-users reported that they were not contracepting because of demand constraints, and three quarters of the future non-users said that they would not be contracepting also because of demand constraints. In contrast, a low (10.7) percent of the current non-users said that they were not contracepting because of supply constraints, and this proportion dropped to an even lower level of 6.2 percent among the future non-users.

Among the various demand constraints, the desire for additional children was the most important, accounting for 43.8 percent and 28.2 percent among the current and future non-users respectively. Religiosity was also an important demand constraint, especially among the future non-users. Among the supply constraints, health reasons and the fear of side-effects were the major obstacles to the adoption of family planning.

Based on bivariable analysis, we found that there was little or no differential in the proportion of the respondents reporting various constraints to the adoption of family planning by their various socio-economic and demographic characteristics. This is indicative of the fact that many of the constraints are, by and large, uniformly spread over all sections of the population.

Contraceptive availability :

The regression analysis shows that women who attended school knew, on average, 1.39 more methods with source than women who did not attend school. Similarly on average, urban women knew 1.15 more methods than rural women; current users knew 1.14 more methods than non-users; employed women knew 0.45 more methods than unemployed women belonging to landed households knew 0.23 more methods than the landless women, and Muslim women knew 0.15 more methods than Nonmuslim women. Age and number of living children are found to be negatively associated with the number of modern methods known with source. The expected value of this measure of availability decreases by 0.12 with one year increase in age, and by 0.40 with one child increase in the number of living children (appendix table-3).

The Beta Coefficients show that, other things being equal, a change in education would introduce the greatest positive change in the number of methods known with source, and the place of residence ranks second in respect of the relative contribution to induce positive change in this measure.

Determinants of contraceptive choice :

Each of the independent variables registered its independent effect on the probability of having ever used contraception. Among the demographic variables, age had negative impact. However, the probability of using family planning methods was lower among women who have not achieved their desired family size. Also, son preference and child mortality appear to play dominant role in the contraceptive decision making process. Women were less likely to ever use contraception, if they had experienced more child deaths or if they had fewer than two living sons.

Rural-urban residence, religion, and employment status had significant impact upon the decision to ever use. The probability of having ever used contraception was also higher among urban women, and among those who were employed, and it was lower among Muslim women.

program factors also had strong influence. The probability of having ever used was higher among women who knew of more methods than among those who knew of fewer methods. Similarly, the probability of ever using contraception was greater among women who knew more methods with sources than among those who knew fewer methods with sources, and greater among women who were visited by the field worker than among those who were not.

Of all the independent variables, however, desire for additional children had the strongest impact upon the probability of being an ever user followed by number of methods known and number of methods known with source. Among the socioeconomic factors, education registered the greatest impact.

Contraceptive use and fertility :

Based on the 1983 CPS data, it was found that women using modern methods had a TFR of 2.4. In contrast, the users of traditional methods had a TFR of 4.5, and those reported not contracepting had a TFR of 6.9. A similar relationship was observed in respect of age specific fertility rates as well as GFR (Khuda and Howlader, 1985c, table-3.7).

The results of the logit regression shows that only two independent variables, namely, age and current use status, have significant impacts on fertility. Fertility declines with a rise in women's age. The probability of giving birth was lower among women who were contracepting than among those who were not.

Contraceptive use and infant and child mortality :

Using the 1983 CPS data, the implied infant mortality rates per thousand live births based on the west model life table, were in the range of 185 to 150. Infant and child mortality was inversely related with education of parents, households, land ownership, employment status of mother and parity. Infant and child mortality in rural areas were found to be higher than in urban areas.

The infant and child mortality were consistently lower among mothers who were ever users of contraception than among those who were never users of contraceptinn, and the difference in infant and child mortality was even greater when current use status is considered

1. Title of the study : Evaluation of the performance of Family Welfare Assistant and Dais in the National Family Planning Programme.

2. Author's Name : M. Nurul Islam, M. Bazlur Rahman,
Mokbul Ahmed Khan, A.J.M. Sufian

3. Objective :

1. To measure the relative performance of Family Welfare Assistant (fulltime worker) and Dais (part time worker.)
 - i) Making visits to and establishing acquaintance with the clientele women;
 - ii) Raising level of knowledge of the family planning methods of the women; and
 - iii) Increasing contraception use rate.
2. To investigate causes which are likely to affect performance of workers.
3. To bring out a comparative analysis of the FWA served and dai served areas on selected demographic and socio-economic characteristics of the women and workers.

4. Methodology :

The Non-Equivalent adopted Control Group Pretest-Post-test design has been employed for carrying out the study. Two groups which are similar, but not formed by random assignment have been measured both before and after one of the two groups got the experimental treatment.

For the study, 24 wards having dai (dai areas) in service (where no FWA was posted) and 24 wards having FWA (FWA areas) in service (where no dai was posted) were purposively selected. These Wards were spread over six upazilas of Mymensing district, and one upazila of Tangail district. A baseline survey was conducted in these 48 Wards from each of which about 32 currently married women of reproductive age (CMWRA) were selected following the systematic random sampling technique. Out of 24 dai areas, 12 were selected randomly for treatment X_1 , and defined as experimental area E_1 , and the remaining 12 as the comparison area C_1 . In each of the E areas, one FWA was posted immediately after the baseline survey. Similarly out of 24 FWA areas, 12 were selected randomly for treatment X_2 and defined as experimental area E_2 while the remaining 12 wards were treated as comparison area C_2 . In each of the E_2 areas one dai was posted after the baseline survey.

In the follow-up survey efforts was made to cover those CMWRA who had got the coverage in the baseline survey conducted before the treatments was given.

5. Findings :

The newly posted FWAs are found to be more active and prompt, for they have been able to attain familiarity with the clientele women to a degree (40.4 percent) almost equal to that of the previously posted dais (43.6 percent), who have been in the job for quite a long time. But when the new FWAs have been compared with the 'old' it is found that the 'old' FWAs are familiar to 81 percent currently married women as against as 40.4 percent achievement of the new FWAs. Put against the achievement of the new FWAs (40.4 percent), the performance of the new dais is found to be much less (24.5 percent).

As for the visits made by the FWAs and the dais, it is found that the 'old' FWAs have visited more women (50.7 percent) than the 'old' dais (48.2 percent). A similar pattern emerges when a comparison of the newly posted FWAs with the newly posted dais is made the FWAs paid visits to 56.0 percent women but the dais only to 39.3 percent.

The 'old' and 'new' FWA made their visits to almost equal proportions of their respective clients (61.9 percent and 58.6 percent respectively) in a month's time.

As regard the type of services rendered by the FWAs and the dais, it has been found that both the groups of workers dwelt equally on the importance of having small family, though the FWAs are more supportive of non-clinical modern methods while the dais are for clinical methods.

The level of knowledge seem to have increased in the experimental area E_1 after FWAs have been posted.

The mean number of modern methods know appears to have remained constant over the intervention period in both E_1 and C_1 areas, as if there has been no impact of posting of new FWAs.

When asked about their responsibilities, FWAs have attached relatively more importance to family planning activities such as motivating people for accepting family planning, distributing contraceptives than to MCH care, while dais have spoken about MCH service more frequently than motivating people for contraception or distributing contraceptives. When the dais were asked about the functions of the FWAs, most of the dais reported family planning related

activities as their (FWAs) principal function, but according to the FWA, both family planning activities, and MCH related activities are more or less equally reported as the functions of the 'dais.'

Program Implication :

For solving the field problems, FWAs strongly advocate educating and motivating religious as well as other opinion leaders on family planning matters. On the other hand, dais stressed much on their inclusion in the regular pay roll. A large majority of 'Dais' indicated that withdrawal of FWAs from the program would seriously affect the program. Also, almost all FWAs recognised the dire necessity of dais in the program.

FWAs are, presumably satisfied with their job in that they are unwilling to give up their job for another one of equivalent pay and status. As regards dais because of poor remuneration, about half of them are willing to change their present job. It is felt that, as 'dais' have been working for about last two decades in the program, their experiences and services, if properly utilized would increase the program strength. They may be activated by involving them in motivational, follow-up and contraceptive supply services.

1. **Title of the study :** Evaluation on Population control Committee at Upazila, Union and Ward level.
2. **Author's Name :** Ashraf Uddin Ahmed & Mohammed Abdul Mabud
3. **Date of publication :** April 16, 1986.

4. **Objectives of the study :**
 - (a) To investigate whether the Population Control Committee (PCC) exists at upazila, union and ward (village) levels.
 - (b) To investigate whether PCC has been formed as per the government circular.
 - (c) If not, what are the problems in not forming the committee.
 - (d) To evaluate the present functioning of the committee at various levels.
5. **Methodology :**

The study requires selection of a large number of upazilas, unions, and villages. The sampling design have been followed following stages :

- (a) Stage I ; District
- (b) Stage II ; Upazila Committee.
- (c) Stage III ; Union Committee.
- (d) Stage IV ; ward committee.

The first stage, 11 districts were selected randomly. From the selected district 40% Upazilla were selected randomly. Total 34 Upazilas have been selected, at the third stage 30% union from each upazila were selected on random basis. Thus 274 unions were selected. And at last stage one ward was selected from each union randomly. Total 274 wards were selected for this study.

6. Findings

With regards to upazila population control committee, 92 percent UNOs and 99 percent UFPOs reported to have existence of the committee. The mean length of existence of this committee was about 14.3 and 12.4 months from the responses of UNOs and UFPOs respectively. Ninety five percent UNOs and 85 percent UFPOs reported to have no problems in forming the committee. Since inception of the committee, the average number of the committee meetings held was about 7.

To the question of stating functions of the committee, the respondents stated a wide variety of items as functions of the committee. About 37 percent UNOs and 49 percent UFPOs reported to have faced problems in discharging committee functions. Fifty percent of these respondents mentioned religious conservatism as a major obstacle. Other common difficulties were illiteracy of common people, irregular attendance of members and conflict of integration between Health and Family Planning. About 75 percent of the respondents felt to have some more authority for allocating fund, punishing and awarding functionaries, and supervising field workers so as to make the committee more active. Eighty three percent of UNOs and 95.4 percent of UFPOs felt that the creation of population control committee will promote family planning activities in the community. They mentioned several reasons for their consideration.

With regards to union population control committee, 95.5 percent union parishad Chairmen and 98.4 percent Family Planning Assistant (FPA) reported of existence of such committee in their union. The average length of existence of the committee was observed to be 13.7 months and the average number of members of the committee was found to be 21.9 and 24.5 from responses of chairman and FPAs respectively. Since the inception of union committees, the average number of meetings held was 7.5. Seventy percent of the respondents to have held

meetings once a month. About sixty percent of the respondents did not face any problem in discharging committee functions. Ninety seven percent respondents reported the committee as useful for promoting population control activities because of scope of participation of local people in the activities.

Regarding Ward Committee, about 70 percent of the respondents mentioned to have formed ward population control committee. The average length of such committee was 12.6 and 14.2 months as reported by members and FWAs respectively. On the average the committee had 12 members and held 7 meetings since inception. They admitted that this new approach gives scope of community leaders to participate in family planning activities, and that it makes working environment more congenial for overcoming socio-cultural barriers.

1. Title of the study : Training Need Assessment of Upazila Health and Family Planning Officials.

2. Author's Name : M. Alimullah Miyan, Dhaka University.

3. Objectives of the study :

(a) To identify the actual job content of the team in the context of existing job descriptions and the role relationship in terms of recent decision for integration.

(b) To identify the role relationship of the UHFPO vis-a-vis UFPO and MOs as well as higher authorities and horizontal levels in other sectors.

(c) To assess the training needs of the team by identifying the gap between their job specifications and actual job demand.

(d) To determine the area in which training will lead to improvement of performance and the area in which environmental and organizational changes are warranted.

(e) To assess the incumbent's backgrounds, personalities and attitudes towards their job.

Methodology :

This study was designed to focus specifically on several aspects. Activity sampling, job analysis, and task analysis were undertaken to measure the performance gap of the upazila team by going into an in-depth analysis of the tasks and activities that they carry out. Organizational climate analysis was conducted

to identify the organizational constraints, both internal and external, under which they operate. Furthermore, personal information, personality and attitude were also inventoried.

Since the competence of the UHFPO and his core team would largely determine the extent of success of the programme, it was deemed necessary to assess the level of their competence and background to function as programme managers by developing a "personal information records". In other words a "personal profile" analysis was conducted. Because of the influence of one's personality and his attitude towards his job, personality and attitude measures were developed to assess his developmental needs. Similar measures were made for UFPO, and MOs well.

Efforts have also been devoted to identifying the areas where training is not expected to be very effective; rather, organizational and environmental measures that need be adopted have been studied for addressing the problems of goal attainment of the programme.

Findings :

Perceived absence of conformity by the officials may arise due to two factors, i.e. (a) lack of conformity in the actual situation and or (b) lack of perceived conformity from the point of view of individuals.

Preferred level of responsibility and actual delegation of the same has come out to be negative as well. This substantiates the apprehension of lack of proper delegation of authority and responsibility in the organization. Much of the resistance comes from unfounded fear of the bosses to delegate authority and responsibility to sub-ordinates which can be removed by organizing special training programme on how to delegate authority and responsibility.

The absence of standard practices as found by the study also reinforces the need to train up employees on standard practices, be it in work allocation information processing or service delivery or clinical supervision. A carefully designed training programme can go a long way in standardizing the routine practices of the organization and bring about a coherence in work procedures.

Providing rewards to the employees for good work is found to be weakest spot of the organization, which has to do with overall government policy and practice. Training can hardly take care of this issue excepting in the case of providing non-financial rewards.

Lack of knowledge of the organizational goal is a serious obstacle in attaining high performance by the employees. The study shows that the upazila level MOHPC official do not have clear understanding of the goals of the

organization. A carefully designed training programme educating the employees of organizational goals and objectives and implications of the programmes performance to the community and nation at large, will make the job of the individual more meaningful and relevant to the society at large.

Lack of warmth and support in the work situation is another stumbling block in creating working atmosphere. This can also be tackled to a great extent by providing sensitivity training and making specific attempt to harness than spirit and team work.

Finally, standarized training on effective leadership practices can be of much help in replanning the present weakness of leadership role as perceived by the upazila level MOHPC officials. The study on organizational climate enalysis has forcefully and successively stipulated the implications of training and also gone further in identifying the areas in which the incumbents are to be trained to bring about a productive organizational climate.

Activity sampling technique was used to assess the extent of time utilization of the upazila officials. Results of the activity sampling has shown that utilization of time is far from satisfactory at the upazila level organization of the Ministry of Health and Population Control. This is true for all the different positions included in the sample observation. This has serious implications for organizational effectiveness and programme efficiency. Non and underutilization of manpower, specially when viewed in a cumulative way, warrants immediate intervention at the policy level on the one hand and at the operational level on the other.

How to utilise time in more productive way, managing time of oneself and one's subordinates can be rehearsed with specific training package to improve the situation.

The job analysis indicates that there is wide variation in the perceived duties, responsibilities and authority of the officers. This means that the perceived duties vary from prescribed duties. And that prescribed job descriptions could not effectively communicate their duties, or it may also mean that the official job description is inadequate for guidance or cannot be practised in the field. In any case, the officers need to have a thorough understanding of their entire job spectrum, responsibility patterns, role relationship and authority structure. This implies that training curricula should include a section on job responsibilities and the role of the each categories of upazila level health and family planning officers.

The job analysis of the UHFPOs reveals that although they perceive supervision as an important task, their list of subordinates supervised does not include UFPOs. This implies that they do not yet perceive family planning activities as their area of responsibility area which in turn implies it is essentially the responsibility of the UFPOs. This may also mean that since they could not make UFPOs responsible to them, they do not supervise their work. In either case there is a serious need for changing the perception of the UHFPOs in this regard through training.

A. UHFPO and OFPO

Although UHFPOs and UFPOs are supposed to work in superior subordinate relationship, their task list appeared more or less similar as both of them are the incharges of their respective programme and work units and have field supervision duties. The job analysis also rendered similar findings regarding their job. Therefore, the implications for training need apply to both.

Both the officers have to supervise activities and personnel in the station and in the field which implies that they should possess the supervisory skill.

In order to make the field visits successful for client motivation and organization of camps, they must be familiar with the rural socio-political, cultural and economic aspects. This is also needed for supervising the field workers and field staff.

To dispense the responsibility of drawing/dispersing money, supervising accounts, preparation, passing salary and other bills, preparation of budgets etc., the incumbents of these two positions should have familiarity with financial rules accounting and auditing system and budgetary control.

These officers are required to supervise procurement, storage, allotment and issuance of materials, and are accountable for procurement and maintenance of equipment and facilities. This calls for their acquaintances with the logistics and supply management.

The UHFPOs and UFPOs contact various agencies, communicate with personnel of different organizations and community leaders and hold and/or attend meetings with subordinates, superiors, and community leaders. These functions essentially call for sound communicative ability and appropriate leadership style. The officers, should, therefore have training on effective communication and leadership process. They should also know the of conducting successful meetings and effective participation in meetings.

Other than writing ACR, they are involved in many personnel function such as selection of temporary staff, training, compensation, disciplining and promotion of regular staff and officers. These implication is that they should have sufficient knowledge about personnel management.

Finally, since they are responsible for the programme, they should not only thoroughly know about the programme but should be able to plan, implement, monitor and control the programme which essentially calls for managerial ability.

The medical officer (MCH-FP) have a much shorter task list, much less responsibility than either UHFPO or UFPO. The analysis of their job indicates that apart from their primary task of rendering medical consultancy and surgical services, they supervise activities of three of subordinates, visits FWCs to check performance and monitor performance of his unit, maintain records of patients treated and stock of medical supplies, and attend meetings. The job analysis implies that MM(MCH-FP) should have knowledge about supervisory management, records keeping, problem solving and performance monitoring. However, since they have also the responsibility for client motivation, they must be familiar with social, political, cultural and economic aspects of rural community and influence process.

Other than performing their primary duty of examining patients, writing prescriptions and admitting and checking patients in the hospital, the medical officers keep records of patients treated, supervise work of the nurses, follow up sterilized clients, indent medicines from stores and visits health workers in the fields. The task analysis implies that their training needs, other than in professional area, would be limited to supervisory management, record keeping and socio-economic analysis and client motivation.

The analysis of training needs by subject and duration as perceived by the UHFPO implies that training need in management/administration is most seriously felt by the respondents followed by audit and accounts. Only minor fractions of responding UHFPOs wanted training in their professional areas. Similarly, UFPOS felt the need for training in management/administration more than in anything else followed by accounts, audit and budgeting. Some felt training needs in Statistics, MCH and Demography. Medical officer (MCH FP) however, felt the greatest training need in MCH followed immediately by administration. Some of them felt the need for training in sterilization, MCH and MR compared to this situation, Medical Officers felt the greatest need for training in management/administration followed by MCH and nutrition. The foregoing summary of findings implies that training in management/administration should receive top priority in any training scheme for the upazila level health and family planning officers.

Task analysis provided a detailed and the comprehensive information on the performance gap on each specific major task usually performed on the job, by the incumbent employee and the underlying reasons for that. In the back-

drop of this reasoning major findings of the analysis of UHFPOs, and MOs can be used as the input for assessing training priority along with the necessary curriculum for overall manpower development.

In the light of the findings of the study a blue-print on managerial training method curricula and content was suggested involving UHFPO, UFPO, MO (MCH-FP) and MOs. This is an indication of the use of the findings for manpower development planning in the Ministry of Health and Population Control. However, the task of translating the findings into action frame is a programme of task requiring further work.

Programme Implication

Since the UHFPO is the programme manager at the upazilas level and his administration capability will largely determine the success of the programme, the task analysis and training need assessment will be of immense value to increasing the effectiveness of the programme through him.

This problem definitely relates to a practical situation having programme implications. In the Health and Population Control and Family planning Programme, most of the activities are based at the upazila level. The brunt of the programme efforts and services spreads from the upazila to the village level. Being in the field, the UHFPO and his team is the link-pin with the higher authorities in the programme and the field personnel at the village, union, and upazila level. Naturally, the competence of the UHFPO, his administrative ability and his skill to communicate with and coordinate his team will determine how effectively and efficiently he can help deliver the services that are envisaged by the programme.

However, the difficulties and pressures faced by the UHFPO in and around the organization can create adverse conditions for which the programme might ultimately suffer. Such extraneous problems exist in almost all the upazilas of Bangladesh where the UHFPOs are functioning. Given the circumstances, no such research effort has yet taken place in this area involving the upazila unit, As a result this study and its findings are expected to go long way in filling the existing gap of our knowledge about the major tasks, duties, measures, and conditions of work of the integrated team which could ultimately be taken advantage of by designing and developing appropriate management solutions.

1. **Title of the study :** The Family Welfare Visitor (FWV) : Paramedics of the MCH—FP Programme.
2. **Author's Name :** Laila Baqee & Marjorie A. Koblinsky

Objective :

To identify the background characteristics and training of the 24 FWVS in the two upazilas of the extension project and their perceived and observed role in delivering health and family planning services.

Methodology :

The MCH—FP Extension Project is a joint venture of the international Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) and the Ministry of Health and Population Control (MOHPC). Since mid—1982, this Project has been functioning in two Upazilas, Sirajgonj of Sirajgonj district and Aboynagar of Jessore district, to adapt the successful service innovations of special projects to the national service system, working within the regulations and resources governing that system. A month long basic training of all union level workers of health and family planning provided by the upazila officials and ICDDR,B. staff was the first intervention in the Extension areas. Much of the data analysed in the paper came from interviews held with the 24 FWVs of the two upazilas (Aboynagar of Jessore district and Sirajgonj of Sirajgonj district) prior to this training, a pre and post training assessment of their technical skills, and indepth discussions with ICDDR,B. staff working as counterparts with the FWVs and with the FWVs themselves.

Findings :

It was learned that most of these FWVs are young, married and of low parity; 75% were below 30 years old, 85% had 3 or less children, 75% were using contraceptives while the remainder stated they desired children.

Education and Formal Training :

71% of the 24 FWVs interviewed had completed ten years of schooling (SSC) and 29% twelve years of schooling (HSC). Following this basic education all of the FWVs have been trained in the eighteen month diploma course specifically designed for FWVs. This is provided at special training institutes in predominantly urban settings. Classroom training about MCH and FP is given for the first 12 months. This is followed by 6 months practical training, usually at an urban hospital.

Once the FWV is posted at an H&FWC following her basic 18 month course, she may be called by the government for refresher training. The Deputy Director of Family Planning selects the FWVs to be retained but keeps no records as to who has been trained, and on what subjects. Hence, the refresher training of the FWVs may vary extensively in number and type. The majority of FWVs had received TBA training and training on CuT insertions and menstrual regulation. However, some major categories of their work were not covered in refresher training, such as pre and post natal care, EPI, and follow up care of contraceptive clients. Counselling and distribution of contraceptives and sterilization procedures also seemed relatively rarely taught. Different FWVs had different lengths of training on the same topic. For example, the length of CuT training ranged from 3 days to 15 days. Such variation can also be found for TBA training duration.

From observation, it is known that FWVs are posted to the field with minimal experience in IUD insertion, although they are the only cadre available in the Government system to perform this service. Once posted, technical supervision is provided by a male medical officer, who because of his gender cannot supervise the insertion technique.

Perception of Training Need : When asked in which topics they felt they needed more training, most of the FWVs stated that they wanted to know more about family planning, especially MR and CuT. A large number of FWVs (62% at Sirajgonj and 37% at Abhoynagar) also wanted to get training on obstetrics topics such as incomplete abortion, delivery and abnormal delivery.

Fwv's View Of Their Role :

When questioned about their responsibilities, most of the FWVs stated that they were to provide FP motivation, distribute contraceptives and provide MCH services. Few mentioned specifics, such as IUD insertion, MR or sterilization assistance, but it may be assumed that they included these in their tasks to be performed. However, few mentioned such other duties as work at the satellite clinic, TBA training, meetings with field staff or treatment of referral patients. There are reasons for these omissions: Government sponsored TBA training came to a halt in 1983 and hence no FWVs were giving TBA training at the time the interviews were being conducted. Since FWVs have no authority over field staff, they are very reluctant to call a meeting of field staff, and none have been observed to do so. Referrals in general are rarely observed as workers feel that their patients/clients will be unhappy if they don't receive proper care at the H&FWC or at Upazilla Health Complex.

About half of all FWVs expressed their dislike for satellite clinics and home visits. According to them house to house visitation is considered low status and they state that villagers criticise them. Another problem is lack of transportation for FWVs to move from the clinic villages; for them to walk alone, carrying their supplies would not be acceptable and no means of transport is provided. Travel allowance would not generally be given as satellite clinics would probably fall within the five mile radius of the H&FWC, the area in which no TA is provided by Government regulation.

During observations of the FWVs in the Extension project upazilas over a year period, it was observed that the work pattern of the FWV varies from mandated by the Government in two major ways:

— Although they are to work 15 days per month at the H&FWC and 8 days at Satellite clinic (a house in each of the two wards of the union where the H&FWC is not located), they do not attend Satellite Clinics regularly as they must walk long distances to reach the site, may have to carry both equipment and drugs, and may not have any drugs to provide patients.

— No day are set aside in the official monthly work routine for record keeping, report writing or picking up supplies, yet these tasks can consume days of the FWV's time.

The quantity of their work effort is decreased by absenteeism, a major problem in one of the two Extension project upazilas, and short daily work hours, commonly 4 or less.

Services provided by the FWVs as observed over a year are primarily for curative care to adult women (43% of all patients seen at the H&FWC over a year period in the two upazilas) and secondly to adult males (23% and 20% in Abhoynagar and Sirajganj respectively). MCH care is provided to about a quarter of all patients with most to children (age 1-5 years); provision of family planning care is minimal (2.5% in Sirajganj and 2.8% in Abhoynagar) with follow up family planning care observed even less in pregnancy patient care at satellite clinics follow these same trends, although proportionately more antenatal, postnatal and family planning clients to satellite clinics than to the H&FWC. These patterns of care vary by the season and by drug availability.

Traditionally, the MA and FWV are observed to have poor relations with much of the tension stemming from the use of these resources. The MA may or may not allow the FWV access to the drugs or only to specific drugs.

He generally keeps all medicines locked in an almirah to which he alone has access. Should he be absent or disagree with the FWV, she has no recourse and must turn away patients. The MA also controls all equipment, including the only one blood pressure machine.

The water supply at the H & FWC is often observed to be nonfunctional as Government has no timely mechanism to maintain or repair broken tubewells. Toilet facilities are too public for women to feel comfortable using. Essential equipment, such as a light source required for IUD insertions, is supplied in a kit provided when the H & FWC is first opened. Thereafter, not even batteries are supplied and there is no replacement policy for the equipment. Privacy is difficult to maintain as no curtains are supplied but windows must be kept open as most H & FWCs have no electricity. Travel funds for the FWV are not available for distance within five miles of the H & FWC and travel allowances are not paid regularly or in full when applied for greater distances. Hence, should the FWV travel out of the H & FWC, it is likely to be to villages close to the H & FWC not requiring her to pay for a rickshaw or bus. In Community donated H & FWCs, these problems are just the beginning; there, without drugs, staff to clean the facilities, wash equipment and carry supplies and no furnishings except those which can be gathered from the community, it is understandable the reason of patient load is low.

The FWVs also face some societal barriers to their working effectively. Usually FWVs live and work in the same area and are hence well known to the villagers. If she comes from an influential village family, this can greatly enhance her credibility. However, generally the villager does not understand the work she is doing, but cannot accept a young woman working on her own, and moving about unaccompanied. In Sirajganj, two FWVs were found to hire "dais" from their own money to accompany them to remote areas. They stated that their father-in-laws or husbands wanted the FWV to be accompanied by a dai because of their family status.

Another FWV is the daughter of a village religious leader and is afraid of criticism by her neighboring relatives in the village. She fears her work, especially going on household visits or to satellite clinics, will affect her daughter's matrimonial chances adversely.

Recommendations :

The FWVs provide MCH and FP care in a climate that essentially hinders her from performing effectively. She is neither trained appropriately in her basic training (hospital based, rather than at a rural outpatient clinic where she is later posted), nor does she receive routine refresher training to maintain a standard of care. To a large extent, her work remains unsupervised and unsupported by the male Medical officers who, by tradition, are not often allowed to observe IUD insertions or physical examinations given to females especially antenatal cases. In a "functional" H & FWC, she probably does not have access to equipment or the drug supply in amounts that she needs. In a community donated centre, she has even less access to supplies and no equipment to speak of. An FWV should be provided with drugs specifically for MCH and FP care, So that she can provide for patients as they come to her.

SECTION—II

This section contains a key note paper summarizing the research methodology adopted in the different research studies which were presented in the seminar.

KEY NOTE PAPER

Title of the paper : Some general comments on the sampling aspect of the project reports.

Name of Author : Dr. A. H. Talukder.

For a survey based project work, sampling design plays an important role in collection and analysis of data. Valid estimates and analysis are not possible without appropriate probability sampling procedure.

The general comments are :—

1. It is observed from the reports that multi-stage sampling has been mostly used for collection of data as is the usual practice for large scale surveys. Purposive or judgement sampling has often been used at the first stage and this is not a probability sampling. The main drawback of purposive sampling, at any stage, is that the sample results cannot be generalised for the whole population and that the standard errors cannot be estimated. Further analysis is also not possible with this type of sampling.
2. It appears that the estimates of mean, proportion etc. were calculated mostly by the methods of simple random sample although the actual sample design was different. Consequently, the estimates are not appropriate and valid.
3. It is not a general practice that the estimates of population characteristics be accompanied with their estimated standard errors which are used to find confidence intervals and to indicate amount of error of the estimates. But the standard errors are conspicuous by their absence from the reports.
4. For multi-stage sampling, first-stage units called primary sampling units (PSU's), have a dominant role in estimation process and in calculation of standard errors. A number of sample PSU's are needed for these purposes. PSU's should not be as large as a district and as small as a village. Upazilas are suitable for nation-wide surveys in Bangladesh. Variation in PSU sizes should be small and PSU's be internally heterogenous.
5. General formula for estimation purposes in multi-stage sampling are too complicated. Under certain mild conditions, simple methods of estimation and of calculation of estimated standard errors, are available for large-scale surveys when the sampling is with equal probability without replacement at every stage.

The conditions are :

- i) Sampling fraction at the first stage is small (< 0.1) and number of PSU's is not small (10).
- ii) Sampling fractions at the second and later stages are constant. This gives self-weighted estimates.
- iii) Before selection of multi-sampling, the PSU's and other stage units are re-arranged by splitting larger ones and combining smaller ones so that variations in size become small.

The mild conditions are not difficult to fulfil. A little trouble at the time of selecting the sample saves a lot of trouble and time later at the time of calculating the estimates and their standard errors. Once a design is adopted it should be strictly adhered to although.

6. Under the above general conditions, simple formula for the estimates and their standard errors are given below for a multi-stage sampling design. Four and higher-stage sampling design is hardly used.

(a) Unbiased estimate of population total, Y and its standard error :

The estimate is

$$Y_u = Y/f$$

where Y is the total of all observations in the sample and $f = f_1 f_2 \dots f_k$ is the over-all sampling fraction f_i being sampling fraction at i th stage.

This a self-weighted estimate under the conditions 5(ii).

The estimated variance of Y_u by random group method, is

$$V(Y_u) = (1-f_1) \sum Y_i^2 / (n-1) f^2$$

where Y_i the sum of all observations in the i th PSU of the sample, n is the number of selected PSU's and f_1 is the sampling fraction at the first stage.

(b) Ratio estimate of population mean y and its standard error :

Since sample size varies from PSU to PSU and among other units, ratio estimate is appropriate for estimating population mean. The estimate is

$$r = Y_i/x_i$$

Where x_i is the sample size for i th PSU.

Its large-sample estimated variance is,

$$V(r) = (1-f_1) \sum (Y_i - r x_i)^2 / x^2 (n-1)$$

with $x = \sum x_i$ as the total sample size.

The above formula resembling those of a simple random sample, are quite simple for computation and can be used even for hand calculation.

If the last-stage units are clusters, equal or unequal, then also these formula are valid with some adaptations.

proportions are special cases of mean when the variable y assumes value 1 if the corresponding last stage units has the characteristic and value of other wise. Thus, the estimates of proportion and their standard errors can be calculated with the help of these formula after adopting this definition of variable.

For stratified random sampling, the estimates for individual strata are obtained first. These are then combined to get population estimates. For post-stratification, the same procedure can be followed if the sample size is large (20) in each stratum and if the errors in weight are negligible.

Other methods of estimation can be devised under variations of the stated conditions but these will be more complicated and less precise.

For sophisticated analysis of data, simple sampling design is preferable.

2. Some general comments on multivariate analysis :

Whenever cross-sectional data of a number of related variables are available, analysis of data of one or two variables at a time is not enough. In such situation, the data of all variables together are also analysed by one or more methods of multivariate analysis. The methods are.

- i) Multiple regression analysis (including logistic regression).
- ii) Factor analysis
- iii) Discriminant analysis
- iv) Multivariate analysis of variance (MANOVA)
- v) Principal component analysis
- vi) Canonical correlation analysis
- vii) Cluster analysis
- viii) Path analysis
- ix) Analysis by multi-way contingency tables
- x) Non-parametric analysis

The first method is used in situations where one of the variables depends linearly on other variables and the dependent variable is approximately normally distributed. For skewed data some transformation (e.g. Box and Cox) of data of dependent variable may be used before performing the analysis. For the second to fourth methods, multivariate normal distribution of the vector of the variables together, is assumed. For the last six methods, no parametric assumption is necessary. These methods may be used irrespective of the assumption of normality of data.

Methods (i) , (ii) , (v) , (vii) and (viii) are used to select important variables from a large group. Method (i) may be used for prediction purposes also. When comparison between groups of data is to be made, methods (iii) and (iv) are applied. Last 2 methods are used to examine possible relationship between variables.

Analysis based on normal distribution is usually appropriate for the data of natural phenomena. These are, therefore, widely used for research in biological, agricultural and earth sciences. For social science data, these are to be used with caution. Some artificial and man-made forces are usually in action in the evolution of social phenomena. Consequently, normal probability law may not fit such data well. Sometimes transformation of data may be helpful. Non-parametric methods are often used.

For advanced analysis like those, sampling design for collection of data should be as simple as possible e.g. 2-stage sampling.

For some of the methods, package programs are available for analysis by a computer. For others, adhoc programs may be developed.

3. Discussion on individual reports :

i) The two reports on the same subject "Causes of Differential Performances of Family Planning Workers in Upazilas" are considered first.

(a) Criterion of classification of upazillas :

The criterion percentage target achieved used for classification of upazillas in high, medium and low performance areas, falls short of its utility. This was admitted by the authors of one report. This is also evident from the frequency distribution and estimates with little differences. The χ^2 -test used in one report hardly produced significant differences between the areas. This raises the question of the utility of the two studies,

The average achievement, CYP, would probably be a both criterion instead of the ratio which has fewer properties. This could be used directly as a dependent variable instead of its 3 broad categories. Reliable values of this criterion or some other criteria, could be obtained through the sample survey of family planning workers and married couples.

(b) Sampling design and methods of estimation :

Both the studies used stratified 2 to 4 stage sampling designs sometimes with clusters at the last stage. However, the estimates of mean and proportion and a few standard errors were calculated apparently by simple random sample formula which is not appropriate.

Selection of PSU's (upazilas) for the study by Aziz et al. was not a probability one. Also, the procedure of selection of married women at the last stage was not mentioned by them. As a result, their analysis by χ^2 test in cross tables and by multiple regression, is anything but valid.

The methods of determining sample size by Kabir et al. by simple random sample formula for proportions, is not adequate for more complex survey like this. Selection of more than one union at the second stage would have been proper.

(c) Analysis of data :

(i) Report by Aziz et al :

Although data were collected from 3200 workers and supervisors of family planning, the sample size shown in cross tables is only 100 which is the number of sample upazillas.

Original data have therefore been condensed too much resulting in less of information and loss of precision of the estimates. Much of the degrees of freedom of cross tables was lost. Another factor "Type of worker" would have been included in the cross tables retaining the full sample size.

No estimates of mean and standard errors were calculated although some of the variables were quantitative.

Correlation analysis between the dependent variable and the quantitative independent variables could be done in some cases.

For multiple regression analysis, the value of R^2 is only 0.18, which means that the regression fit is far inadequate. For a good fit R^2 should be greater than 0.7. The method of selection of variables through cross tables is also not appropriate. The usual procedure is to start with the simple correlation table of all variables. It appears from lack of fit that important variables affecting the dependent variables, have been left out. Variables like age and experience of workers, number of visits made to couples, amount of contraceptive materials distributed etc. should have been included in the regression analysis.

Because of non-probability sampling, statistical tests and analysis are not valid in this study.

(ii) Report by Kabir et al.

It is observed that scoring (point) system was used to present univariate data of some qualitative variables. Means of scores for subclasses were some times compared. Since scoring system is arbitrary and subjective, different conclusions

Selection of psu's (upazillas) for the study by Aziz et al. was not a probability one. Also, the procedure of selection of married women at the last stage was not mentioned by them. As a result, their analysis by X^2 -test in cross tables and by multiple regression, is anything but valid.

The method of determining sample size by Kabir et al. by simple random sample formula for proportions. is not adequate for more complex survey like this. Selection of more than one union at the second stage would have been proper.

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are likely to be reached by different system, of scoring. Normality assumption is not likely to be satisfied for artificial scores. The usual procedure of using several categories (including composite categories) appears to be more suitable.

Many cross tables for 2 and 3 factors are provided. But χ^2 test is conspicuous by its absence from these tables although usual practice is to provide such test for every cross table.

Since dependent variable percentage of target, is essentially quantitative, ordinary correlation analysis could be used when the other variable is also quantitative e.g. age, years of education etc. of workers. Non—parametric method may also be used for the purpose.

Univariate distributions with class intervals represent post-stratification in addition to the initial strata of high and low performance areas. Methods of estimation (of mean and proportion) would have to be modified to conform with this 2-way stratification.

It is observed from discriminant analysis that only one variable "Educational facility" contributed 75% to the total distance and that this is the variable which was responsible for bringing significant difference between the 2 groups (high and low) of data. Factor analysis also picked up a few not so important variables. The situation is likely to be improved by including those variables in the analysis, which were involved directly in the family planning activities by the workers and the couples. Multiple regression analysis and principal component analysis could also be used for selecting important or dominant variables.

(2) **Report by Islam et al.**

The sampling design was a two stage one The primary sampling units (wards) were selected purposively and were located in only 6 Upazillas of mainly one district. It may thus be treated as a case-study. The results and conclusions cannot therefore be generalised for whole of Bangladesh and usual tests and analysis are not valid.

A few means were calculated presumably by simple formula but no standard error was provided.

Calculation of simple difference to measure effects of inputs is not enough without any test of their significance. The usual t-test could be used for univariate analysis and Hotellings T^2 —statistic for multivariate analysis of the related variables. Two-way multivariate analysis of variance may also be used for quantitative variables with input and area as the two factors.

For qualitative variables, 2 and higher way contingency tables might be formed and χ^2 —test used for test of association between the factors.

For selection of important variables principal component analysis could be used. pre-requisite for all these analysis is probability sampling.

Several follow-up studies at regular intervals, might reveal the stochastic pattern of the changes due to inputs.

3) Report by Ahmed and Mabud

The sample design was a 4-stage one with simple random sampling at each stage. The sampling method was thus a probability one. The sample was also widely spread. The number of stages could be reduced by selecting upazillas directly at the first stage.

The data were presented in stereotyped univariate tables for two categories one for chairman and the other for secretary of the committees, from whom the information was collected. Means were calculated for quantitative variables presumably by simple formula although the sampling design was 2 to 4—stage one mostly followed by poststratification. No standard error seems to have been calculated.

Two-way and three-way cross tables could have been formed and χ^2 -test applied to examine relationship between variables. In case of quantitative variables correction analysis could be used.

In order to examine the effectiveness of the committees, opinions and views of other concerned parties like local leaders, officials, members of committees could be taken and analysed.

Reduction of response variable might be undertaken by principal component analysis.

Report by Ali and Waliullah

The sample design was a 4-stage one with purposive selection of districts at the first stage. Districts are too big to be useful primary sampling units. The

method of selection of married couples was not stated. So this was not a probability sample. As a result statistical analysis and generalisation of conclusions would not be valid. Regional coverage was possible by adopting geographic stratification. The sample couples were concentrated in only six villages out of many thousand villages.

Results were presented mostly in univariate tables. Few means were calculated without any standard errors. Few cross tables were also presented without X^2 -test for association between the variables.

Here again many variables are involved and univariate and bivariate analysis are not enough, some of the methods of multivariate analysis could be usefully utilised to examine the patterns of data system e.g. principal component analysis, multivariate analysis of variance, path analysis.

SECTION.III

Eight research papers were presented in the seminar by researchers themselves and afterwards findings and recommendation were discussed in groups in order to identify priority/ researchable topics.

The following section contains summary of major recommendations and new areas of research.

RECOMENDATIONS OF OPERATION RESEARCH SEMINAR

1. Bi-annual Seminar on Research, Brain-storming session on different programme should be carried out regularly.
2. An inventory of the non-government and government organizations engaged in family planning activities be made and measure their effectiveness and to create a better working relation among themselves.
3. Symposium and Seminar on working papers and research findings should be held prior to development and after the implementation of the projects,
4. It is desirable that distribution of research projects among the research personnel should be made according to the expertise and knowledge of the persons concerned.
5. Review of research proposal and monitoring of the research should be more vigorous, particularly to ensure the fulfilment of research objectives and methodological requirements.
6. Annual or Biannual seminar on utilization of research findings should be done by NIPORT.

NEW AREAS OF RESEARCH

1. To study the cost benefit or use effectiveness of the programme.
2. Identification of problems and prospects of the effective implementation of Integrated Health and family planning programme at Upazila level and below.
3. A study to identify the barriers faced by the union level field and clinical staff to create a favourable working situation.
4. Study on the effectiveness of all level Population Committee in the implementation of the programme.
5. Process evaluation regarding operational variable should be incorporated along with the existing performance and impact evaluation.
6. To find out appropriate indicators for use effectiveness of different methods.
7. To find out mechanisms for promoting participation of different group of workers, officials and different category of leaders (formal and informal)
8. To study working relationship between public sector and non-governmental sector.
9. To identify successful components of non-governmental sector and to find out which are transferrable into the government service delivery system.
10. To study the structural and functional relationship between various functionaries of MOHFP at all level.
11. To study the policy formulation and programme planning process in relation to implementation issues.
12. To find out the congruence between the IEC and and programme performance.
13. To find out the cause of big family size norm and how the norm could be changed.
14. To study the concept of demand, unmet need and service delivery.

15. To study how to promote antefertility behaviour.
16. To study how to redirect the IEC activities towards those strategies that might work as change agent.
17. To identify the community variables that effects the programme performance.
18. To study the problems of logistic and supply.
19. To study why the supervisory system is not working.
20. To research the utilization of research for programme develcpment.

SECTION—IV

This section contains proceeding of the closing session. The seminar was attended by 50 researchers and programme managers including representative of government, private and international agencies. Mr. Aminul Islam Addl. Secretary Ministry of Health and Family Planning, Ms. Suzzane Olds, Chief, Health and Population Division, USAID were present at the concluding session as the chief guest and special guest respectively.

Speech of Mr. Aminul Islam
Additional Secretary, Ministry of Health and Family Planning.

Mr. Chairman, Ms. Suzanne Olds, ladies and gentleman. I am very pleased to have been invited to this closing session of the three day research seminar organised by NIPORT in collaboration with US-AID. The national family planning programme deals with a complex social problem. In a way a fundamental social change. The programme cannot be successfully implemented on the basis of some individual's or a group's perceptions or ideas imposed from the outside. All such ideas must be tested and monitored with a view to detect deficiencies and strengths of the programme components from time to time through operations research.

The government have designated NIPORT as the apex institution for organizing training and research in our health and population sectors. Similarly NIPORT has also been given the task of co-ordinating available source of funds for research while itself doing some of the operations research. NIPORT has also been assigned to carry out dissemination of research findings to all concerned. This seminar is an activity of the later kind.

Now, as I find, most of the papers presented here are relevant to organizational, structural and communication problem in other related issues of the programme at the upazila level and below. To my mind these are very important research papers and will be beneficial for our national programme under implementation.

We are trying to organize this programme as very dynamic and a efficient one for the last twenty years. We do not lack in determination, intelligence, intellect among people who work in the programme. But however, when we look at the Upazilla level, we find that the programme is not making much head way. The root cause has to be found out. If you consider the history of this country, you may find that for generations we inherited a tradition of high fertility decline. It is only for the last 20/25 years we have been talking about reduction in fertility. Today, even in the remotest part of the country, if you talk to a villager or even to a village women, you will be readily told that he or she has heard of family planning and he or she thinks the idea is acceptable. Today, most of our population think it to be a acceptable idea. It is in itself a tremendous achievement. Considering social-economic and political factors of Bangladesh, we may say that our effort of the past twenty years have

not gone in vain. The programme is well found, its infrastructure is laid down and the preparatory work is completed. What we need now, is a big push, particularly in the area of service delivery to the clients, so that people can actually adopt family planning conveniently.

Now, there are lot of problems that have been mentioned specially the integration. This is one of the problems that is causing concern to all of us, The functional integration of health and family planning activities has proved to be a controvertial issue. I however, feel that for every failure, and every programmatic constraint integration is being blamed which is not correct. Integration as you know was introduced by the government with the best of intentions. Now we find that some administrative problems have surfaced out of the integration issue. We have been trying to solve these problems. It is not true that those who are at the policy making and programme implementation level are not aware of these. We are very much aware of these problems. We are thinking how to handle these problems, But I must tell you that government took the well-founded decision that the Health and family planning programmes should not be completely integrated or completely seperated, but should only be functionally integrated, We recognise that it is needed to work out the appropriate administrative mechanism for sorting out the problems. We belive that appropriate financial arrangement and personal management could be worked out so that the two administrative units of health and family planning could work together with minimum amount of friction. We, in the Ministry, are seriously thinking of finding a way to resolve this issue, We are also addressing these issues as far as practicable within the overall norms, rules and regulations of the government. You know that any change of the past decision requires a consensus within the government. We have been working to resolve this issues and I hope, we will be able to resolve them, if not full to our satisfaction, but to a large extent.

It appears from your deliberation that certain areas need a improvement. I think these are the areas where operations research could help. As for example, training which we are givng to our officers and employees, we have to determine as how this could be improved so as to improve the service delivery system in rural Bangladesh. We are to address this and many other issues in order to make the programme viable.

No programme can be completely structured. If you look at our third plan, you will see that we have tried to learn from the experience of the research findings of the past. We value your contribution in improving the family planning programme under implementation. We are looking forward to have your continued support in improving our national programme.

With these words I conclude. Thank you again for taking the trouble of coming over to Dhamrai and spend two full days for attending this seminar on operation research.

Speech of Ms. Suzanne Olds
Chief Health and Population USAID

Mr. Chairman, honourable chief guest, learned participants, ladies and gentleman.

It is really a great pleasure for me to be present here with you. I really did not expect to make speech to day. I will just say a few words. As you knew, USAID has been supporting operations research from 1978 and supported 25 research through NIPORT. I think they are in it-self speaks for commitment through operation research. We feel very strange that it is important specially in the country which has population a problem that you have here, to study very carefully what you are implementing and to ensure that you are implementing the most effective and most efficient program you possibly can. I heard three things today at the seminar which, I would particularly want to remark upon because I think that these three remarks are very positive and involve wealth for not only Operations Research on here put for FP program in this country. One is I heard in one of report that there is a lot of criticism of individual Operations Research reports, concerned about the methodology, concerned about the findings I think that positive. I don't think that's at all negative. I think that's a very very good sign. And fact that you are oblige to say, perhaps that study could not describe, what is suppose to describe. And has not quite find what it said it found and not accept as the face value what a study provides and shows in terms of findings. And I think that it is important. It is extremely positive. I congratulate you on that I think that another statement that was made was that problems and I know about the problems and I think that now is the time to study what could be done to overcome these problems. We do know what the problem or the real issues are, how to set the priority towards these problems and how set priorities are dealing with these problems. We all know there is not enough community participation. There is not enough out reach to the client, there is a problem of integration, there is a problem with supervision, there is problem with training. There is not enough workers.

But we have to find the way to overcome the problems what is identified, Researchers should continuously carry out research in order to find out the problems related to the programme implementation. Joint venture of researchers and the programme manager will bring some results when the recommendation of the researchers will implemented.

I like to conclude by thanking all the researchers and participants who have continuously participated in this two days operations research seminar. I also thank the ladies and gentlemen for joining in the concluding session of the seminar.

**Address by the Chairman
Dr. S. Waliullah, Director General
NIPORT.**

Our Chief guest Mr. Aminul Islam, Addl. Secretary of Ministry of Health and Family Planning, Special guest Ms. Suzanne Olds, Chief of Health and Population Division, ladies and gentlemen and fellow participants

We are very grateful to you all for you could find time to come over to Dhamrai to attend the closing session of the three days operation research, at the Regional Training Centre of Dhaka district. This signifies the importance you attach to the research activities of NIPORT.

This seminar is being held with limited number of research report. In other words we have only presented those operations research reports that were financed by US-AID as a part of agreement with US-AID. This issue was raised in the morning session. In response, we may say at this point of time that NIPORT will make all our effort to present all appropriate operations research reports in our future seminars.

We share the feeling of our participants that the seminar should be held at regular intervals. Our chief guest has also expressed his opinion in favour of holding regular seminars on operations research to be held by NIPORT.

We also take note of the concern expressed by our fellow participants that research project as carried out by concerned researchers should get continuous guidance and support from NIPORT.

May I take this opportunity to inform our participants and guest that the recommendation made by previous NIPORT research seminars the government has set up the National Steering Committee of population research with the following objectives.

1. The committee shall have the authority to make policies for population research related studies.
2. Review the present research/evaluation studies and identify research needs; Review and approve priority areas for research and evaluation for the Third plan period.

3. Co-ordinate through the office of the Director General NIPORT/member Secretary Population Research activities of all governmental and non-government related agencies/Institutes.
4. Provide feed-back to different organisations with research findings that may be pertinent to policy making and programming in the related sectoral activities.
5. Arrange for financial support to appropriate research/evaluation studies proposal to be carried out by an individual/or an organisation, inside the country.

The office of the Director General, NIPORT will provide secretariate service to the National Steering committee.

We are pleased to announce the publication of third volume of the Annotated Bibliography 1985 for the period of January 1980 to December 1984. The copies of the same are now made available to our participants and guests to-day. We propose to continue this exercise in the coming years. This bibliography would have been much better if we could add a section on the analytical discussion on research reports incorporated in the volume. We hope that in the coming days, we will come out with such a inclusion.

NIPORT also published a NIPORT news covering reports on NIPORT activities and summary of research findings relevant for the program. Since we do not have a publication wing, we can not publish the same at regular intervals.

With this few words I conclude thanking all researchers who have presented research papers and all the programme managers who have participated in this two seminar. I also thank you ladies and gentlemen for joining us in the closing session of this seminar.

Thank you again.

Vote of thanks
by Mrs. Farida Mabud
Senior Research Associate
NIPORT.

Mr. Chairman. Honourable chief guest, Distinguished participants, Ladies and gentlemen.

I consider it a great privilege and honour to have the opportunity of proposing thanks and gratitude on behalf of NIPORT.

We express our deepest gratitude and thanks to our chief guest Mr. Aminul Islam Adl. Secretary, Ministry of Health and Family Planning for gracing the occasion by his presence in the closing session inspite of his busy schedules.

In this seminar, findings of several operational research reports conducted during 1984-85 were discussed and some important recommendations are formulated which we hope shall be followed up for the next course of action for the population programme improvement. We are much grateful to the participants who have continuously participated in the seminar since yesterday. Their tireless efforts and labour have bring this seminar to a success.

We like to take the opportunity to acknowledge and express our gratitude to the USAID and its local officials for rendering valuable assistance without which it might not have been possible for us to organise the seminar.

We like to thank the distinguished guests from different organisations present here for gracing the occasions.

We like to thank the seminar organising Committee NIPORT. We also like to thanks officials of Regional training centre (RTC), Dhamrai especially Mr. Nazir Ahmed and his associates for rendering necessary services.

We also like to thank the authority of Gonosastha kendra for giving us chance to utilise its cafeteria facilities during the seminar.

In conclusion, I on behalf of NIPORT, extend our thanks to Honourable chief guest, participants and guests. Hope to meet you all.

Thank you all.

LIST OF PARTICIPANTS

Sl.	Name	Designation	Organisation	Institute
1.	Alam, Nurul	Director (MCH)	Directorate of Family Planning.	
2.	Ahmed, Shafquat	Deputy Director	IEM	
3.	Abdullah, M.M.	Assistant Chief	M/O. Health & Family Planning.	
4.	Ahmed, Nazir	Training Officer	RTC, Dhamrai.	
5.	Ahmed, Ashraf, U.	Assistant Professor	ISRT, University of Dhaka.	
6.	Akhter, Farkhunda	Senior Instructor	NIPORT	
7.	Ahmed, Sirajuddin			
8.	Adhikari, Harendra Nath	Medical Officer	GTZ	
9.	Ahmed, K.S.	Professor	Jahangir Nagar University.	
10.	Ali, Osman	Assistant. Chief	Planning Commission.	
11.	Begum, Jahanara	Director (Finance)	Family Planing Directorate.	
12.	Baqæe, Laila	Operations researcher	ICDDR,B	
13.	Begum, Mahmuda	Home Economist	RTC, Dhamrai.	
14.	Chowdhury, S.R.	Director	MIS	
15.	Chowdhury, Abul Khair	Research Officer	N/O. Health & Family Planning.	
16.	Fakir, G. Samdani	Sir. Research Economist	BRAC	
17.	Hai, A.H. Abdul	Deputy Director (FP)	Dhaka	
18.	Huq, Syed Azizul	Family Planning Officer	Dhamrai	
19.	Huda, Afroza	Program Officer	Asia Foundation	
20.	Huque, A.A. Zahidul	Acting MCH FP Co-ordinator	ICDDR,B	
21.	Hossain, M. Akhter	Statistician	NIPORT	

Sl. No.	Name	Designation	Organisation	Institute
22.	Islam, S.U.M. Zahirul	Deputy Secretary (Dev)	M/O. Health and Family Planning.	
23.	Islam, M. Nurul	Chairman	Deptt. of Statistics, D.U.	
24.	Khan, Syed Ahmed	Associate Professor	Deptt. of Sociology. D. U,	
25.	Khuda, Barkat—e	Professor Deptt. of Economics U. U.	Dhaka University	
26.	Khan, Md. Akhtaruz-zaman	Director (Admn.)	Directorate of Family Planning.	
27.	Kabir, M.	Associate Professor	Jahangir Nagar University.	
28.	Mitra, S. N,	Executive Director	Mitra & Associate.	
29.	Miyan, M. Alimullah	Associate Professor	IBA, Dhaka University.	
30.	Mabud, Farida	Sr. Research Associate	NIPORT.	
31.	Mabud, M. A.	Joint Chief	Planning Commission	
32.	Mia, Ahmedullah	Associate Professor & Director	ISWR, Dhaka Univercity.	
33.	Najmunnessa, Sayeda	Dy. Director (Admn.)	NIPORT.	
34.	Nessa, Salatun	Project Director(TBA)	NIPORT.	
35.	Noor, Ali, sk.	Population Specialist,	U.S. AID.	
36.	Rahman, A.J.M. Mizanner	Director	NIPSOM	
37.	Rahman, Shafiqur	Director	BIRC	
38.	Rasheed, S.M.	Asstt. Chief	M/O. Health and Family Planning	
39.	Rahman, Fazlur	Medical Officer,	ICDDR,B	
40.	Rashid, M, Abdur	Statistician	NIPORT.	
41.	Rahman, Bazlur	Deputy Chief	Population Development.	
42.	Rahman, Habibur	Dy. Director(FP)	Manikgonj.	
43.	Rahman, Mizanur	Consultant	GTZ	
44.	Shajidi. Nuzhat	Assistant. Programme Officer	PIACT	
45.	Sabir, A.A.	Statistician,	NIPORT	
46.	Sufian, A.J.M.	Associate Professor	Jahangir Napur University.	
47.	Talukder, A.H.	Professor	Deptt. of Statistics Dhaka University.	
48.	Uddin, M Mosleh	Associate Profeasor	Dept. of Statistics Dhaka University.	
49.	Uddin, Mosleh	Lecturer (PHC)	RTC. Dhamrai.	
50.	Waliullah, Syed	Director General,	NIPORT.	